Writing proficiency of Saudi EFL learners: Examining the impact of Lexical diversity

Ahmad Alshehri [a] [1] iD

[a] Department of Curricula and Instruction, College of Education, King Khalid University, Saudi Arabia

Abstract

The aim of this study is to investigate the impact of lexical diversity on writing proficiency of Saudi EFL learners. Seventy-five Saudi EFL learners at the tertiary stage took part in this study (39 in level 2 and 36 in level 7). Their writing work is assessed and analysed using *Text Inspector* (a web-based language analysis tool). The results show that the lexical diversity of the participants lies within the normal range of second language learners. The findings also show a significant positive correlation between lexical diversity and writing proficiency. However, significant differences in lexical diversity or writing proficiency attributable to different academic levels could not be established. These results suggest that attention should be paid to vocabulary, as it is crucial to language learning. However, further research is needed to investigate the impact of lexical diversity on writing skill using different measures of lexical diversity.

Keywords: Saudi EFL learners; writing proficiency; vocabulary; speaking; writing; grammar

1. Introduction to the Importance of Vocabulary Knowledge

Vocabulary is regarded as the backbone of any language. Without sufficient vocabulary, the intended message cannot be delivered properly. Numerous studies have focused on investigating the importance of vocabulary knowledge (Schmitt, 2010). For language learners, it is important to have vocabulary that helps them communicate properly, whether while writing or speaking. A learner's language corpus depends upon their language proficiency. It is apparent that the size of vocabulary increases gradually as the learner progresses in his/ her language learning experience. In other words, proficient learners possess larger lexis than their less proficient counterparts. Alderson (2005) stresses that vocabulary plays a vital role in learning all the four skills (listening, speaking, reading and writing) and elements (e.g., grammar) in a second language. Similarly, Higginbotham and Reid (2019) state that "vocabulary knowledge is a fundamental component of language ability.

It is therefore crucial in determining how well second language learners can express themselves" (p. 127).

---

[1] Corresponding author.

E-mail address: alshshahri@kku.edu.sa

Furthermore, it has been evident that learners who know less than 1,000 words may encounter difficulty in understanding or comprehending texts, whether spoken or written (Azodi et al., 2014).

2. Literature Review

2.1. What is Lexical Diversity?

Much research has been done on lexical aspects. As a result, many terms to do with vocabulary have come into use including lexical diversity, lexical richness, lexical sophistication, and lexical density. According to McCarthy and Jarvis (2007), lexical diversity is "the range and variety of vocabulary deployed in a text by either a speaker or a writer" (p. 459). It is measured by "counting the numbers of different words in a text including both content words and function words" (Ryoo, 2018, p. 64). In some studies, lexical richness is regarded as a synonym for lexical diversity, as in Wimmer and Altmann (1999), while some studies looked at the two terms as different notions, as in Laufer (2003) and Read (2000). Failasofah and Alkhrisheh (2018) view lexical richness as an umbrella for other terms (e.g., lexical diversity, lexical density, and lexical sophistication) that can indicate how well second language learners actively use vocabulary.

2.2. Does Lexical Diversity Matter?

The positive relationship between lexical diversity and second/foreign language proficiency has been made evident in many studies (Malvern & Richards, 2002; Nation & Webb, 2011). The greater amount of vocabulary the learner has, the more language he/she can produce. In other words, "higher lexical diversity is generally considered to indicate more advanced proficiency than lower lexical diversity" (Sadeghi & Dilmaghani, 2013, p. 328). Other studies (Read, 2007; Yu, 2010) have explored this relationship in-depth, focusing on each language skills separately such as, speaking or writing.

