

Adjective-noun collocations competence across proficiency levels

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Abstract

The present study, a partial replica of Nizonkiza and Van de Poel's (2014) previous study, examines productive adjective-noun collocational competence among English majors at a university in Burundi. To this end, a collocation test was presented to learners from different class levels. Results indicate that adjective-noun collocations represent a challenge for English majors including those close to completing their Bachelor of Arts degree in English language and literature. Furthermore, collocational competence may also discriminate between learners at different learning stages. Results from this study also confirm the role attributed to frequency in achieving mastery of collocations. Based on these results, teaching implications to improve collocational competence are discussed.

Keywords: collocations; adjective-noun collocations; proficiency levels in English; English proficiency in EFL contexts

1. Introduction

Research indicates that vocabulary has proven to be important for mastering a second and or foreign language (henceforth L2). According to many scholars, the number of words L2 learners know is indicative of their overall proficiency (e.g., Meara and Buxton 1987, Meara and Jones 1988, Nation 1990, 2006). Especially, since the late 80s and early 90s, interest in vocabulary research has steadily increased, with studies establishing a firm relationship between vocabulary size – the number of words one knows – and text coverage (e.g., Beglar 2010; Cobb 2007; Gyllstad, Vilkaite and Schmitt 2015; Laufer and Ravenhorst-Kalovski 2010; Nation 1990, 2006; Nation and Beglar 2007; Schmitt 2008; Schmitt, Cobb, Horst and Schmitt 2017; van Zeeland and Schmitt 2013). The most recent comprehensive overview of vocabulary size estimates and text coverage is presented in Schmitt et al. (2017). These authors argue that “[o]verall, the consensus is that about 98% is the lexical coverage which is most appropriate for most purposes involving written text” (Schmitt et al. 2017: 215).

More recently, several studies have revealed that one aspect of vocabulary known as “collocations” is important and could also predict overall linguistic proficiency of L2 learners, and it may be impossible for L2 learners to achieve great fluency without it (McCarthy and O'Dell 2007; Nation 2001). Collocations are typical word combinations with restricted co-occurrence, such as *good fortune*. For example, while the adjective *good* collocates with the

noun *fortune*, other adjectives close in meaning such as *nice*, *pleasant*, or *wonderful* do not collocate with it (Nguyen and Webb 2017: 299). A relationship between knowing collocations and overall proficiency seems to have been established at least at the level of comprehension, with more proficient learners mastering more collocations (e.g., Gyllstad 2007, 2009; Keshavarz and Salimi 2007; Nizonkiza 2011a, 2015). At the level of productive use, even though studies have not yet confirmed this relationship, a number of studies have pointed to the observation that more proficient learners use more collocations (e.g., Boers, Eyckmans, Kappel, Stengers and Demecheleer 2006; Bonk 2001; Eyckmans, Boers and Demecheleer 2004; Eyckmans 2009; Gitsaki 1999; Nizonkiza 2011b, 2012, 2014). These studies caution, however, that even at an advanced level, learners still have difficulty using collocations (e.g., Laufer and Waldman 2011, Nesselhauf 2005, Siyanova and Schmitt 2008). Based on the widely attested importance of collocations and the challenges they pose for L2 learners, there seems to be a consensus that collocations should be taught explicitly (e.g., Boers, Demecheleer, Coxhead and Webb 2014; Ellis 2001; Howarth 1998; Lewis 2000; Nattinger and DeCarrico 1992; Nation 2001; Nesselhauf 2005; Nizonkiza and Van de Poel 2014, 2019; Szudarski and Carter 2016).

For now, however, it is still not entirely clear which collocations to teach based on learners' proficiency level (e.g., Durrant and Schmitt 2010; Granger and Meunier 2008; Jones and Durrant 2010; Nizonkiza 2012, 2017; Nizonkiza and Van de Poel 2014, 2019; Nizonkiza, Van Dyk, and Louw 2013). This is, according to many scholars, a burning issue that should be addressed (e.g., Durrant and Schmitt 2010; Jones and Durrant 2010).

