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The relationship between productive knowledge of collocations and academic literacy in tertiary level students

Abstract / Opsomming

This research explores tertiary level L2 students' mastery of the collocations pertaining to the Academic Word List (AWL) and the extent to which their knowledge of collocations grows alongside their academic literacy. A collocation test modelled on Laufer and Nation (1999), with target words selected from Coxhead's (2000) AWL was administered to students from the North-West University, Potchefstroom Campus. Results indicate that these collocations pose problems for L2 students. This finding supports and complements Nesselhauf's (2005) and Laufer and Waldman's (2011) findings that collocations are challenging for L2 students, even at advanced levels. Furthermore, scores in the collocation test correlate significantly with the Test of Academic Literacy Levels (TALL), indicating that knowledge of collocations corresponds to students' academic literacy. The pedagogical consequences these results have for the widespread attempt to improve tertiary level students' use of collocations in writing are discussed.

Key words: productive knowledge of collocations, academic literacy, academic word list, L2 writing

Hierdie navorsing ondersoek die mate waartoe L2-studente op tersiêre vlak die kollokasies

wat gelys word in die Akademiese Woordelys (AWL) bemeester en tot watter mate hulle kennis van kollokasies verbeter namate hulle akademiese geletterdheid verbeter. 'n Kollokasietoets gebaseer op die van Laufer en Nation (1999) met teikenwoorde wat geselekteer is uit Coxhead (2000) se AWL is aan studente van die Noordwes-Universiteit, Potchefstroom Kampus gegee. Die resultate toon dat kollokasies probleme veroorsaak vir L2-studente. Hierdie bevindinge is ondersteunend en aanvullend tot Nesselhauf (2005) en Laufer en Waldman (2011) se bevindinge dat kollokasies 'n uitdaging stel aan L2 studente, selfs aan dié op 'n gevorderde vlak. Verder kom die puntetellings van die kollokasietoets sterk ooreen met die puntetellings wat studente behaal vir toets wat akademiese geletterdheid evalueer (TAG). Hierdie resultaat dui aan dat kennis van kollokasies korreleer met studente se akademiese geletterdheid. Die artikel sluit af met 'n bespreking van die pedagogiese implikasies wat die resultate inhou vir die wydverspreide poging om studente op tersiêre vlak se gebruik van kollokasies in skryfwerk te verbeter.

Sleutelwoorde: produktiewe kennis van kollokasies, akademiese geletterdheid, akademiese woordelys, L2-skryfwerk.

1. Introduction

At the level of tertiary education, university students are expected to write in appropriate language that is acceptable in academic contexts. However, there is often a gap between lecturers' expectations and students' performance (Van de Poel, 2006; Van de Poel, 2008; Van de Poel and Gasiorek, 2007; De Rycke, 2010). Several attempts have been made to bridge this gap. The University of Antwerp (Belgium) for instance, offers two writing courses, *All Write* (Van de Poel and Gasiorek, 2007) and *Scribende* (Van de Poel, 2006) to first and second year students in order to develop the writing component of academic literacy. Both text books used in these courses at the University of Antwerp approach academic literacy from the perspective of raising language awareness. Students are introduced to the principles of writing an academic text and trained to write one through a series of reflection and reinforcement exercises. While these course materials develop students' awareness of academic requirements, the course developers did not include collocations in their course and materials design, nor did they point to the AWL, which consists of a list of words frequently used in academic contexts¹ (Coxhead, 2000).

Similarly, the North-West University (South Africa) designed a course intended to assist students to achieve academic literacy soon after they enter university (Van der Walt, 2011). The learning outcome of the course is to support students to the point where they can function in an academic environment. It is offered to first year students from all the faculties and institutes. Among other things, students are introduced to the techniques of reading and writing scientific texts. The basic design of the course is founded on a range of skills and abilities involved in academic literacy that Weideman (2007) groups into three general categories of tasks, i.e. seeking, processing, and producing information. A wide range of activities are proposed to the students in order to acquire integrated language study abilities. More interestingly, students are introduced to the AWL and are reminded that it consists of words they have to know in order to be able to produce appropriate academic texts. However, there are no activities proposed to explicitly raise students' awareness of collocations of words listed in the AWL. The same holds for other course books aimed at developing students' academic literacy, such as Weideman's (2003, 2007) among others.

However, collocations are important for L2 students (Barfield and Gyllstad, 2009). They help them sound like native speakers (cf. Pawley and Syder, 1983; Wray, 2002; Nesselhauf, 2005) and can predict overall proficiency (Gitsaki, 1999; Bonk, 2001; Eyckmans et al., 2004; Gyllstad, 2007, 2009; Keshavarz and Salimi, 2007; Nizonkiza, 2011a, 2011b). Collocations are particularly important at the productive level, i.e. writing and speaking (Howarth, 1998; Schmitt, 1998; Bonk, 2001; Boers et al., 2006; Eyckmans, 2009). Gledhill's (2000) position that no one can pretend to write an appropriate academic text without a thorough knowledge of the collocations of the field she/he is writing in, illustrates this point. Collocations have been the focus of some studies that aimed to identify students' problems in writing.