2.3. Lexical Diversity and Writing Proficiency

Mastering any language lexis plays a vital role in the quality of the language produced. Therefore, as Zhan-Xiang (2004) stated, learners with little vocabulary may find difficulty in expressing themselves in writing. In fact, a great amount of research has been conducted on the relationship between lexical diversity and proficiency in writing. In some studies, it has been proved that there is a positive impact of lexical diversity on the production of writing. Factors such as the age of learner, type of measure, level of proficiency, and genre have been investigated in different learning contexts. Obtaining high scores in writing activities was evidenced to be correlated with vocabulary size (Crossley & McNamara, 2011). Different writing genres were investigated in terms of their relation to vocabulary knowledge. For example, Olinghouse and Wilson (2013) found that story, persuasive, and informative writing was affected by the amount and quality of vocabulary that the learners had. Similarly, Sadeghi and Dilmaghani (2013) found a positive relationship between the genres of argumentative and narrative writing and the lexical diversity, whereas for comparative writing, they found no significant impact. Wang (2014) studied another genre, email, in terms of the relationship between lexical diversity and writing proficiency. She found no significant correlation between the two, and she further concluded that lexical diversity measures might not be reliable to distinguish between proficiency levels. Jarvis (2002) explored other factors (language background and number of years in studying English) in relation to the quality of narrative. The results showed that there was a significant correlation between the quality of narratives and participants with Swedish background, while for Finnish participants, there was no correlation whatsoever. In addition, it has been found that lexical diversity is influenced by language background. In a similar study, Yu (2010) investigated how

different L1 background can affect the relationship between lexical diversity and the quality of spoken and written tasks. He found that there was a significant relationship between lexical diversity and the overall rate of the tasks of all L1 backgrounds. Nevertheless, for participants with Filipino and Chinese backgrounds, lexical diversity failed to be a predictor of the writing quality. A study by McNamara et al., (2010) proved that lexical diversity can be a predictor of writing (essay genre) quality. Beside lexical diversity, they also found that syntactic complexity and word frequency can contribute to the quality of writing. Similarly, Mellor (2010) analysed 34 argumentative essays in a Japanese university. He found that lexical diversity and text length correlate strongly with writing quality. In another study, Frear and Bitchener (2015) examined the relationship between cognitive complexity, lexical diversity, and L2 writing; they reported that cognitive complexity can increase lexical diversity, and they further concluded that task types and writing topics are related to lexical diversity in L2 writing.

In the Arab EFL environment, there are a few studies that have explored the writing aspects in the Saudi context, where English is taught as a foreign language. They mainly focused on the size of vocabulary knowledge that the learners have. Al-Nujaidi (2003) discussed the amount of vocabulary of Saudi EFL learners at the tertiary level. He found that the learners know between 500 to 700 words. This quantity seems to be small if compared to the study of Al-Masrai and Milton (2012): they found that the Saudi EFL learners (at the same level in Al-Nujaidi's study) possess between 2,000 and 3,000 words. A more recent study by Altalhab (2019) revealed a result similar to that of Al-Masrai and Milton (2012). He found that the vocabulary size of Saudi EFL learners at the tertiary level is roughly 3,000 words. Although Milton (2009) declared that learners need to know around 3,000 words to be able to communicate, Nation (2006) believes that a bank of 6,000 words is a minimum for learners to communicate properly, whereas a much higher figure (20,000 words) is suggested by Nation and Webb (2011) for the same purpose.

The previous studies have explored lexical diversity and its relationship to writing proficiency in EFL or ESL settings. In addition, other factors (e.g., writing genre, L1 background, and cognitive complexity) that may interfere with and affect lexical diversity have been investigated. Notwithstanding their different hypotheses or findings, all the above-mentioned studies agree upon the positive effect of lexical diversity on the quality of writing of EFL/ESL learners except the study of Wang (2014).

2.4. How is Vocabulary Measured?

Before exploring the measures of vocabulary, it is worth discussing why it is important to measure vocabulary. According to Pearson et al., (2007: 282), to teach vocabulary more effectively and better understand its relation to comprehension; we need first to address how vocabulary knowledge and growth are assessed. Nation and Beglar (2007) summarized the advantages of measuring vocabulary in three points. First, it helps determine the suitable tasks for learners, especially in terms of lexical sophistication. Second, it helps to make sure that learning is happening. In fact, if learners progress in their level of proficiency, learners with high levels may have more vocabulary knowledge than those in lower levels. Third, it can be used in comparative language studies, especially when it comes to comparing native with non-native speakers. Additionally, measuring vocabulary is important because it can help to determine the "lexical gap" when learners engage in language skills learning (Read, 2007). As Altalhab (2019) explains, it helps both teachers and learners because it determines the amount of vocabulary that should be taught and learnt.