Frequency seems to be an important factor which has been explored in a few studies (e.g., Durrant and Schmitt 2010; Jones and Durrant 2010; Nizonkiza and Van de Poel 2014, 2019). Results seem to indicate that frequency should be considered an important selection criterion of collocations to teach (e.g., Jones and Durrant 2010; Nizonkiza and Van de Poel 2014, 2019). However, since collocations are of different types and may not develop exactly in the same way across proficiency levels, researchers believe it is important to examine learners' collocation knowledge across learning stages and/or proficiency levels (Boers et al. 2006; Gyllstad 2007; Nizonkiza 2011b, 2012, 2015) and also compare mastery of the different types of collocations (Nizonkiza and Van de Poel 2014; Nizonkiza, Van Dyk, and Louw 2013). The present study endorses this view and aims to measure productive knowledge of adjective-noun collocations across different learning stages. It replicates Nizonkiza and Van de Poel (2014) who compared verb-noun and adjective-noun collocations to determine which type can be less challenging than the other and should thus be taught first. Results from Nizonkiza and Van de Poel (2014) show that adjective-noun collocations can be more challenging than verb-noun collocations. The study also found that only upper intermediate and advanced level students master both types of collocations at the 2000- and 3000-word bands while offering one of the first major attempts to make size estimates of collocations knowledge.

These results are certainly informative and offer additional insight into the topic. However, the authors did not report adjective-noun collocational competence across proficiency levels and word bands, falling somewhat short of what could have been an important step towards laying groundwork for establishing a collocations competence baseline. Mastery of collocations across learning stages with word frequency considered is important information that should not be implied or based on what we already know about verb-noun collocations. In addition, making size estimates for teaching implications is not a straightforward activity and may require conducting multiple studies involving different learners. At a time when researchers interested

in teaching collocations are wondering about what could be the baseline for collocations competence (Durrant and Schmitt 2010), the present study contributes to this conversation in an attempt to establish adjective-noun collocations competence in relation to both learning stages and word frequency. Currently, very few studies, if any, have examined adjective-noun collocational competence across proficiency levels and word bands. To my knowledge, only Nguyen and Webb (2017) reported adjective-noun collocational competence in association with word bands. Nguyen and Webb's (2017) study revealed that English majors do not master even collocations of words from the 1000-word band. Dokchandra (2019) also reported poor performance on both grammatical (e.g., verb-preposition and adjective-preposition) and lexical collocations (e.g., verb-noun and adjective-noun) among third-year students from different faculties at a university in Thailand. With these concerns and the progress made so far in mind, the present study is a partial replica of Nizonkiza and Van de Poel (2014) and attempts to answer the following questions:

1. What is the adjective-noun collocations competence among English majors at a university in Burundi?
2. Does adjective-noun collocations competence among English majors vary from one class level to another?
3. Does frequency play a role in adjective-noun collocations competence?

2. Review of the literature

2.1 Defining collocations

In recent years, scholars have shown growing interest in the topic of collocations but defining this concept has not always been easy (Fontenelle 1994; Gyllstad 2009; Nesselhauf 2005; Wray 2000, 2002, 2013). The different angles from which collocations have been researched could account for this lack of a commonly agreed upon definition (Eyckmans 2009; Nesselhauf 2005; Wray 2000, 2002, 2013). Frequency and collocation constituents seem to have been the central elements in the definitions commonly cited in the literature. Lewis' (1997: 8) definition that collocations are "the readily observable phenomenon whereby certain words co-occur in natural text with greater than random frequency" is a good example of the role attributed to frequency. This definition holds true for Henriksen (2013: 29) for whom collocations are "frequently recurring two-to-three word syntagmatic units". Definitions that place frequency at the centre of determining what counts as collocations fall into what is known in the literature as the "corpus-based approach" (Gyllstad 2007), the proponents of which include Firth (1957), Halliday (1966), Sinclair (1991), and Durrant (2014), amongst others.