1 More details on the list can be obtained from Coxhead (2000).

These studies involved analyses of students' essays in corpora. Cowie (1998), Granger (1998), Howarth (1998), Nesselhauf (2005), Paquot (2008), and Laufer and Waldman (2011) are typical examples. A common observation to these studies is that collocations cause difficulties to L2 students even at advanced levels.

Given that L2 students find collocations difficult to master and use, and the importance of collocations as far as characterising overall L2 proficiency is concerned, especially in academic texts, there is a need to explore their problematic nature in order to propose remedial strategies. This study intends to complement the previous studies and will focus on the AWL. It corresponds with Granger (1998), Howarth (1998), Nesselhauf (2005), and Laufer and Waldman (2011) but takes a different approach. It is experimental in nature rather than corpus-driven. For pedagogical purposes, an experimental study where investigated items are more controlled seems to be of great help in gaining better insight into the difficult nature of collocations. With pre-determined target items, not only can we compare participants' performance, but items themselves can also be compared to one another. This allows the researcher to find out which collocations are more problematic than others. This research is a diagnostic study and will test collocations of words listed in the AWL in order to answer the following questions:

- (i) To what extent do tertiary level L2 students of English use collocations pertaining to the AWL?
- (ii) Does knowledge of collocations from the AWL grow in correspondence with L2 students' academic literacy?

2. Literature review

2.1 Approaches to collocations

Following their widely accepted importance in a foreign language context, collocations have attracted research attention over the past few years. The available literature indicates that they have been defined and approached differently, mainly because of their complex nature (Schmitt, 1998) as well as the different theoretical perspectives and methodologies adopted by researchers (Nesselhauf, 2005; Eyckmans, 2009). This is probably the reason why several terms² are used in literature to refer to collocations/multi-word units (Gledhill, 2000; Wray, 2000, 2002; Nesselhauf, 2005; Shin and Nation, 2008). According to Wray (2002) and Nesselhauf (2005) for instance, researchers sometimes use different terms to refer to the same phenomenon or use the same terms to refer to completely different things. Even though no common definition exists thus far, researchers agree on the main approaches to collocations (Nesselhauf, 2005; Gyllstad, 2007; Granger and Paquot, 2008).

2 I refer the reader to Wray (2000: 465) for an exhaustive list of terms used in literature.

Most sources view Firth (1957), who made the apt statement that words should be known by the company they keep, as having pioneered the study of collocations. His approach to collocations is what is known as the frequency-based tradition. Proponents of this tradition consider frequency as the characteristic feature of collocations. Halliday and Sinclair, perceived as Neo-Firthians, belong to this tradition, which they have expanded. Halliday (1966) defines a collocation as “a linear co-occurrence relationship among lexical items which co-occur together” and developed the notion of lexical items as collocation constituents. Sinclair’s definition of collocation is “the occurrence of two or more words, within a short space of each other in a text” (Sinclair, 1991: 170). Sinclair was the first to introduce the notion of space of co-occurrence, referred to in the literature as ‘span’, and the notions of ‘node’ and ‘collocate’ that refer to the main word and the co-occurring word respectively. Following this tradition, collocations can be seen on a continuum from free combinations to idioms, through weak, medium strength, and strong collocations. Therefore, free combinations such as*government declaration*; and idioms with completely opaque meanings, such as to *kick the bucket*, a *straw in the wind*, etc. are accepted as collocations because they co-occur frequently.

However, as remarked by Howarth (1998), Schmitt (1998), Shin and Nation (2008), and Nizonkiza (2012b) among others, frequency alone does not suffice to describe collocations, even though it is an important factor. Commenting on the top 100 collocations list (in spoken English) they created, Shin and Nation (2008: 345) said that “the list is not very surprising, except perhaps that greetings like ‘good morning’, ‘good afternoon’, ‘good evening’, and ‘how are you?’ do not occur in the top 100, which indicates that frequency is not everything”. They therefore suggest that frequency should be balanced adequately with other criteria, especially for teaching purposes.