Tools for measuring lexical diversity are varied depending on the aspects of vocabulary that need to be measured (e.g., lexical diversity, lexical sophistication, lexical density, and vocabulary size and richness). Lexical diversity measures, as deBoer (2014) illustrates, are useful for three reasons. First,

they tell how effective vocabulary is integrated into language produced by learners. Second, they help language instructors understand how vocabulary is acquired and used in learners' language production. Third, they give insights into how language develops, especially with young learners.

According to Koizumi and In'nami (2012), lexical diversity measures can be divided into two main categories. One category involves measures that require simple mathematical transformation of type-token ratio (TTR), whereas the other category includes measures that require more complicated mathematical calculations and use special software. Examples of the first category measures are the Guiraud and Maas. Software-oriented measures include the D (Malvern et al., 2004) and D-Tool (Meara & Miralpeix, 2016).

Measures that use TTR determine how different words are used in a certain text either spoken or written. They mainly compare the number of types (the number of different items) and tokens (the total number of words) in a particular text (Nation, 2001). This type of measures is criticized for being sensitive to text length (Wang, 2014; Failasofah & Alkhrisheh, 2018). They further explain that this is because of fewer chances for new types to appear and therefore, longer text tends to have lower TTR. As a result of this weakness, Malvern et al., (2004) came up with an alternative, D. This measure "involves drawing multiple word samples from a text and plotting their respective TTRs on a curve" (Wang, 2014, p. 67). This means that lexical diversity will be high if the D figure is high.

Studies such as Jarvis (2002) and Yu (2010) confirmed that D is a reliable tool for measuring the lexical diversity. An example of a study that used D is Sadeghi and Dilmaghani (2013). This study incorporates the use of *Text Inspector*, a web-based language analysis tool, created and developed by Stephen Bax, a professor of applied linguistics. *Text Inspector* uses two measures: MTLD (measure of textual lexical diversity) and vocd-D (a method for measuring the diversity text units). Both measures use different criteria for calculating lexical diversity (McCarthy & Jarvis, 2007; McKee et al., 2000; Malvern & Richards, 2002). According to McCarthy and Jarvis (2007), using these two measures provides more precise information and helps draw clear conclusions.

3. Statement of the Problem

As discussed earlier in this study, vocabulary knowledge is crucial to mastering the target language. It is essential to understand and comprehend all texts and discourse, whether spoken or written (Alderson, 2005; Schmitt, 2010; Azodi et al., 2014; Higginbotham & Reid, 2019). Despite this recognized importance, some studies that were carried out in the Saudi context proved that Saudi EFL learners lack sufficient vocabulary (Al-Nujaidi, 2003). The reasons behind this insufficiency in some situations are attributed to the right techniques and methods not being used in teaching vocabulary (Al-Seghayer, 2017).

Because of the positive relationship between lexical diversity and writing proficiency, which has been proved in many studies (Crossley & McNamara, 2011; Jarvis, 2002; McNamara et al., 2010; Mellor, 2010; Olinghouse & Wilson, 2013; Sadeghi & Dilmaghani, 2013; Yu, 2010), the aim of this study is to explore this relationship in the Saudi context at the tertiary level. To the researcher's knowledge, no study has discussed this issue before, and it is worth filling this research gap.

4. Research Questions

The current study seeks to answer the following questions:

1.   How diverse is the Saudi EFL learners' lexicon at the tertiary stage?

2.   Is there any relationship between lexical diversity and writing proficiency of the Saudi EFL learners in the 2nd academic level?

3.   Is there any relationship between lexical diversity and writing proficiency of the Saudi EFL learners in the 7th academic level?

4.   Are there any significant differences in lexical diversity attributable to different academic levels (Levels 2 & 7)?

5.   Are there any significance differences in writing proficiency attributable to different academic levels (Levels 2 & 7)?