The other major approach often paralleled with the corpus-based approach is the phraseological approach (Gyllstad 2007). Proponents of this approach include Cowie (1994), Howarth (1996, 1998), Moon (1998), and Nesselhauf (2003, 2005). For example, Nesselhauf (2003: 224) states that the concept of collocation "is used to denote a type of word combination [...] rather than co-occurrence of words in a certain span" This author builds on Cowie's (1994) notion of restricted combinations and proposes two criteria for a word combination to be considered as a collocation operationalised through verb-noun combinations in her study. The first criterion is "[t]he sense of the verb (noun) is so specific that it only allows a small set of nouns (verbs)" (e.g., *dial a number*), while the second is "[t]he verb (noun) cannot be used in this sense with all nouns (verbs) that are syntactically and semantically possible" (e.g., *take a*

picture/photograph is an acceptable combination in English, but **take a movie/film* is not). The third approach adopts a conciliatory tone and is referred to by some scholars as “the best of the two worlds” (Gyllstad 2007: 15). The present study adopts the conciliatory approach and uses the definition provided in the *Oxford collocations dictionary for students of English* (McIntosh et al. 2009: v), a dictionary which was designed as an instructional as well as a reference tool. In this dictionary, collocations are defined as,

[...] the way words combine in a language to produce natural-sounding speech and writing. For example, in English you say strong wind but heavy rain. It would not be normal to say heavy wind and strong rain. And whilst all four of these words would be recognized by a learner at pre-intermediate or even elementary level, it takes a greater degree of competence with the language to combine them correctly in productive use.

As appears in this definition, “the way words combine” aligns with the phraseological view. While this may give the impression that the definition falls under the phraseological approach, the dictionary compilers acknowledge that the point of departure is selecting salient collocations from a corpus based on their number of occurrences. This observation is confirmed in Klotz (2003: 58), who also contends that the dictionary editors were able to find a “useful compromise between both positions”.

2.2 Measuring collocational competence

As the topic of collocations gained popularity, researchers were interested in testing them. Scholars have designed collocations tests for a better grasp of what collocations are, how they grow, and the extent to which they characterise language development. The same way this is done for vocabulary in general, we have receptive and productive tests of collocations. While some tests aimed to identify deviant combinations – “miscollocations” – that learners make (e.g., Granger 1998, Laufer and Waldman 2011), others measured collocations in association with overall proficiency (e.g., Bonk 2001; Gitsaki 1999; Gyllstad 2009; Nizonkiza 2011a, 2015) and also examined the role of frequency in collocations mastery (e.g., Nizonkiza 2011a, 2015) both receptively and productively. While for now verb-noun collocations are by far the most widely investigated, adjective-noun collocations are attracting growing research attention. Given the focus of the current study and for comparative purposes, previous literature with studies exploring verb-noun and adjective-noun collocational behaviour across proficiency levels and/or word frequency bands will be reviewed in this section.

Receptive measures have used different techniques such as translation (from L2 to L1), definition, matching, multiple choice, and recognition tasks. As can be seen from the example below, Macis and Schmitt (2017) adopted a definition technique. They embedded the target collocations (adjective-noun) in sentences, underlined and highlighted them in bold and instructed participants to give their meanings in English or Spanish, L1 of the participants.

Example:

“Because of her personality, she is known as the **queen bee**.”

(Macis and Schmitt 2017: 327)

Results from this study show that participants achieved poor performance on adjective-noun collocations, with an average of about 33%. A further analysis of participants' scores revealed "clear effects of year at university, time spent abroad, and time spent reading in English" on students' performance (Macis and Schmitt 2017: 331).

The multiple-choice format is another technique used by scholars to measure collocation knowledge among L2 students. Nguyen and Webb (2017) investigated verb-noun and adjective-noun collocations. As can be seen from the example below (Nguyen and Webb 2017: 309), they used a multiple-choice format:

- | | | | | |
|--------------------|-----------|------------|---------|----------|
| • advantage | a. get | b. give | c. have | d. take |
| • energy | a. charge | b. protect | c. save | d. share |
| • attention | a. lose | b. make | c. pay | d. place |

Results from their study indicate that collocations were far from being mastered, not even at the 1000-word band, with a score of less than 50%. Moreover, the study revealed that word frequency is an important factor in collocations mastery while knowing collocations is positively correlated with knowing single words. This poor performance on collocations confirms earlier findings that collocations remain challenging for even advanced learners (e.g., Barfield 2003; Laufer and Waldman 2011; Nesselhauf 2003, 2005). The importance of word frequency confirms previous findings that more frequent words are mastered earlier (Nizonkiza 2015). Nizonkiza (2015) who also used a multiple-choice format to examine verb-noun collocations knowledge across proficiency levels and word frequency bands pointed to the same conclusion. In addition, from Nizonkiza's (2015) study, we know that mastery of collocations positively correlates with proficiency level.