The second main approach to collocations is the phraseological tradition. Proponents of this tradition propose to define collocations by considering the syntactic nature of the collocation constituents and their degree of substitutability. For example, *powerful engine* is an English collocation, while *strong engine* is not. The adjectives *powerful* and *strong* are close in meaning, but cannot be used interchangeably. *Powerful* can, however, be replaced with other adjectives such as *big*, *small*, *twin* etc. to make correct combinations with *engine*. This is also the case in the combination *strong tea*, which is an appropriate collocation and where the adjective *strong* can be used interchangeably with other adjectives such as *stewed*, *weak*, *cold*, *hot*, *fresh*, etc., but not with *powerful* if it describes tea; clearly indicating that while substitution is possible, it is restricted. According to Nesselhauf (2005), this tradition has been influenced by the Russian phraseology tradition and has Cowie (1998) as a typical representative. Cowie divides collocations into two types, i.e. *composites* and *formulae*. Expressions such as *good morning* and *how are you* are formulae with a primarily pragmatic function. Collocations belong to composites, and as opposed to formulae, have a primarily syntactic function. Therefore, “unlike the frequency based approach, the phraseological approach consistently requires that the elements of collocations should be syntactically related” (Nesselhauf, 2005: 17). As remarked by Nesselhauf (2005) and Gyllstad (2007), scholars in the same tradition may differ in the way they define collocations. For instance, Benson *et al.* (1986, 1997) and Nation (2001), among others, accept frequency as a determining

factor in defining collocations, although they primarily adopt a phraseological approach. For them, a collocation has to be “restricted, transparent and frequent” (Nesselhauf, 2005: 17), which gives rise to a new approach that is conciliatory in nature.

The new approach to collocation reconciles the two main traditions and suggests including elements from both, which has the advantage of fixing the limitations of either tradition (Nesselhauf, 2005). This is indeed the reason why it has been referred to in the literature as the *best of the two worlds* (Gyllstad, 2007; Granger and Paquot, 2008). This approach is very much in line with Handl’s (2008) dimensional approach to collocations, according to which collocations are the result of semantic transparency, collocational range, and related frequency of the constituents. The components of the approach are therefore semantic, lexical, and statistical. Handl (2008) suggests considering these as continuums insofar as a collocation is situated somewhere on these dimensions. The present study adopts the conciliatory approach to collocations and the definition provided in the *Oxford Collocations Dictionary for Students of English* (2002: vii) as the operational definition. Collocations in this study should therefore be understood as “the way words combine in a language to produce natural-sounding speech and writing” and will be restricted to verb + noun combinations for the reasons explained in section 3.1.

2.2 Importance and the difficult nature of collocations in L2 writing

L2 practitioners agree that collocations are more important at the productive level, in other words in speaking or in writing (Howarth, 1998; Schmitt, 1998; Bonk, 2001; Boers *et al.*, 2006). Gledhill (2000: 1) emphasizes the importance of collocations in writing by stating that they “...are a key part of the writing process, and it is impossible for a writer to be fluent without a thorough knowledge of the phraseology of the particular field he or she is writing in”. Gledhill adds that each section of an academic text has conventional formulae and salient words that are consistent and that change from one section to the next, indicating that collocations play a role in the processing of the text as a whole. Paquot (2008: 102) supports Gledhill’s view by saying that such words “fulfil organizational and rhetorical functions prominent in academic writing, e.g. introducing a topic, hypothesizing, summarizing, contrasting, explaining, evaluating, concluding, etc.”

Clearly, typical word combinations, hence collocations, are of utmost importance and have to be used when one aims to produce an appropriate academic text. However, many collocation errors occur in production (Nesselhauf, 2005; Eyckmans, 2009), and collocations still cause difficulties to L2 students even at advanced levels (Nesselhauf, 2005; Laufer and Waldman, 2011). This is a clear indication that L2 students fail to use relevant collocations. According to Nesselhauf (2005), L2 students need a large repertoire of collocations in order to write fluently, but unfortunately they have less exposure to the target language and therefore do not have adequate vocabulary, especially the typical vocabulary used in academic contexts.

The problematic nature of collocations has over the past few years led some scholars to attempt to identify the main problems L2 students are faced with in writing. Notable

examples include Cowie (1998), Granger (1998), Howarth (1998), Nesselhauf (2005), Paquot (2008), and Laufer and Waldman (2011). The most comprehensive study to date on the difficult nature of collocations in L2 writing is Nesselhauf's (Laufer and Waldman, 2011). She has observed that although many factors affect L2 use of collocations, 50% of the mistakes are L1 related, a result confirmed by Laufer and Waldman (2011). Granger (1998) and Paquot (2008), among others, have also observed L1 influence in L2 students' writings. L2 students also tend to overuse the few collocations they know, while under-using many other collocations that could otherwise help them sound more native-like (Granger, 1998; Paquot, 2008). Paquot (2008) attributes this to (i) a possible similarity between L1 and L2 and (ii) the emphasis placed on individual words in teaching. Another cause of errors in collocation use among L2 students is that collocations are semantically transparent and do not seem to cause problems for comprehension. As a consequence, they remain unnoticed as problematic by both teachers and students (Gouverneur, 2008; Laufer and Waldman, 2011). Overextending the use of non-restricted verbs such as *make* may also result in erroneous collocations such as "make an experience" (Nesselhauf, 2005). The same holds true for confusing one of the collocation's constituents with another semantically related word, which definitely results in a collocation error; for instance, reach *findings* vs. reach a *conclusion* (Howarth, 1998). On the basis of what precedes, it is clear that collocation errors arise from many factors. I agree with Lewis (2000) and Ozaki (2011) that using collocations correctly requires pedagogical treatment.