5. Methodology

5.1. Participants

Seventy-five male students participated in this study. They were enrolled at the Department of English, College of Arts and Sciences, King Khalid University, Saudi Arabia. Thirty-nine of them were in their 2nd academic level, while 36 were in their 7th level. The duration of their course is four years (eight academic levels). All participants were aged between 19 and 22 years. They were all native speakers of Arabic and had been learning English for nine years before they attended the university. For three years, they were in the elementary stage, and for six years, they were at the intermediate and secondary stage. Most of them were planning to be English language teachers after their graduation. Participants from levels 2 and 7 were selected because they were near the university start in level 2, and near graduation in level 7. The following table describes how the sample was distributed according to the academic level:

Table 1. Distribution of sample according to the academic level

Academic level	No.	Percentages
Level 2	39	52
Level 7	36	48
Total	75	100

5.2. Instrument

The participants were asked to write around 250 words about one topic out of the two topics given to them, and the time allocated to complete the task was 45 minutes. Two raters assessed their work according to certain criteria. The two topics were as follow:

1.   E-learning:

    E-learning presented a strategic opportunity for learning after the COVID-19 pandemic. You may talk about its importance, types, benefits, pros, and cons.

2.   Electric cars:

    Electric cars might be a good choice, especially after the frequent increase in fuel prices. You may write about the need for them, their types, advantages, and disadvantages.

5.3. Calculating Lexical Diversity

To calculate lexical diversity for the participants' work, each text was entered separately into *Text Inspector* and processed. Then, lexical diversity scores were listed for all 75 texts.

5.4. Data Analysis and Results

After marking the sample work, the scores were entered into the statistical package for social sciences (SPSS). Lexical diversity values were entered into SPSS as well. Statistical methods such as frequencies, percentages, Pearson correlation coefficient, t-test, standard deviation, and mean were used to analyse the collected data that will help answering the research questions.

6. Results and Discussion

To answer the first research question, *how diverse is the Saudi EFL learners' lexicon at the tertiary level?*, mean and standard deviation were calculated to discover how diverse the vocabulary of the learners actually is. Table 2 summarizes these results:

Table 2. Mean score of lexical diversity

Academic level	No.	Mean	Standard Deviation	lowest score	Highest score
Level 2	39	46.95	23.64	11.82	98.61
Level 7	36	54.22	23.23	16.09	96.45
Total	75	50.44	23.57	11.82	98.61

As indicated in Table 2, the lexical diversity mean score for the learners in Level 2 was roughly 47, whereas in Level 7, it was 54. This can be attributed to the fact that learners in Level 7 are more proficient, as they are near graduation and have been studying English for a longer period. Although the lexical diversity mean score of Level 7 learners is higher than that of Level 2 learners, this difference is not significant, as it will be illustrated in answering Research Question 4. Nevertheless, these scores for both levels are within the average of adult second language learners. According to Duran et al., (2004), they have a diversity measure between 40 and 70, while for native speakers, the measure is between 80 and 105. However, the studies concerning the vocabulary knowledge that were conducted in the Saudi context found that the vocabulary size of the Saudi EFL learners is small (Al-Masrai & Milton, 2012; Al-Nujaidi, 2003; Altalhab, 2019).

Research Question 2 was, *is there any relationship between lexical diversity and writing proficiency of the Saudi EFL learners in the 2nd academic level?* Pearson correlation coefficient was used to find out if there is relationship between lexical diversity and the writing proficiency of the learners in Level 2. The following table shows the analysis result:

Table 3. Person coefficient for correlation between lexical diversity and writing proficiency of level 2 learners. (N=39)

Coefficient	Significance level	Type of correlation
0.3965	Significant at 0.05	positive

As can be seen in Table 3, there is a positive relationship between lexical diversity and the writing proficiency. This means that greater the diversity of the learners' vocabulary, the more proficient they might be in writing. This was also the finding of most of the studies mentioned earlier in the current research (Crossley & McNamara, 2011; Jarvis, 2002; McNamara et al., 2010; Mellor, 2010; Olinghouse & Wilson, 2013; Sadeghi & Dilmaghani, 2013; Yu, 2010). However, Wang's study (2014) found no correlation between lexical diversity and writing proficiency, and this is due, as he justified, to the fact that lexical diversity measures might not be reliable to distinguish between proficiency levels.