Nizonkiza (2015) was a follow-up study of an earlier one by Nizonkiza (2011a), who also obtained similar results that learners' proficiency level and word frequency are important factors in mastering collocations. Nizonkiza (2011a) used another technique – the Word Associate Test – to investigate these factors. The positive correlation between learners' proficiency and mastery of collocations was also found in Mochizuki (2002), who used a multiple-choice format test, and Keshavarz and Salimi (2007), who adopted different techniques, namely fill-in-the-gaps format and a cloze procedure. However, this relationship was not found in Barfield's (2003) study in which another technique was employed. Barfield (2003) adopted a self-report technique and asked participants in his study to rate collocations on the following scale¹: "(i) I don't know this combination at all, (ii) I think this is not a frequent combination, (iii) I think this is a frequent combination, (iv) This is definitely a frequent combination". Given that a self-report of this nature could be difficult for students, especially at low proficiency levels, and may not reflect students' real levels, the positive association from the studies reviewed above should not be questioned because of the results obtained in Barfield (2003). In addition, apart from Barfield's (2003) study, there seems to be a clear tendency demonstrating a positive relationship between knowledge of collocations and overall proficiency.

Gyllstad's (2007) study was undertaken with these conflicting results in mind and two tests were developed and validated, namely COLLEX and COLLMATCH. These tests are used

¹ This scale was taken from Gyllstad (2007: 57).

concomitantly and measure receptive knowledge of collocations. They have been used across a range of proficiency levels of Swedish learners of English (high school and undergraduate students). While COLLEX adopts a multiple-choice question format, COLLMATCH adopts a yes/no format. The type of collocations tested in both tests is verb-noun (e.g., draw conclusion), a choice made based on what is available in the literature for comparative purposes. The target nouns were selected from Kilgarriff's (1996) list and their collocates – verbs – from the *Oxford Collocations Dictionary for Students of English* (McIntosh et al. 2002). In a series of consecutive studies, Gyllstad (2007) has demonstrated that both tests could discriminate between proficiency levels, with students from upper-level classes outperforming those from lower-level ones. These tests were validated in Gyllstad's (2009) study and today, they are the most widely cited in the literature as correlating with vocabulary size, overall proficiency, and discriminating between proficiency levels. Wolter and Gyllstad (2011) also used COLLMATCH and the results from their study confirm that the test discriminates between learners at different proficiency levels.

Regarding measuring productive knowledge of collocations, learner corpora and elicitation techniques are the two popular approaches that have emerged (Barfield and Gyllstad 2009, Gyllstad 2007, Laufer and Waldman 2011). The first technique analyses learners' written productions in terms of collocations use, where the main aspects investigated are errors and their causes as well as learners' performance in comparison with their native speaker counterparts (e.g., Laufer and Waldman 2011).

Elicitation techniques that measure collocational competence in a more controlled setting are relevant to this study, and the remainder of this section will give an overview of the results available in the literature. Nizonkiza (2017) investigated verb-noun collocations in a controlled setting – known in the literature as “controlled productive knowledge”, modelled on Laufer and Nation's (1999) test format – across proficiency levels. Target nouns were selected from the AWL while their collocations (verbs in the verb + noun combinations) along with the sentential contexts in which they were embedded were selected from the *Oxford Collocations Dictionary for Students of English* (Crowther et al. 2002). Results from this study revealed that knowledge of collocations significantly correlated with proficiency level, which entails that collocational competence may grow alongside proficiency. Moreover, an analysis of the results along with word frequency bands showed that frequency may play an important role in collocations mastery, as performance significantly varied across word frequency bands.

The controlled production test format was also adopted by Forsberg Lundell and Lindqvist (2014) and Forsberg Lundell, Lindqvist, and Edmonds (2018). Forsberg Lundell and Lindqvist (2014) adopted this test format but instead of providing the first two letters, as is the case in Nizonkiza (2017) above, they provided only one letter (Forsberg Lundell and Lindqvist 2014). The target nouns were selected (based on their frequency) from https://www.lex Tutor.ca/freq/lists_download/, while their collocates and example sentences were selected from *Les Voisins De Le Monde*² available at, <http://redac.univ-tlse2.fr/voisinsdelemonde/>. The test was presented to Swedish participants residing (long residence) in France. The results indicate that while it is possible for L2 users to attain nativelike competence in general vocabulary knowledge, collocations remain especially difficult for them. In a replication study, the test was used by Forsberg Lundell et al. (2018) who administered it to intermediate and

² The study measured French collocations and is the first of its nature. These sources are two newspapers, respectively, *Le Soir* (Belgium) and *Le Monde* (France).

advanced Swedish learners of French. The results show that collocational competence positively correlates with proficiency, with C1 students performing significantly better than B2 on the CEFR scale³.