3. Methodology

3.1 The test battery

A collocation test was developed in order to answer the questions pursued in this study. The collocations investigated consist of Verb + Noun combinations because they (i) constitute frequent occurrences; (ii) are difficult for L2 students; and (iii) contain the most important information for communication (Nizonkiza, 2012a). Furthermore, when expressing themselves, people tend to start with the noun, which stands for the action they want to do and then think of a verb that goes with it, i.e. standing for how to do the action³. Target words, sixty in total, were selected from the AWL (Coxhead, 2000), using a systematic random sampling technique (Babbie, 1990). Six words were selected from each of the ten sub-lists⁴ in the AWL. The procedure was to select every *n*th (10th in this case) word from a random starting point; and whenever the *n*th word was not a noun, the next one was selected. The *Oxford Collocations Dictionary for Students of English* (2002), which presents collocations according to the meaning of the target word and the syntactic categories of the collocates, was consulted for both collocates and sentential contexts in which the words were embedded.

3 Nizonkiza (2012a) took this reason from the *Oxford Collocations Dictionary for Students of English* (2002) while the three first were taken from Gyllstad (2007).

4 The AWL is composed of 10 sub-lists, each of which consists of 60 words, except the 10th that has 30 words only.

Once the target word was selected, the procedure was to look it up in the collocation dictionary under the Verb + Noun entry with collocations where examples are provided being retained. Phrasal verbs where the preposition may help in finding the relevant word and the verbs *have*, *make*, and *give*, which are very common and for which there were only two letters to supply; and the verb *to be* were avoided. The frequency of all the collocates was checked against Nation's (2006) frequency list and most of them were found to belong to either the 1000-word or the 2000-word band. Only seven of the collocates were found to belong to the 4000-word or 5000-word band and were replaced. For instance, in the sentence 'Getting the right qualifications will enhance your employment prospects', *enhance* (4000-word) was replaced with *improve* that belongs to the 1000-word band. The following collocates were replaced for the same reason: *preserve*, *pursue*, *minimize*, *amend*, *abandon*, and *restore*; respectively collocates of *tradition*, *goals*, *risk*, *schedule*, *vehicle*, and *integrity*. All of these belong to the 4000-word band except *minimize*, which belongs to the 5000-word band. It is worth noting that nouns that were not found in a Verb + Noun combination were also changed. This is the case for the words *circumstances*, *series*, *abstract*, *adult*, *medium*, *colleague*, *compatibility*, and *visualization*.

Once the sentences were selected, the collocates were deleted with only the first two letters retained in order to avoid other possible words (cf. Laufer and Nation, 1999). The test was closely modelled on Laufer and Nation's (1999) test and measures controlled productive knowledge. The latter refers to,

the ability to use a word when compelled to do so by a teacher or researcher, whether in an unconstrained context such as a sentence writing task, or in a constrained context such as a fill in task where a sentence context is provided and the missing target word has to be supplied (Laufer and Nation, 1999: 37)

Participants were instructed to fill in the missing letters of the collocates with an example (see below) provided for transparency. During the test administration, the relevant lecturers introduced the researcher and specifically told the students that the activity was meant for research purposes only. The test lasted for 15 to 45 minutes and the scoring pattern was a coding of 0 for incorrect or no answer and 1 for correct. It is worth noting that grammatical and spelling mistakes were not considered⁵.

Instruction: Complete the underlined words in the sentences below.

Example: They **ma**..... a beautiful couple.

They **make** a beautiful couple.

⁵ Although not reported here, a trial test was administered to participants from different learning levels for validation.

3.2 Participants

Participants were recruited from the North-West University, Potchefstroom Campus (N = 204) and took the test at the beginning of the second semester before being exposed to the academic literacy module. The participants were first year students from different faculties and institutes attending the academic literacy module. They indicated many native languages, mainly Afrikaans, Setswana, and English and were aged between 18 and 20 on average. It is important to note that participants who were students in their second or third year were excluded from the analysis. Students who did not finish the test or who did not write their names were also excluded. Given the large number of students, the course module was presented in different groups and each group took the test on a different date. These students have enough exposure to English outside the classroom, mainly through TV, radio, newspapers, and the internet.

