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SELF-REGULATION AND FOREIGN LANGUAGE
VOCABULARY LEARNING AT THE UNIVERSITY LEVEL:
A PILOT STUDY

Önszabályozás és idegennyelvi szókincsfejlés egyetemi szinten: kísérleti tanulmány

A szókincsfejlesztésben alkalmazott önszabályozó képesség újabb vizsgálatából kiindulva a jelen kísérleti tanulmány az önszabályozás és a szóismeret szintjének összefüggését vizsgálja. Az eredmények bemutatása magyarországi angol szakos hallgatók körében végzett kisebb kísérleti tanulmány alapján történik, és azt támasztja alá, hogy ezen változók viszonya nem tükröz egyenes arányosságot. Nevezetesen az derül ki, hogy az elsajátítandó szókincs típusa és az annak megfelelő tanulási mód úgy függ össze az önszabályozó képességről adott értékeléssel, hogy az alacsonyabb nyelvi szinten állók esetében az önszabályozással sokkal erősebb korreláció tapasztalható, mint magasabb nyelvi szinten állóknál.

INTRODUCTION

This paper presents the results of a pilot research project which investigates a key issue in second language acquisition: the role of individual learner factors in vocabulary learning, specifically in the case of university-level second language majors. It has long been discussed that one of the greatest burdens that second language learners face is the acquisition of a large enough vocabulary which will allow them to interact in and, importantly, read in a second language. This burden is particularly acute for those users of the language who are engaged in higher education in a second language, an increasingly common situation both at home and abroad. This raises this paper's main research question of how individual learner factors affect the acquisition of the vast amount of vocabulary necessary for successful use of the language in academic settings.

To answer this question, a novel test of learners' self-regulatory characteristics concerning vocabulary acquisition (Tseng et al., 2006) was given to Hungarian university-level English majors and correlated with their scores on a test of vocabulary knowledge. Results, presented below, show a complex relationship between individual characteristics and vocabulary level which is reflective of the type of learning burden faced by students at varying levels of vocabulary knowledge.

LITERATURE REVIEW

Since the 1970s and the "good language learner" studies (Naiman et al., 1996), one important area of research in second language acquisition (SLA) has been describing what it is that learners do when learning a second language and explaining the relationship between these behaviors and the relative success and failure of learners. Until recently, SLA research in this area has focused on developing descriptions and theoretical explanations for language learning strategies, often defined as "...the special thoughts or behaviors that individuals use to help them comprehend, learn, or retain new information," (O'Malley & Chamot, 1990:1). The initial survey research of the 1970s later led to sophisticated taxonomies and explanations based on a theoretical foundation borrowed from cognitive psychology (e.g., Wenden & Rubin, 1987).

The most important taxonomy of second language learning strategies was developed by Oxford (1990). She elaborated on a 3-way classification of learning strategies: cognitive strategies, metacognitive strategies, and social affective strategies, which generally corresponds to those strategies which are used for the actual learning of the material, those which are used for organizing the material to be learned, and those strategies used for gaining contact with the material, respectively. This taxonomy has led to various research instruments and studies which have surveyed and classified students' learning strategies in a wide variety of applications throughout the years (e.g., Atay & Ozbulgan, 2007; Cohen, 1998; Chamot & O'Malley 1994).

O'Malley & Chamot (1990) have developed the most comprehensive theoretical approach to learning strategies, basing it on work done in cognitive psychology. They relate the learning and use of language learning strategies to the acquisition of cognitive skills, showing how conscious and deliberate use of strategies based on declarative knowledge leads to the proceduralization and possible automatization of strategy use, where in the end, users may not even be conscious that they are using strategies which they have previously learned (see Anderson, 1995 for a good description of this process). Thus, through applying a model of skill acquisition, O'Malley and Chamot are able to account for the development and use of language learning strategies.