Similar results were obtained by Ebrahimi-Bazzaz, Samad, Ismail, and Noordin (2014) who used a traditional C-test – where “the second half of every key word in a phrase is deleted, leaving the first and last sentence of the passage intact” (Ebrahimi-Bazzaz et al. 2014: 157) – to assess verb-noun collocations across proficiency levels (year one to year four at a university). Differences in performance were significant between each of the two groups except years one and two. This was also the case in Nizonkiza (2012) who did not find any significant difference between the two lowest levels of participants in his study. These results confirm earlier findings obtained by Revier (2009) who investigated Danish learners of English (using cloze procedure), and who found differences between two classes separated by two years but not one year of study. Verb-noun and adjective-noun collocations were the subject of investigation in Dokchandra (2019), who aimed to compare performances on different types of collocations using a fill-in-the-blanks technique. Overall, the results from this study show that collocations are challenging for students from all the faculties that participated in the study, also correlating with the results obtained by Farghal and Obiedat (1995) and Jaén (2007). No significant difference was found between the different fields although there was one at the receptive level. Adjective-noun collocations proved to be more challenging than verb-noun collocations, a result that conflicts with Nesselhauf’s (2005) findings but supports Nizonkiza and Van de Poel’s (2014). Regarding grammatical collocations, verb-preposition collocations proved to be more challenging than adjective-preposition. Cloze procedures were also used in Bahns and Eldaw (1993), Bonk (2001), and Eyckmans et al. (2004). Results from these studies are consistent with the observations above that collocational competence may grow with proficiency level.

3. Methodology

3.1 Collocation test

For this research, a collocation test used in an earlier study (Nizonkiza and Van de Poel 2014) was adopted (an example is presented in Appendix A). This test was developed by selecting nouns from Nation’s (2006) word list at the 2 000-word, 3 000-word, and 5 000-word levels. The Academic Word List (Coxhead 2000) was also retained and 10 words were selected from each of the word bands considered, resulting in a total of 40 nouns. Once the nouns were selected, the next step was to decide on their collocates (adjectives) which were selected from the *Oxford Collocations Dictionary for Students of English* (Crowther et al. 2002). The sentences in which the collocations were embedded also came from this collocations dictionary. As appears in the example below, the test required participants to supply the adjectives, i.e., the collocates. They were deleted, but the first two letters were provided to make the test more controlled. The test measures controlled productive ability, which is defined by Laufer and Nation (1999: 37) as:

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

³ The Council of Europe has written a Common European Framework for Reference (CEFR) of Language Use that distinguishes between six proficiency levels from beginner to advanced: A1, A2, B1, B2, C1, and C2.

context such as a fill in task where a sentence context is provided, and the missing target word has to be supplied.

The construct of the collocation measured is controlled since participants are tested on the constituents of pre-determined collocations. Both the nouns and their adjective collocates are determined by the researcher and giving the first two letters of the collocates determines which ones are measured. Cronbach's Alpha of the test as indicated in the original study is .840 and the test was adopted in the present study with no changes.

3.2 Participants

Participants in this study are English majors from the University of Burundi in their second ($n = 76$) and third ($n = 128$) years of their Bachelor of Arts degree. They were recruited through two lecturers who were teaching the two groups at the time the data were collected. An invitation was sent to the students who were also informed that their participation in the study was meant for research purposes and would not affect their grades in any way. The students accepted the invitation to participate and sat the test the next day⁴. These participants speak four languages mastered to different degrees. English is the language in which they are majoring, a language they have also been exposed to for six years at secondary school. French is an official language in Burundi while Swahili is an official language in countries of the region such as Kenya and Tanzania and which is being promoted in Burundi. Swahili has indeed been taught in Burundi primary schools for the last 14 years. The fourth language is Kirundi, the students' mother tongue and the official language in Burundi.