4. Results

4.1 Items description

It is commonly agreed that the ideal test should be reliable (internally consistent) and should discriminate between participants with different levels (Green, 2013). The reliability of a test is indicated by Cronbach's Alpha, where the higher the Alpha, the higher the internal consistency of the items (Pallant, 2007). In the present study, the Alpha of .870 indicates that the test items can be considered internally consistent. The Corrected Item-total Correlation (CITC), which is measured on a scale of -1 to +1, was computed in order to test the discriminating power of the test items. The higher the figure, the better the item discriminates between test-takers. The items were weighed against Ebel's (1979) scale: .40 and higher: definitely good items; .30 to .39: reasonably good items; .20 to .29: marginal items in need of improvement; and below .19: poor items, to be revised or eliminated. As can be seen from Table 1, the CITC shows that 80% of the items function well. Even though as many as 12 items (20%) fall below the cut-off point, an in-depth analysis of these items shows that only five of them cause the Alpha to increase if deleted. The latter must be changed or eliminated, while the other items that do not cause any change in the Alpha if deleted, need improving. Overall, given the number of good items, the test can be said to function well.

Table 1: Collocation test Corrected Item-total Correlation on Ebel's Scale

CITC	.40 and higher	.30 to .39	.20 to .29	Below .19
Item number	11, 20, 28, 30, 32, 33, 37, 41, 43, 44, 46, 57	3, 4, 6, 7, 9, 16, 17, 18, 19, 23, 27, 29, 31, 34, 36, 39, 45, 51, 52, 56	1, 5, 10, 21, 22, 25, 26, 38, 42, 47, 48, 49, 50, 54, 55, 59	2, 8, 12, 13, 14, 15, 24, 35, 40, 53, 58, 60
Total items	12 (20%)	20 (33.3%)	16 (26.6%)	12 (20%)

The TALL items were analysed for comparative purposes, even though the test proved to be reliable and valid. Cronbach's Alpha was computed, which is as high as .883, indicating that the test is internally consistent. The CITC was also computed and results are summarised in Table 2. As can be seen from the table, the CITC shows that as many as 78.4% of the items function well if weighed against Ebel's scale. This is to say that the items discriminate between participants performing differently, i.e. participants with different academic literacy levels. However, some items, i.e. 21.5% fall below the cut-off point, with only two of these items causing the Alpha to increase if deleted and therefore contributing to lowering it. The two items should be revised, while the others that do not negatively affect the Alpha should be improved as they fall below the cut-off point (cf. Green, 2013).

Table 2: TALL Corrected Item-total Correlation on Ebel's Scale

CITC	.40 and higher	.30 to .39	.20 to .29	Below .19
Item number	6, 7, 8, 12, 14, 18, 30, 31, 37, 43, 44, 47, 48, 56, 57, 64	1, 2, 3, 4, 20, 21, 24, 28, 29, 32, 33, 34, 35, 36, 38, 40, 49, 52, 54, 55, 62, 63, 65	5, 17, 19, 22, 41, 42, 45, 46, 50, 51, 53,	9, 10, 11, 13, 15, 16, 23, 25, 26, 27, 39, 59, 60, 61
Total items	16 (24.6 %)	24 (36.9%)	11 (16.9%)	14 (21.5%)

4.2 Mastery of collocations pertaining to the Academic Word List

The first research question pursued in this study concerns the extent to which tertiary level L2 users of English master collocations of words listed in the AWL. In order to answer this question, scores on the collocation test were analysed and students were sorted into different groups based on their scores. The first group consisted of the top scorers with 80% and more, i.e. a score of at least 48 out 60 in the test. The rest of the

students were assigned to groups on the basis of a 6 point difference. The test consisted of six items selected from each of the ten different sub-lists in the AWL, which means that a difference of 6 points corresponds to one sub-list more/less. The top scorers who achieved a score of 80% and more comprised 4% of the students. The other students achieved in the following descending order: 12% of the students scored between 70% and 80%, while 20% of the students scored between 60% and 70%. A further 30% of the students scored between 50% and 60%. As many as 34% of the students scored lower than 50%, with 21% who scored between 40% and 50% and 13% who scored below 40%.

In order to ensure that the groups performed differently, post-hoc comparisons were drawn using the Bonferroni-test. The results in Table 3 (column 2) indicate that the mean differences between the different groups and their related Sig. (of .000 or .001, column 4), are statistically significant. The scores were subsequently weighed against Schmitt's (2003) suggested cut-off point at 80% (as reported in Xing and Fulcher, 2007). Results show that only 4% of the participants mastered collocations from the AWL. Figure 1 provides a graphic representation of the scores. Overall though, 66% of the students achieved above the average, while 34% achieved below the average. These results give an overall picture of the extent to which students have mastered collocations from the AWL and clearly indicate that the students are very different in the way they perform, which provides an answer to the first research question.