Similarly, this relationship was investigated in the Level 7 sample. Pearson coefficient was used to determine if lexical diversity and writing proficiency are correlated. The findings are shown in the following table:

Table 4. Person coefficient for correlation between lexical diversity and writing proficiency of level 2 learners.
(N=39)

Coefficient	Significance level	Type of correlation
0.1861	Significant at 0.05	Positive

Table 4 shows that lexical diversity and writing proficiency of Level 7 learners are positively correlated. Again, this means that higher the lexical diversity, the more proficient learners will be in writing. Much like the answer to RQ2, findings to this question agree with the outcomes of most studies mentioned earlier in the current research (Crossley & McNamara, 2011; Jarvis, 2002; McNamara et al., 2010; Mellor, 2010; Olinghouse & Wilson, 2013; Sadeghi & Dilmaghani, 2013; Yu, 2010), except that of Wang's (2014).

Concerning Research Question 4 *are there any significant differences in lexical diversity attributed to different academic levels*, T-test for independent groups was used to find if such differences exist. The results are shown in the next table:

Table 5. T-test for differences in lexical diversity according to academic levels of participants

Academic level	N	Mean	Standard deviation	T value	Significance level	Note
Level 2	39	46.95	23.64ls	1.34	0.184	Not significant
Level 7	36	54.22	23.23			

As Table 5 explains, the *t* value was not significant. This means that there are no significant differences between the mean score of lexical diversity of participants that can be attributed to academic levels. It seems that future research is needed to clarify this point, as learners in Level 7 spent more time in learning English, and therefore, may be assumed to be more proficient in writing than Level 2 learners. Jarvis (2002) found that there is a positive relationship between lexical diversity and the number of years of instruction in the target language.

Research Question 5 investigates the differences between learners of levels 2 and 7, but this time, in terms of writing proficiency. T-test for independent groups was used to check if there are differences between learners' scores in the writing task. Table 6 illustrates the finding:

Table 6. T-test for differences in writing proficiency according to academic levels of participants

Academic level	N	Mean	Standard deviation	T value	Significance level	Note
Level 2	39	3.31	0.80	1.92	0.058	Not significant
Level 7	36	2.92	0.96			

Table 6 shows that *t* value was insignificant. This means that there were no significant differences in participants' scores that can be attributed to their different levels. This result is not in line with the fact that achievement develops through time by practicing the target language. Maybe future research is needed to cover this research gap.

7. Conclusions

This study set out to answer certain questions about the lexis and writing proficiency of Saudi tertiary level EFL learners related to the diversity of learners' lexis, the relationship if any between lexical diversity and writing proficiency, and the differences in the 2nd and 7th level learners' lexical diversity and writing proficiency. A simple lexis task was used to collect the data which was then analysed using descriptive statistics and t-test for significance. The lexical diversity means score for the learners in Level 2 was roughly 47, whereas in Level 7, it was 54: this difference was found to be not significant. In other words, the lexis of 2nd and 7th level learners was comparable though the latter may be presumed to show a larger lexis given the longer duration of EFL education. Results also showed a positive relationship between lexical diversity and writing proficiency for both the groups, viz., level 2 and 7, implying that greater the diversity of the learners' vocabulary, the more proficient they might be in writing. Similar findings were also reported by other previous studies. Lastly, no significant differences were found between the mean score of lexical diversity of participants that can be attributed to academic levels. This was a puzzling finding and one that calls for further investigation. An important conclusion that the study draws, however, is that developing EFL learners' vocabulary is likely to positively impact their writing proficiency. With this finding in view, the following section makes some useful recommendations.

8. Recommendations

The results of this research have shown that the lexical diversity of Saudi EFL learners at the tertiary level is within the normal range of second language learners (40–70) as stated in Duran et al., (2004). The study showed a positive relationship between lexical diversity and writing proficiency. This gives insight into how vocabulary is crucial to language learning in general and to writing proficiency. Therefore, much attention should be paid to vocabulary learning.