4. Results

As mentioned in the methodology section, the test adopted for the purpose of this study was used in an earlier one with a Cronbach's Alpha of .840. Since this test was used and validated, item analysis is not reported here, but it is worth noting that Cronbach's Alpha in this study is .813.

4.1 Adjective-noun collocations competence among English majors at the University of Burundi

The first research question examines performance of participants in this study, English majors from the University of Burundi, on adjective-noun collocations. To answer it, participants' scores were averaged, and the results are presented in Table 1.

Table 1: Mean scores on adjective-noun collocations

	2000-word (max. = 10)	3000-word (max. = 10)	5000-word (max. = 10)	AWL (max. = 10)	TOT (max = 40)
Mean	6.82	4.34	2.08	5.73	18.94
SD	1.55	1.60	1.32	1.43	4.06
Minimum	3	1	0	3	10
Maximum	10	9	6	9	33

⁴ It is worth noting that students sat the test the next day since they were attending an intensive course scheduled every day for two weeks.

As can be seen from Table 1, the overall score achieved is 18.94 out of 40. This mean score was mapped onto Schmitt, Schmitt, and Clapham's (2001) cut-off point (which is 80%). According to Schmitt et al. (2001), students may be granted lexical competence of words if they achieve a score of 80% or more⁵. Based on this cut-off point, the mean required for mastery would be 32 out of 40, which is much higher than what participants in this study achieved. The scores at each frequency band should be 8 out of 10; however participants did not obtain such a score at any of the word bands. These results answer the first research question and show that adjective-noun collocations are yet to be mastered by the participants in this study.

4.2 Adjective-noun collocations may grow with class level

Participants in this study came from two different class levels, and the second question addressed in this study aims to measure collocations gains across these class levels. To this end, the mean scores achieved on the collocation test were computed for both classes using an Independent Samples T-test. The results are presented in Table 2.

Table 2: Mean scores on adjective-noun collocations per class

Word bands	Class level	Mean	SD
Overall (max. = 40)	Year 2	17.61	3.634
	Year 3	19.75	4.121
2000-word (max. = 10)	Year 2	6.34	1.548
	Year 3	7.11	1.495
3000-word (max. = 10)	Year 2	3.75	1.410
	Year 3	4.69	1.623
5000-word (max. = 10)	Year 2	1.66	.964
	Year 3	2.33	1.444
AWL (max. = 10)	Year 2	5.92	1.584
	Year 3	5.62	1.328

As presented in Table 2, the mean achieved overall by Year 2 students is 17.61 out of 40 while that achieved by Year 3 students is 19.75. Year 3 students thus scored slightly higher than Year 2 students. This difference is also observed at the 2000-word, 3000-word, 5000-word, and the AWL bands. These scores give an indication that the two classes involved in this study performed differently overall and at each frequency band although Year 2 did slightly better than Year 3 on the AWL (this will be discussed further in the discussion section). The data were analysed further to determine whether these differences were statistically significant. Overall, the differences were found to be statistically significant: $t(161) = 3.348$, $p = .001$.

4.3 Word frequency may be important in mastering collocations

The role of frequency in collocations is the third question explored in this study. It was answered by analyzing the scores achieved at each of the frequency bands from which the test items were selected. The means were calculated and they are presented in Table 3.

⁵ This cut-off point was meant for individual words and, since we do not have anything for collocations, researchers tend to use this one, even for collocations, which is what this study did.

Table 3: Mean scores at frequency bands

Word frequency	Classes altogether (n= 162)	SD
2000-word (max. = 10)	6.83	1.55
AWList (max. = 9)	5.72	1.425
3000-word (max. = 9)	4.34	1.608
5000-word (max. = 6)	2.09	1.325

As can be seen from Table 3, the scores vary following word frequency. Participants obtained a higher score at the 2000-word band. It was followed by the AWL, the 3000-word, and the 5000-word, respectively. The data were analysed further to determine the significance of these differences. Overall, these differences were found to be statistically significant as shown by a One-way ANOVA repeated measures with $F(2, 484) = 434.782$, $p = 0.000$. Furthermore, post hoc tests – using Bonferroni – were used to test the significance between two successive word bands. Results show that the mean differences between each of the two bands compared are also statistically significant, with a $p < .05$ (results are summarized in Appendix B). These results answer the third research question by showing that participants obtained higher scores at higher frequency bands, which entails that more frequent words are likely to be correctly collocated compared to infrequent ones. However, the scores at the AWL are higher than those at the 3000-word ($2000 > AWL > 3000 > 5000$), which seems to contradict the results available in the literature. This will be discussed in detail in the discussion section.