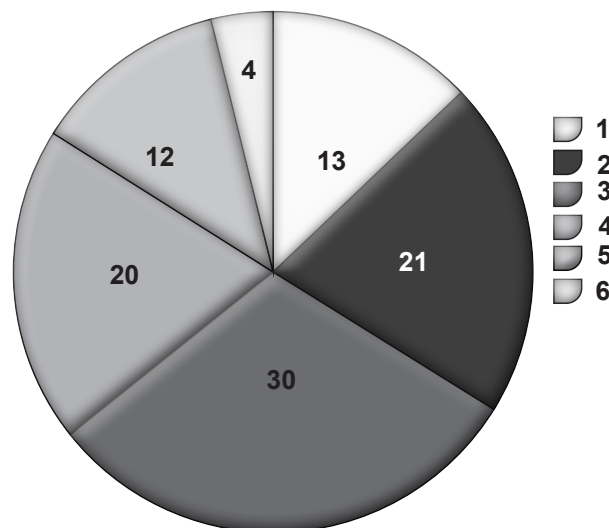


Figure 1: Collocation Scores Distribution

1 = below 40%; 2 = between 40 & 50%; 3 = between 50 & 60%

4 = between 60 & 70%; 5 = between 70 & 80% and more

Table 3: Multiple Comparisons of Groups' Performance

(I) AWL Score Range	(J) AWL Score Range	Mean Difference (I-J)	Std. Error	Sig.
1	2	-7.836*	.463	.000
	3	-13.466*	.450	.000
	4	-19.693*	.520	.000
	5	-25.138*	.638	.000
	6	-29.856*	1.052	.000
2	1	7.836*	.463	.000
	3	-5.631*	.431	.000
	4	-11.858*	.504	.000
	5	-17.302*	.625	.000
	6	-22.020*	1.044	.000
3	1	13.466*	.450	.000
	2	5.631*	.431	.000
	4	-6.227*	.492	.000
	5	-11.672*	.615	.000
	6	-16.389*	1.038	.000
4	1	19.693*	.520	.000
	2	11.858*	.504	.000
	3	6.227*	.492	.000
	5	-5.445*	.668	.000
	6	-10.163*	1.070	.000
5	1	25.138*	.638	.000
	2	17.302*	.625	.000
	3	11.672*	.615	.000
	4	5.445*	.668	.000
	6	-4.718*	1.132	.001
6	1	29.856*	1.052	.000
	2	22.020*	1.044	.000
	3	16.389*	1.038	.000
	4	10.163*	1.070	.000
	5	4.718*	1.132	.001

4.3 Does knowledge of collocations grow with students' academic literacy?

The second research question posed in this study investigates the extent to which collocational knowledge grows with tertiary level students' academic literacy. This was answered by running the Pearson correlation between participants' collocation test scores and their TALL scores. As Figure 2 indicates, the scores in the collocation test positively correlate with TALL scores. The correlation is moderate, but significant, with a correlation coefficient of .444**. In answer to the second research question, this analysis shows that collocation mastery grows in correspondence with academic literacy.