The study failed to find significant differences in lexical diversity that can be attributed to different academic levels. Therefore, this point needs more investigation, as some previous studies found that lexical diversity and the number of years learning English are positively correlated. Similarly, the study results did not show any significant differences in writing proficiency that can be related to different academic levels. This result is not in line with the fact that language learning develops by time. Hence, this finding needs to be more tested.

The current study depended on *Text Inspector* to analyse lexical diversity. Although, it uses two reliable measures of lexical diversity (MTLd & vocd-D), other measures, criteria, programs, or software can be used to further discover different aspects of vocabulary, either lexical diversity, richness, or sophistication, etc., or, at least, to compare these results with future research.

References

Alderson, J. C. (2005). *Diagnosing foreign language proficiency: The interface between learning and assessment*. A & C Black.

Al-Masrai, A., & Milton, J. (2012). The vocabulary knowledge of university students in Saudi Arabia. *TESOL Arabia Perspectives*, *19*(3), 13-19.

Al-Nujaidi, A. H. (2003). *Relationship between vocabulary size, reading strategies, and reading comprehension of EFL learners in Saudi Arabia* (Doctoral dissertation, Oklahoma State University).

Al-Seghayer, K. (2017). *Reality and challenges of TEFL in 21ˢᵗst-century*. *Saudi Arabia*. Riyadh: Hala Print Co.

Altalhab, S. (2019). The Vocabulary Knowledge of Saudi EFL Tertiary Students. *English Language Teaching*, *12*(5), 55-65. https://doi.org/10.5539/elt.v12n5p55.

Azodi, N., Karimi, F., & Vaezi, R. (2014). Measuring the Lexical Richness of Productive Vocabulary in Iranian EFL University Students' Writing Performance. *Theory & Practice in Language Studies*, *4*(9). https://doi.org/10.4304/tpls.4.9.1837-1849.

Crossley, S. A., & McNamara, D. S. (2011). Understanding expert ratings of essay quality: Coh-Metrix analyses of first and second language writing. *International Journal of Continuing Engineering Education and Life Long Learning*, *21*(2-3), 170-191. https://doi.org/10.1504/IJCEELL.2011.040197.

deBoer, F. (2014). Evaluating the comparability of two measures of lexical diversity. *System*, *47*, 139-–145. https://doi.org/10.1016/j.system.2014.10.008.

Durán, P., Malvern, D., Richards, B., & Chipere, N. (2004). Developmental trends in lexical diversity. *Applied Linguistics*, *25*(2), 220–242. https://doi.org/10.1093/applin/25.2.220.

Failasofah, F., & Alkhrisheh, H. T. D. (2018). Measuring Indonesian students' lexical diversity and lexical sophistication. *Indonesian Research Journal in Education*, 97-107.

Frear, M. M. W., & Bitchener, J. (2015). The effects of cognitive task complexity on writing complexity. *Journal of Second Language Writing*, *30*, 45–57. https://doi.org/10.1016/j.jslw.2015.08.009.

Higginbotham, G., & Reid, J. (2019). The lexical sophistication of second language learners' academic essays. *Journal of English for Academic Purposes*, *37*, 127–140. https://doi.org/10.1016/j.jeap.2018.12.002.

Jarvis, S. (2002). Short texts, best-fitting curves, and new measures of lexical diversity. *Language Testing*, *19*(1), 57-84. https://doi.org/10.1191/0265532202lt220oa.

Koizumi, R., & In''nami, Y. (2012). Effects of text length on lexical diversity measures: Using short texts with less than 200 tokens. *System*, *40*(4), 554-564. https://doi.org/10.1016/j.system.2012.10.012.

Laufer, B. (2003). The influence of L2 on L1 collocational knowledge and on L1 lexical diversity in free written expression. *Effects of the second language on the first, 19,* 31.

Malvern, D., & Richards, B. (2002). Investigating accommodation in language proficiency interviews using a new measure of lexical diversity. *Language testing*, *19*(1), 85-104. https://doi.org/10.1191/0265532202lt221oa.

Malvern, D., Richards, B., Chipere, N., & Durán, P. (2004). *Lexical diversity and language development*. New York: Palgrave Macmillan..