5. Discussion and conclusion

This study forms part of a big project, the ultimate aim of which is teaching collocations in a principled manner. Recommendations from previous studies, of which this one is a follow-up, include, among other things, exploring the collocational behaviour of the different types of collocations among different groups of students from different proficiency levels. In response to these recommendations, the current study examined three research questions in an attempt to cast light on collocational competence among English majors at a university in Burundi.

Gauging collocational competence of adjective-noun collocations among English majors was the first aim pursued in this study. The results show that adjective-noun collocations pose a serious challenge for English majors at an upper-intermediate level⁶, confirming previous results about the difficulties caused by collocations (e.g., Dokchandra 2019; Ebrahimi-Bazzaz et al. 2014; Nizonkiza and Van de Poel 2014, 2019; Nizonkiza et al. 2013; Revier 2009). Their performance is lower than 50% overall – with an average of about 44% (see Table 2: 17.61 out 40) – and none of the word frequency bands is mastered. While these results conflict with Nizonkiza and Van de Poel (2014) – a study it replicates – who found the 2000-word band mastered, they confirm the ones obtained by Nguyen and Webb (2017). Participants in Nguyen and Webb's (2017) study, to some extent comparable to the ones in the present study, achieved a performance of about 45%. Performance achieved by participants in the present study is disappointing but we should not otherwise be alarmed. Nguyen and Webb (2017) measured receptive adjective-noun collocations while the present study measured productive adjective-

⁶ While students' proficiency levels have not been measured by means of a standardized test, such as TOEFL, some of them were in their final year of their Bachelor of Arts degree. Additionally, based on previous studies (e.g., Nizonkiza 2011a, 2011b), students at this level are roughly at an upper-intermediate level.

noun collocations, and participants still demonstrated a comparable performance. Results from Macis and Schmitt (2017), who also measured productive adjective-noun collocations, are much worse with a performance of about 33%. What we learn from these studies is that adjective-noun collocations, both receptive and productive, are challenging for those learners using English as a second/foreign language. While most results available in the literature affirm that verb-noun collocations are the most challenging type of collocations (e.g., Gyllstad 2009, Laufer and Waldman 2011, Nesselhauf 2005), the present study brings more evidence to add adjective-noun collocations to this list of challenging collocations.

The second research question examines performance on adjective-noun collocations across learning stages. Results indicate that students from the upper (class) level (Year 3) performed significantly better than those from the lower level (Year 2). These results are consistent with the available literature, with studies (e.g., Gyllstad 2007, 2009; Nizonkiza 2011b, 2012) indicating that performance on verb-noun collocations could be paralleled with proficiency levels. This would entail that collocational competence develops alongside proficiency level, and adjective-noun collocations are no exception to the rule. This study extends the findings we have with verb-noun collocations to another type – adjective-noun collocations. For teaching purposes, what this means is that collocations gains could be quantified (e.g., Nizonkiza 2015; Nizonkiza and Van de Poel 2014). While the present study considered class level as proof of proficiency level, which is its main limitation, it still has demonstrated that mastery of collocations (adjective-noun in this case) depends on learning stages. Having significant gains from one learning stage to another represents an important step towards establishing a baseline for collocational competence, which we do not have yet (e.g., Durrant and Schmitt 2010). This seems to be a major addition to what Nizonkiza and Van de Poel (2014) have found. The size estimates Nizonkiza and Van de Poel (2014) have made should have been preceded by determining the significance of collocations gains. It should be noted, however, that Year 2 outperformed Year 3 on collocations of words from the AWL. Understanding this may require further research, but this difference might be attributed to the fact that Year 2 students had just studied AWL words in their first year, which was not the case for Year 3 students. Year 2 students were exposed to the AWL words from a newly redesigned initiation-to-research course somewhat comparable to academic literacy in a South African context.