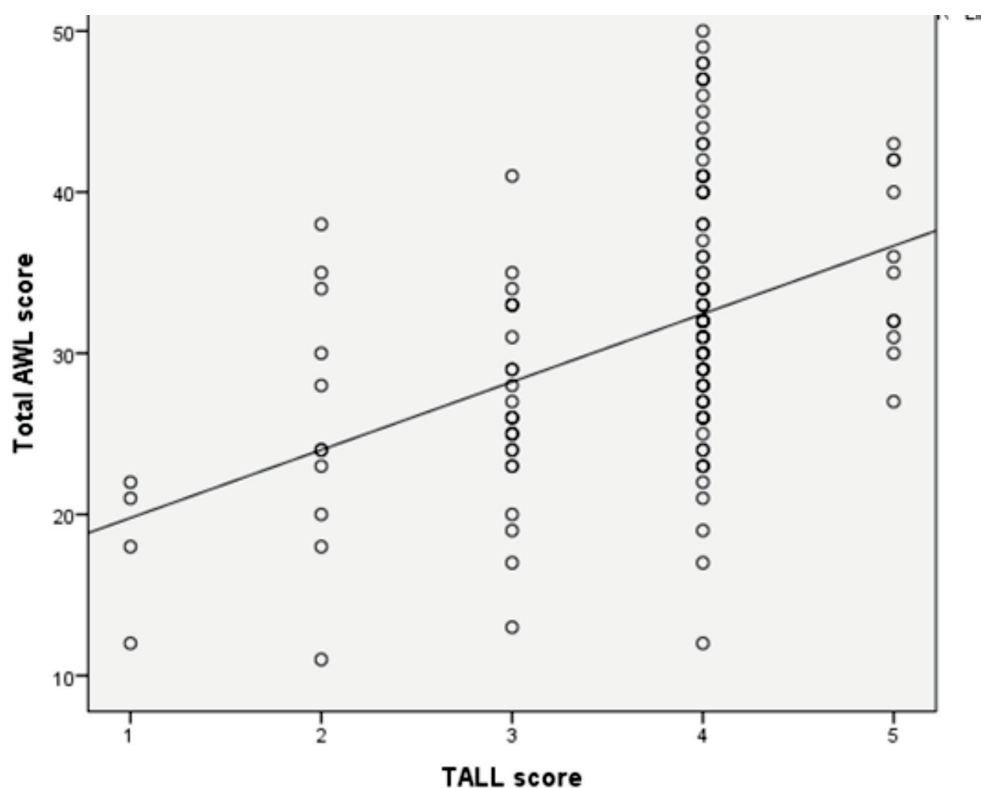


Figure 2: Correlation between TALL and Collocation Scores

5 Discussion

This research explores the extent to which tertiary level L2 students have mastered controlled productive knowledge of collocations pertaining to the AWL and whether or not knowledge of these collocations grows in correspondence with academic literacy. The

two aims of the research were achieved by administering a collocation test, developed to this end, to participants from the North-West University, Potchefstroom Campus; the scores of which were correlated with the TALL (placement test students take on entering the university) scores.

With regard to the first aim of the research, i.e. exploring the extent to which collocations from the AWL are mastered, the study is exploratory in nature and results indicate that students can be divided into six different groups. Overall, 66% of the participants scored above average; however, only 4% of them were able to reach the cut-off point (80%) necessary to function independently (Schmitt, 2003). What we learn from this finding is that collocations from the AWL cause problems to tertiary L2 students, which supports earlier findings that collocations in general pose problems to L2 students even at advanced levels (Nesselhauf, 2005; Laufer and Waldman, 2011). In this regard, Lewis (2000), Laufer and Waldman (2011), Ozaki (2011), and Nizonkiza (2012a), among others, rightly observe that collocation use in general needs pedagogical treatment. Assisting students by means of an intervention might be one good option. The results of the present research, which indicate the extent to which collocations from this essential list are known, constitute an important step in this direction. They give us an idea of the extent of collocational knowledge students already have, the place to start to explicitly teach collocations to help students use them correctly.

The second aim pursued in the research is to examine the extent to which controlled productive knowledge of collocations increases as academic literacy develops. The scores in the collocation test were mapped onto the placement test (TALL) scores and showed a significant correlation. This finding corroborates previous findings that productive knowledge of collocations can predict overall proficiency (Gitsaki, 1999; Bonk, 2001; Eyckmans *et al.*, 2004; Boers *et al.*, 2006; Nizonkiza, 2011b, 2012a), which it extends to academic literacy. The pedagogical implication of this finding is that the intervention suggested above can follow the same route as the academic literacy modules that are taught at the North-West University. The placement test separates students into levels and modules are suggested accordingly. Likewise, a decision on the number of collocations to present to the students should consider their academic literacy levels.

6 Conclusion

The importance of collocations in academic texts has been long established and is supported by the results reported in this study, which aimed to examine the extent to which collocations from the AWL are mastered by tertiary level L2 students and to examine the relationship between academic literacy and collocational competence. As discussed above, the results suggest that (i) controlled productive knowledge of collocations pertaining to the AWL pose problems to tertiary L2 students, with only 4% of the participants reaching the cut-off point; and (ii) controlled productive knowledge of collocations develops in correspondence with academic literacy as the collocation

and placement test scores correlate significantly. These results answer the research questions addressed in this research, while, at the same time, posing challenging questions worth considering in follow-up studies:

1. First of all, in terms of pedagogical treatment for collocation mastery discussed above, one could suggest developing a collocation course module with words selected from the AWL to trial in pre/post-experimental design (in progress). This may enable researchers to see whether or not this brings about an increase in the number of collocations students know, which could therefore be attributed to the explicit teaching of collocations.
2. Secondly, the AWL consists mainly of nouns, but it also includes verbs, adjectives, and adverbs. This research focussed on the Verb + Noun combination only. A follow-up study can be helpful to uncover whether or not the conclusions arrived at would still be the same with other types of collocations.
3. Thirdly, in line with Nation's (1990) observation that tertiary level L2 students need a productive knowledge of the 3000 most frequent words in order to function independently in academic contexts, a follow-up study testing the overall productive knowledge of participants, especially with regard to the 2000 and 3000-word bands, can offer new insights (in progress).
4. Finally, during data analysis, a number of spelling problems became evident, although not the focus of the present research. Some of them might be L1 related (afekt vs. affect), some are the result of confusing sounds (conceder/conseder vs. consider), or are the consequence of using computerized spell checkers. While computers can help address some problems, for instance 'attend' vs. 'atend'; they cannot do so in the case of for instance to 'higher' a vehicle vs. to 'hire' a vehicle. A follow-up study to further explore this problem may prove to be of great value.