While this work on language learning strategies has been progressing in the field of SLA, in research in educational psychology a new approach has been developed over the past 10 or so years where the over reliance on the concept of learner strategies has been questioned and supplanted by the broader concept of self-

regulation. As discussed in Tseng et al. (2006), the SLA approach to individual factors based on learning strategies has suffered from the problem of trying to classify a wide range of behaviors without being able to pinpoint the actual source of those behaviors. Indeed, anyone who has taught a foreign language cannot help but wonder why it is that some people engage in effective learning behaviors, and others do not, even after being taught language learning strategies. Thus, while describing those behaviors is necessary, an underlying explanation for the differences between those who engage in these behaviors and those who do not is necessary. This is what the concept of self-regulation may provide. As Tseng et al. point out, whereas learning strategies are product-focused, the concept of self-regulation is more process-focused, looking for underlying individual characteristics which may explain certain behaviors. This contrast between the two approaches can be clearly seen in the descriptors used to describe strategies versus self-regulatory capacity. Whereas learning strategies are in effect lists of specific behaviors (for example, note taking, self-talk, etc.), self-regulatory capacity refers to internal states or micro-processes (for example, monitoring, action control, and self-motivational beliefs) as well as what is traditionally called strategic behavior (p. 81).

The concept of self-regulation as developed in educational psychology is expressed in diverse models and descriptions, yet can be seen to be based on four basic assumptions (Pintrich, 2000), which stand in contrast to discussions of learning strategies in the SLA literature. These assumptions are: the “active, constructive” assumption, which sees learners as active participants in learning; the “potential for control” assumption, which views learners as having the potential to control aspects of their learning; the “goal, criterion, or standard” assumption, which assumes that learners will have some standard of comparison in terms of their learning and can set goals in order to achieve their aims; and finally, the assumption that behaviors are “mediators” between personality and environment. The SLA literature to date has almost exclusively focused on the final assumption in describing those behaviors without reference to learner internal characteristics, and notable exceptions are clearly based on the educational psychology literature (e.g. Graham, 2004).

In an attempt to bridge the gap between SLA and educational psychology research, Tseng et al. (2006) developed a test of self-regulation in language learning, specifically for the area of vocabulary learning. Their instrument is a 20-item test using likert scales to measure participants' reactions to statements about themselves based on five sub-areas of control which are seen to underlie self-regulatory capacity: commitment, metacognitive, satiation, emotion, and environmental

control. For example, an item relating to commitment control reads "When learning vocabulary, I have special techniques to achieve my learning goals," which is followed six-point likert scale ranging between "strongly agree" to "strongly disagree" (p. 98). What is clear here is that rather than listing potential behaviors, the focus is on whether or not the learners have developed their own strategies for learning vocabulary.

While Tseng et al.'s approach could be applied to any area of language learning, the choice of vocabulary acquisition as a starting point is of great value for those doing research on the acquisition of academic language, as the learning of a wide range of vocabulary items is the key to the development of academic reading skills and thus the attainment of content knowledge. Nation (1993) develops this point of the vital importance of vocabulary in academic success, showing that without the automatic access of the meanings of the 5000 word forms representing 3000 word families (p. 119), academic reading cannot proceed. Furthermore, if academic reading is problematic for students, then not only is retrieving and learning content knowledge from texts impossible, but students will not be exposed to the technical, academic and less frequent words which are also contained in these texts and necessary for reading comprehension of high-level texts, then stalling content learning and vocabulary learning altogether. Thus, the foundation of academic reading is the knowledge and automatic use of the first, most frequent 5000 words, or 3000 word families.

This leads to the research questions posed in this pilot study: what is the relationship between university-level English majors' capacity for self-regulation and their level of vocabulary knowledge? Initial expectations suggested that this relationship would be a relatively straightforward one: given a roughly homogeneous group of students, those experiencing greater levels self-regulation would be more successful at vocabulary learning than those experiencing lower levels. As will be shown below, while this expectation holds at a certain level, the relationship is more complex than initially expected.

METHODOLOGY

25 students participated in the study, all of whom were second or third year students at the Institute of English and American Studies (IEAS) at the University of Szeged. As students of the IEAS, they are all required to read complex, university-level academic texts in English in order to complete their courses, which

are themselves conducted in English. Having passed the “Academic English 1” exam at the end of their first year, these students have demonstrated that they have the sufficient English language skills and knowledge to begin their academic work in earnest. These students then represent an appropriate group for research on academic vocabulary learning: despite any differences in educational background up to this point, all students are assumed to have the basic skills necessary for beginning university-level academic work in English.

Participants were given two tests, the test of vocabulary learning self-regulation, as described above (Tseng et al., 2006), and the vocabulary levels tests (Nation, 1990). The vocabulary levels test provides an estimate of a learners' vocabulary knowledge in terms of numbers of words known in different word frequency levels, or bands. With this test it is possible to judge the relative amount of words known at the 2000, 3000, 5000, and 10,000-word levels. Furthermore, there is also a band for the “academic word list”, which contains those general words most likely to be found in academic, university-level text books. The test has been used on countless occasions for research and also for providing practical information for students concerning the exact type of vocabulary they need to focus on in their studies (Read, 2000).