McCarthy, P. M., & Jarvis, S. (2007). vocd: A theoretical and empirical evaluation. *Language Testing*, *24*(4), 459-488. https://doi.org/10.1177/0265532207080767.

McKee, G., Malvern, D., & Richards, B. (2000). Measuring vocabulary diversity using dedicated software. *Literary and linguistic computing*, *15*(3), 323-338. https://doi.org/10.1093/llc/15.3.323.

McNamara, D. S., Louwerse, M. M., McCarthy, P. M., & Graesser, A. C. (2010). Coh-Metrix: Capturing linguistic features of cohesion. *Discourse Processes*, *47*(4), 292-330. https://doi.org/10.1080/01638530902959943.

Meara, P., & Miralpeix, I. (2016). *Tools for researching vocabulary*. Multilingual Matters.

Mellor, A. (2010). *Automatic essay scoring for low level learners of English as a second language*. Swansea University (United Kingdom).

Milton, J. (2009). *Measuring second language vocabulary acquisition*, *(Vol. 45)45*. Multilingual Matters.

Nation, I. (2006). How large a vocabulary is needed for reading and listening?. *Canadian modern language review*, *63*(1), 59-82. https://doi.org/10.3138/cmlr.63.1.59.

Nation, I. S. P., & Beglar, D. (2007). A vocabulary size test. *The Language Teacher*, *31*(7), 9–13.

Nation, I. S., & Webb, S. A. (2011). *Researching and analyzing vocabulary. Boston, MA: Heinle*, Cengage Learning.

Nation, P. (2001). *Learning vocabulary in another language*. Cambridge, UkUK: Cambridge University Press.

Olinghouse, N. G., & Wilson, J. (2013). The relationship between vocabulary and writing quality in three genres. *Reading and Writing*, *26*(1), 45–65. https://doi.org/10.1007/s11145-012-9392-5.

Pearson, P. D., Hiebert, E. H., & Kamil, M. L. (2007). Vocabulary assessment: What we know and what we need to learn. *Reading research quarterly*, *42*(2), 282-296. https://doi.org/10.1598/RRQ.42.2.4.

Read, J. (2000). *Assessing vocabulary*. Cambridge, UK: Cambridge University Press.

Read, J. (2007). Second language vocabulary assessment: Current practices and new directions. *International Journal of English Studies*, *7*(2), 105–126.

Ryoo, Y. S. (2018). Comparing lexical diversity and lexical sophistication in Korean EFL writing: Topic and text length. *Multimedia-Assisted Language Learning*, *21*(3), 63-87.

Sadeghi, K., & Dilmaghani, S. K. (2013). The relationship between lexical diversity and genre in Iranian EFL learners' writings. *Journal of Language Teaching and Research*, *4*(2), 328. https://doi.org/10.4304/jltr.4.2.328-334.

Schmitt, N. (2010). *Researching vocabulary: A vocabulary research manual,* Springer.

Wang, X. (2014). The relationship between lexical diversity and EFL writing proficiency. *University of Sydney Papers in TESOL*, *9*.

Wimmer, G., & Altmann, G. (1999). On vocabulary richness. *Journal of Quantitative Linguistics*, *6*(1), 1-9. https://doi.org/10.1076/jqul.6.1.1.4148.

Yu, G. (2010). Lexical diversity in writing and speaking task performances. *Applied linguistics*, *31*(2), 236-259. https://doi.org/10.1093/applin/amp024.

Zhan-Xiang, M. (2004). The necessity of intensifying English vocabulary teaching in the remote minority area college English teaching. *Asian EFL Journal*, *6*(2), 221-233.

AUTHOR BIODATA

Ahmad Alshehri is an Associate Professor of TESOL at the Department of Curricula and Instruction, College of Education, King Khalid University, Saudi Arabia. After completing his MA in TESOL from the University of Bristol, UK, he proceeded to obtain a PhD in TESOL from Umm Al-Qura University, Saudi Arabia. His research interests revolve around textbooks evaluation, blended learning, vocabulary teaching, language assessment and technology-enhanced language learning.