With respect to the third research question, it was found that frequency plays a role in mastering adjective-noun collocations. These findings support previous studies on verb-noun collocations (e.g., Gyllstad, 2007, 2009; Nizonkiza 2011a, 2011b, 2012, 2015) that have demonstrated that collocations of words from higher frequency word bands are mastered first. They also accord with Nguyen and Webb's (2017) findings on adjective-noun collocations. What is striking, however, is that even collocations of the 2000-word band do not seem to be mastered by participants in this study, which is the same in Nguyen and Webb (2017). Based on this finding, the present study reiterates the idea expressed by Nizonkiza and Van de Poel (2014) that, while teaching collocations, focus should be on words selected from the 2000-word band. The present study also underscores the caution made by Nizonkiza and Van de Poel (2014) that mastery of collocations achieved by the participants in their study might be slightly overestimated. While mastery of the 2000-word band is within reach of students at upper-intermediate and advanced levels, that of the 3000-word band seems to be unlikely. In addition, for teaching purposes, considering observations that mastering the AWL productively might determine students' academic success, collocations from this list should also be prioritised. This would mean ensuring that collocations selected from the 2000-word band and the AWL are exposed to

students in their pre-session courses or mandatory first-year courses before students start their degree granting courses. Furthermore, collocations of words from the AWL were better mastered than those of words from the 3000-word band. While there is need for more research to confirm this finding that conflicts with previous research (e.g., Nizonkiza 2012), this is good news that aligns with the suggestion above. For productive purposes, some scholars consider mastering the 2000-word band and the AWL as a must and vital for students' success in an academic environment (e.g., Nation 2001).

To summarise, the present study gives evidence that the use of collocations, operationalised through adjective-noun combinations, poses a challenge for English majors. Furthermore, collocational competence seems to develop with learning stages and word frequency bands. This means that students from an upper-class level are likely to use more collocations and that collocations of more frequent words (from higher word frequency bands) are mastered before those of words from infrequent word bands. Taken together, these results – that are consistent with previous research, mainly that verb-noun collocations are challenging and therefore deserve a pedagogical treatment – constitute additional evidence that there is a need to teach collocations that may not otherwise be correctly used by learners. In addition, it could be argued that, before this study, we knew that verb-noun collocations are challenging for L2 learners and grow in parallel with overall linguistic proficiency. We also knew that frequency plays a role in collocations mastery. With the results from this study, we know that the same holds true for adjective-noun collocations, which is the major contribution of this study. These results, although disappointing in terms of collocations mastery, are encouraging regarding the consistency with previous research. The present study therefore joins in the calls to keep exploring all the different types of collocations.

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Appendices

Appendix A: Sample adjective-noun collocation test

Productive Vocabulary Test

Name: _____ Date: _____
 Level of study (year): _____ Start hour: _____
 University: _____ End hour: _____

Instruction: Complete the underlined words in the sentences below.

Example: The company needs to focus on ne.....clients.
 The company needs to focus on new clients.

1. My or.....intention was to study all morning, but I had to change my plans.
2. India started to build a nu.....bomb.
3. That bank charges a hi.....commission for cashing travellers' cheques.
4. The author provides a cl.....definition of the term culture.
5. There was a lack of cr.....energy in the British film industry.
6. The film stars were married in gr.....secret to avoid publicity.
7. The needle has to be positioned with ab.....accuracy.
8. They left the kitchen in a to.....mess after dinner.
9. A wo.....permit is required for foreign students to get a job.
10. His death left a bi.....gap in my life.

Appendix B: Posthoc using Bonferroni

(I) Frequency	(J) Frequency	Mean Difference (I- J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1 (2000- word)	2	2.488*	.139	.000	2.116	2.859
	3	4.741*	.120	.000	4.421	5.060
	4	1.111*	.139	.000	.739	1.483
2 (3000- word)	1	-2.488*	.139	.000	-2.859	-2.116
	3	2.253*	.133	.000	1.898	2.608
	4	-1.377*	.152	.000	-1.783	-.970
3 (5000- word)	1	-4.741*	.120	.000	-5.060	-4.421
	2	-2.253*	.133	.000	-2.608	-1.898
	4	-3.630*	.146	.000	-4.019	-3.240
4 (AWL)	1	-1.111*	.139	.000	-1.483	-.739
	2	1.377*	.152	.000	.970	1.783
	3	3.630*	.146	.000	3.240	4.019

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.