RESULTS AND DISCUSSION

The scores for self-regulation in vocabulary learning can be seen in Table 1. Self-regulation scores are expressed in terms of the average score on a 1 to 6 scale with 1 corresponding to “strongly disagree” and 6 to “strongly agree”. It can be seen that across all subscales the average was a score of 4.3, with environmental control receiving the highest scores and metacognitive control the lowest. This would suggest, then, that on average, the participants most of the time “partially agree” with the descriptive statements. Results on the subscales for this instrument have been provided for general information, but given the small number of subjects, it is not clear how reliable it is to make comparisons between the scales.

Table I: Descriptive results for the test of self-regulation, and for vocabulary level

Self-regulation scores:							
		Type of control					Average
		Satiation	Emotion	Commitment	Metacognitive	Environmental	
All subjects							
	Mean	3.95	4.14	4.55	3.77	5.13	4.31
	SD	0.93	1.01	0.65	0.85	0.54	0.60
Grouped subjects							
+ .5SD vocab							
	Mean	4.2	4.35	4.73	3.88	5.15	4.46
	SD	0.86	0.57	0.56	0.73	0.43	0.43
-.5SD vocab							
	Mean	3.92	3.86	4.31	3.83	5.17	4.22
	SD	1.05	1.19	0.77	0.81	0.52	0.63
Vocabulary scores:							
		Word level					Average
		2000	3000	5000	Academic word list	10000	
All subjects							
	Mean	96.67	92.13	80.40	89.47	58.53	83.44
	SD	5.09	8.65	14.82	10.61	14.24	8.77
Grouped subjects							
+ .5SD vocab							
	Mean	99.33	99	94	97.33	71	92.13
	SD	1.41	1.61	6.25	3.06	8.32	2.77
-.5SD vocab							
	Mean	94.44	83.33	64.07	80.74	47.41	74
	SD	7.26	7.26	7.41	12.45	9.69	4.99

Concerning the level of vocabulary knowledge of the students, Table I also shows that while most students know the most basic words of English at the 2000

and 3000 word level, fewer students know the low frequency words which appear at the 5000 and 10,000 word levels. A level is considered to be problematic for students when less than two thirds of the words are known at that level (Nation, 1990), and thus this means that although the average numbers may appear to be appropriate for university-level work in English, on an individual level, many students fall below this two thirds cutoff point as can be seen through the relatively large standard deviations beginning with the 5,000 word level and up. This point will be returned to later.

The figures which are directly related to the research questions in this paper are the results of the correlation between the test of self-regulatory capacity and the vocabulary level of students. As can be seen from Table 2, the results show a quite mild correlation of $+.171$, which was not found to be significant. The fact that the results were not significant is not surprising as the number of participants in the pilot study was quite small, meaning that only a large effect size would be found significant with this number of participants. Also, being a pilot study the goal is to validate the methodology and refine the research questions for further research.

Table 2: Results of correlations between self-regulation and vocabulary.

Pearson correlation	
All subjects	$+.171$ $p = .208^*$
Grouped subjects	
$+.5SD$ vocab	$-.114$ $p = .375$
$-.5SD$ vocab	$+.56$ $p = .058$

*Note: all p -values are for 1-tailed tests

Having said this, though, such a small correlation of $+.171$ can be seen as a great disappointment: these results, if later proven statistically significant, would suggest that only a small amount of success in vocabulary learning can be accounted for the learners' self-regulatory behavior. And even if self-regulatory capacity is understood as only one force in energizing and enabling vocabulary learning,

one would hope that it would play a much larger role given the potential that it shows through the general literature on educational psychology. For these reasons, then, a closer analysis of the data was carried out which revealed a richer relationship between variables.

If the correlation for the whole group is rather small, perhaps the correlation for those learners who are the most successful and those who are the least successful would prove to be stronger? That is, it may be the case that only in the more extreme cases can the clear effects of self-regulatory capacity be seen. In order to investigate this, a post hoc selection of the subjects into two groups was carried out: those who scored much better than average on vocabulary knowledge, and those who scored much lower than average, as indicated by those participants scoring .5 standard deviations above or below the mean of the aggregate score on the vocabulary levels test.