All in all, this research clearly demonstrates that tertiary level L2 students master the AWL collocations to varying degrees, which corresponds with their academic literacy levels. The research therefore lays some basic groundwork from which tertiary institutions can start to determine exactly what tertiary level students need in terms of the collocations they have to be taught before they can function efficiently in an academic context.

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Appendix: Collocation test



Productive Vocabulary Test

Name:

Native language:

Date:

Level of study (year):

Start hour:

Faculty:

End hour:

University:

Instruction: Complete the underlined words in the sentences below.

Example: They ma..... a beautiful couple.

They make a beautiful couple.

1. Villagers get together every year to ke..... this old tradition alive.
2. Institutions have to ex..... appropriate contexts in which to present examples of language in use for the children.
3. In order to fight against terrorism, the UN agreed on plans to res..... the export of arms to certain countries.
4. This evening, we need to ad..... the issue of legalisation of soft drugs.
5. She went on to ex..... the principle behind what she was doing.
6. We have to con..... many aspects of pollution in order to better tackle it.
7. If you do not have a regular income, you may be unable to ob..... credit.

8. It is difficult to ju..... the impact of the changes on employment patterns.
9. The latest developments will hardly af..... the perception of the crisis by the public.
10. The family will es..... temporary residence in the manor house.
11. They had to pe..... an in-depth analysis of the results.
12. Investigators are likely to ad..... a set of theories about the princess's death.
13. The school planned to in..... comments from parents about the new curriculum.
14. We must make a real effort to pr..... cooperation between universities and industry.
15. They have to of..... a basic framework of ground rules for discussions.
16. Use enough gravel to fo..... a layer about 50mm thick.
17. The food shortage is likely to re..... crisis proportion.
18. She failed to co..... the task she had been set.
19. The new computer can al..... access to all the files.
20. Such a game may re..... great concentration.
21. Many developing countries hope to ac..... their goals of providing free primary education to everyone.
22. It is hoped that the new scheme will cr..... jobs in the region.
23. Society evolved to en..... a technological phase.
24. The government will re..... new statistics on the cost of living.
25. He was advised to at..... the police academy.
26. We need to ma..... contact with the organisation although it may be difficult after many years.
27. Banks will seek to re..... their exposure to risks.
28. Higher productivity has enabled them to im..... their profit margin.
29. Any surgery may de..... great precision.

30. Hotels that di..... this symbol offer activities for children.
31. Students have demonstrated that they should re..... big allocation for books.
32. The qualification should in..... my capacity to earn more.
33. It is good to co..... experts for a balanced diet.
34. Se..... the index to find the address of the data file!
35. The president aimed to co..... key ministries and reshuffled his Cabinet.
36. These criteria were used to de..... the scope of the curriculum.
37. Analysts think that the British government should pr..... aid to the area.
38. The local council will su..... new equipment for the playground.
39. You need a special password to ac..... this file.
40. Scientists should de..... technological innovations to save more energy.
41. A public outcry was needed to se..... her release from detention.
42. The results of the experiment su..... the thesis.
43. Doctors had to re..... his appendix.
44. The country needs to ra..... hard currency to pay for its oil imports.
45. We have to fo..... the safety guidelines laid down by the government.
46. Getting the right qualifications will im..... your employment prospects.
47. We could not meet because of the strike and had to ar..... a new schedule.
48. For your travel, find someone to take you to the airport or hi..... a vehicle.
49. It is the duty of the local community to pr..... accommodation for the homeless.
50. The prime minister seemed anxious to av..... controversy about these appointments.

51. Torrential rain can ca..... erosion on the hillside.
52. The management has to ac..... mediation, otherwise the strike will never be resolved.
53. It is possible to in..... further refinement on previous methods.
54. Willing volunteers needed to bu..... teams of helpers to carry everything in.
55. This is a new drug used to tr..... depression.
56. They demanded the right to ho..... peaceful assemblies.
57. It is up to the user to en..... the integrity of the data they enter.
58. It is difficult to re..... the enormity of the tragedy.
59. For the annual Thesis Award, the school had to se..... a panel of scientists from different universities.
60. His designs in..... reluctance to conform to fashion.

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