The results of these correlations can be found in Table 2 under "grouped subjects", while descriptive statistics for these subgroups can be found in Table I. At first glance, these figures themselves also appear to be completely counterintuitive: the students with greater vocabulary knowledge have an almost zero correlation between vocabulary level and self-regulation (and in fact, a slight negative correlation!), while those with less vocabulary knowledge have a relatively strong correlation of $+.56$ between their vocabulary level and self-regulatory capacity. In essence, the higher level students' self-regulatory behavior has little or nothing to do with their success in vocabulary learning, while for the lower level students, success in vocabulary learning and self-regulation appear to be rather closely related. At first glance it would seem that the opposite results should have been obtained.

Again, these results are not statistically significant, as noted in the table, but, following the argument made above, this is a pilot study using a small number of subjects, out of which, in this case, two even smaller groups have been selected, and it would be unlikely to find significant results with such small numbers of subjects. Furthermore, with a p -value of $.058$, the correlation for the lower level of students can be seen to be approaching significance. Thus, in interpreting these pilot results, I will make the assumption that tendencies shown in this pilot study are not simply based on chance, and that with a larger number of subjects, these results would have a greater likelihood of being significant – something which will, of course, need to be empirically validated at a later date.

Returning to the discussion, an explanation for these rather unusual results is needed, and I would argue that, rather than these results being counterintuitive or

not interpretable, they are indeed the exact results we would expect to find once we take into consideration the nature of the vocabulary to be learned and learning process itself. In the remainder of this discussion I will outline my explanation for these unpredicted and complex results. My argument will be that due to the nature of the vocabulary learning burden that university-level students face and the nature of the learning process involved (that is, in this particular academic context), self-regulatory capacity is more important at lower levels of vocabulary knowledge than higher. To develop this argument, first, I will show how many students are not prepared to do university-level work in English upon beginning an English major and how their focus must be on learning basic vocabulary. I will then describe the learning burden and types of learning which must be employed.

When students enter a university-level English major in Hungary, they are expected to read academic textbooks and papers that might be found at any university in an English-speaking country, and this potentially represents a quite large leap in level of difficulty for many students from the kind of work that has been required of them in secondary school. Anecdotal evidence suggests that few if any students have ever engaged in English non-fiction, academic reading of any type previous to entering the university. Furthermore, it appears that few students have been engaged in any substantial amount of reading fiction in English before entering the university. Thus, when students enter a university-level English program, the demands placed on them in terms of reading are substantially greater and different than they have ever experienced.

This lack of experience is reflected in the vocabulary level scores which have been collected from entering first year students at our institution for several years now. Recent data, coming from the same vocabulary levels test used in this present paper, shows that 56% percent of students lack the basic vocabulary knowledge of the first 5000 most frequent words in English needed to read university-level texts, and only 16% have adequate knowledge at the 10,000 word level – a level far below that of average native speaking college students (Nation, 2000: 9). Thus, many non-native students are faced with a dramatic problem of not knowing enough vocabulary to be able to effectively read university-level texts.

What is important to note here is the nature of the vocabulary learning burden that students face at different levels of vocabulary knowledge and how this potentially interacts with perceptions of self-regulatory capacity. Those students at lower levels are still learning some of the most frequent words of general and academic English. As Nation (2000) points out, these are the most common words that learners must know and recognize automatically for reading to be successful.

In fact, these words are so common, that 89 % of an academic text is composed of these words alone (p.8). This is basically a finite group of words, and, in fact, enough is known about these common words that there are materials readily available for students to help them learn exactly these words. The important point here is that for students at lower levels of vocabulary learning, these relatively unknown words are constantly turning up in the academic reading that they have to do. It stands to reason that more successful students in this lower level group are regularly aware of the need to learn these reoccurring words and take some steps to do that. Thus this is the exact group for whom self-regulation in vocabulary learning is so important: those who have greater self-regulatory capacity will potentially be more successful at learning this concrete list of reoccurring words.

The learning burden for students at higher levels of vocabulary is substantially different. Learners at this level may have already mastered the first few thousand most basic words of English as well as the most common academic words which are found in university-level texts. The task which they are then faced with, then, is learning perhaps 11% of the words of an academic text, which is comprised of very low frequency words and technical terms. By their very nature, low frequency words are not commonly encountered, and thus an overt, conscious approach to learning vocabulary (that is, through making word lists or flash cards) would not be very productive indeed. In fact, some words are so rare that instances of encountering them may be months or years apart, and only vast amounts of reading may help in acquiring these words. Furthermore, the technical vocabulary which appears in academic texts may not be seen as vocabulary words to be learned, but as concepts to be acquired. Indeed, in the case of technical vocabulary, simply knowing the definition of words – such as, for example, “phoneme” or “standard deviation” – is not the same as understanding the concept. Thus, when students are learning these words, they are learning the subject matter content of their courses, not vocabulary words. For these students, then, they may indeed not be learning vocabulary in such a way as to be able to report on their self-regulation of it. That is, when students report on their personal self-regulatory states concerning vocabulary learning, they may not have anything concrete to report on, and their reports may be inconsistent and random, as reflected in the near zero correlation which was found. This stands in clear contrast to the lower-level students, who face a concrete vocabulary learning burden – they have something to report on, and the results are quite explainable: after three or more semesters of academic work in English, the more successful students are those that have greater self-regulator capacity for vocabulary learning than lower level students.

This contrast between the experiences of lower level and higher level students is also reflected in the nature of the learning which the different groups are engaged in. Here I will argue that lower level students face a task where explicit learning is appropriate and most successful, while higher-level students face a task where, at least in part, implicit learning is more likely to be successful and explicit learning is not. These two types of learning experienced by these groups match with their reports of self-regulatory capacity.

The explicit learning of language involves the conscious learning of declarative knowledge which may eventually be developed into procedural knowledge. Implicit learning, on the other hand, has traditionally be defined as learning which occurs when the learner is conscious neither of the process or the product of learning (DeKeyser, 2003). A key point concerning explicit and implicit learning of second languages is that the effectiveness of the two types of learning depends on the patterns or forms which are to be learned. As shown by DeKeyser (1995), categorical rules are easier to learn via explicit learning, while variable rules and prototypical patterns are, perhaps, easier to learn via implicit learning. Some items such as word forms themselves may be effectively learned implicitly, though the criteria of complete lack of consciousness of the process or product may be unlikely (DeKeyser, 2003). Thus two different processes may be implicated in different types of learning, one conscious and rule-based, and one less likely to be conscious, and based on instances or general patterns.

Furthermore, from the point of view of learning and memory, a distinction can be made concerning the processing of linguistic input which supports and reinforces the above points concerning explicit and implicit learning. As discussed by Robinson (1995; 2003), linguistic data can be seen to be processed using two types of processing, data-driven processing and conceptually-driven processing. Conceptually driven processing can be seen as deeper processing where forms encountered in working memory are analyzed and related to other information made active in working memory. Data-driven processing, on the other hand refers to instances of a particular form being recorded and stored. What is important for this discussion here is that conceptually-driven processing can be related to explicit learning – through, for example, the recognition that a frequent word is a word encountered before or studied before – while data-driven processing can be related to implicit learning – through, for example, a partial word form being recorded in memory and added to the accumulated potential that this form may be recalled again. The result is that the explicit learning of common words relies on a largely different process than the implicit learning or less common words.

Tying these threads together, it can be seen that when students experience reading difficulty through not understanding commonly encountered words, an explicit process of learning words through use of the dictionary and systematic recording and memorizing these words is appropriate. On the other hand, much less frequent words may, potentially, be learned through implicit processes which rely on the gradual accumulation of encounters with these infrequent words until such time that the learner learns the words in context or looks them up, if ever. Furthermore, these two different types of learning, then, correspond naturally to different states of awareness concerning self-regulatory capacity. Those students engaged in the explicit learning of frequent words will be conscious of this process and have more developed experiences to reflect on when asked about their self-regulation. Those students who have learned the basic words explicitly are in part faced with the task of the implicit learning or recording of potentially quite infrequent word forms, a task for which the capacity for the self-regulation of vocabulary is not directly important or likely to be needed. Thus, these more advanced students are not likely to have reliable intuitions about their self-regulation to report on.

In this way, the results found in this pilot study, that lower level learners report more self-regulatory capacity than higher level learners, makes sense when viewed from the perspective of the differential vocabulary learning burden that these two groups face and the differential learning processes marshaled to meet this burden. One group is frequently reminded of the urgent explicit task of learning a finite set of basic vocabulary in order to expedite their academic reading, while the other group, having learned the basic words, is faced with the more difficult and long-term task of learning infrequent vocabulary by encountering these words through vast amounts of reading. The answer to the research question posed in this pilot project, then, is that the relationship between self-regulation and vocabulary learning is a complex one, depending on the type of vocabulary to be learned, and the learning process used to that end.

CONCLUSIONS AND IMPLICATIONS

The results of the this pilot study need to be confirmed though carrying out a large-scale study, something which is a current, on-going project. Using a larger number of subjects will hopefully allow for more reliable results, solid statistical testing, and may allow for the uncovering of more subtle patterns, possibly con-

cerning the subscales of the test of self-regulation and different levels of vocabulary knowledge.

It is clear that for students to be successful learners of academic English at the university level a high degree of self-regulation is necessary. The task at hand for learning and the methods used are completely different than students may have encountered in secondary school. Furthermore, it is also clear, that, concerning vocabulary, the learning task is different depending on the vocabulary level of students. Providing contexts in which students can develop self-regulatory abilities is crucial at the early stages of university life for students at an English department. Failure to develop this ability will, in terms of vocabulary, lead to extreme difficulty in reading academic texts, certainly a lack of feelings of self-efficacy, and the reliance on other strategies than traditional learning methods in order to somehow complete their studies. Finally, a key question, larger than the scope of this paper, is how self-regulatory capacity can be developed in university students. Can it be learned in a similar way as learning strategies can be learned via the progression from explicit knowledge to implicit procedures? In the answer to this question lies the key to helping students become more successful in terms of learning vocabulary and in wider areas as well.

BIBLIOGRAPHY

- Anderson, J. R. 1995. *Learning and Memory: an Integrated Approach*. New York: John Wiley & Sons, Inc.
- Atay, Drin and Cengiz Ozbulgan. 2007. Memory strategy instruction, contextual learning and ESP vocabulary recall. *English for specific purposes* 26(1): 39–51.
- Chamot, A. U., & O'Malley, J. M. 1994. *The CALLA handbook: Implementing the cognitive academic language learning approach*. Reading, MA: Addison-Wesley.
- Coady, James and Thomas Huckin (eds.). 1997. *Second language vocabulary acquisition*. Cambridge: Cambridge University Press.
- Cohen, A. D. 1998. *Strategies in learning and using a second language*. New York: Longman.
- DeKeyser, Robert. 1995. Learning second language grammar rules: an experiment with a miniature linguistic system. *Studies in Second Language Acquisition*, 17: 379–410.
- DeKeyser, Robert. 2003. Implicit and explicit learning. In Doughty C. and M. Long (Eds.) *The Handbook of second language acquisition* (pp. 313–348). Oxford: Blackwell.
- Graham, Suzanne, J. 2004. Giving up on modern foreign languages? Students' perceptions of learning French. *The modern language journal* 88(2): 171–191.
- Naiman, N., Fröhlich, M., Stern, H.H., and A. Todesco. 1996. *The good language learner* (New edition). Clevedon: Multilingual Matters.
- Nation, Paul. 1990. *Teaching and learning vocabulary*. Boston: Heinle & Heinle.
- Nation, Paul. 1993. Vocabulary size, growth and use. In Schreuder, Robert & Bert Weltens (eds.) *The bilingual lexicon*. Amsterdam: John Benjamins, (pp. 115–135).

- Nation, Paul. 2001. *Learning vocabulary in another language*. Cambridge: Cambridge University Press.
- O'Malley, J. Michael and Anna Chamot. 1990. *Learning strategies in second language acquisition*. Cambridge: Cambridge University Press.
- Oxford, Rebecca. 1990. *Language learning strategies: What every teacher should know*. New York: Newbury House.
- Pintrich, Paul R. 2000. The Role of Goal Orientation in Self-Regulated Learning. In: *Handbook of Self-Regulation*, Monique Boekaerts, Paul R. Pintrich, and Moshe Zeidner (eds.). San Diego, CA: Academic Press.
- Read, John. 2000. *Assessing vocabulary*. Cambridge: Cambridge University Press.
- Robinson, P. 1995. Attention, memory, and the "noticing" hypothesis. *Language Learning*, 45(2), 283–331.
- Robinson, Peter. 2003. Attention and memory during SLA. In Doughty C. and M. Long (eds.) *The Handbook of second language acquisition* (pp. 631-678). Oxford: Blackwell.
- Tseng, Wen-ta, Dörnyei, Zoltán and Norbert Schmitt. 2006. A new approach to assessing strategic learning: The case of self-regulation in vocabulary acquisition. *Applied linguistics* 27(1): 78–102.
- Wenden, A, and J. Rubin (eds.) 1987. *Learner strategies in language learning*. Englewood Cliffs, N.J.: Prentice Hall.