# Enhancing Saudi EFL Learners' CAF in Narrative Writing Through Native Speaker Kids' Reading Website

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## ARTICLE INFO

## ABSTRACT

This novel study investigated the impact of English native speaker kids' reading website on enhancing Saudi EFL university students' complexity, accuracy and fluency (CAF) in narrative writing. The rationale for this study is the scant literature in the area of estimating narrative writing in terms of CAF. The quasi-experimental method was adopted in this study through a pre-/ post-test in narrative writing. Eleven level three participants were recruited from in this study. Instruments of the study included a pre-post-test in narrative writing, and the CAF measures. A Wilcoxon signed-Rank and Mann Whitney were used in the analysis. The study results found no significant differences at 0.05 level regarding the post administration of syntactic complexity ratios except (CP/T, CP/C, and CN/C) whose results were significant. The sub-constructs of lexical density and lexical variation were enhanced partially, and as a whole, whereas there was no increase/decrease regarding lexical sophistication. For accuracy measure, the results were significant in all ratios at 0.05 level except (EFC/C, and EFTC/S ratios). Concerning fluency measures, the results were insignificant at 0.05 in all ratios except (MLC ratio). The results of the study and their pedagogical implications were discussed.

**Key words:** Website, Narrative Writing, Complexity, Accuracy, Fluency, Reading Writing Relationship, Saudi Learners

## INTRODUCTION

The advancement of the technologies has increased the opportunities of writing and made editing easier for students. More and more students engaging in creating and sharing digital content on the internet have resulted in the participatory culture which shift the focus of literacy from individual expression to community involvement (Clinton, Purushotma, Robison, & Weigel, 2009 as cited in Hung and Young, 2015).

With the need for language study and the popularity of personal computers, college students are requesting more and more resources for language learning. In this case, many English learning websites are emerging (Tang, 2010). The concept of online learning website in teaching English language skills has been increasing in a permanent way, particularly, in view of the current challenges.

As a result, the idea of making use of the reading website for native speakers (NS) has emerged as a pedagogical tool which may be beneficial for Saudi EFL learners as non-native speakers (NNS) in mastering writing narrative essays. This virtual learning website is one of the applications of computer assisted language learning (CALL).

The relationship between reading and writing is one of the most important components of language system. When students read texts before they write, it has been shown in some studies that they are able to consciously transfer the structures from the texts to their own writings. Recent studies have focused on the neglected reading-writing association, moving from viewing reading and writing as two separate entities to being seen as closely-inter-related skills. This trend has had an influence on some of the ways reading and writing lessons are designed in classrooms, and on the students in those classrooms. Incorporating reading-writing tasks in the classroom can affect students in different ways when learning a language (Fowler, 2016).

Thus, the current study attempts to enhance narrative writing in terms of complexity, accuracy and fluency. Utilizing complexity, accuracy and fluency as dimensions of learners' written product attributes to the 1980s when second language research has made a distinction between fluency and accuracy in L2 usage (Housen & Kuiken, 2009).

### Context of the Problem

Although all the genres of writing are very crucial for the students at the college of Languages and Translation, Al Imam University, it was noticed by the two researchers that most of the students, enrolled at the college of Languages

and Translation are not capable of writing in an appropriate manner. Saudi EFL learners' poor writing is noted in writing classes and is espoused by students' low scores in standardized exams. The regular teaching techniques that do not satisfy students' needs in writing tasks or inadequate feedback may be the reason for such poor writing performance. Accordingly, changing the instructional practices through the use of native speaker kids' website may contribute to enhancing narrative writing. Focusing on the methodology used in teaching writing, Alghizzi stated that (2011, 2012), not only most EFL instructors prefer to use an unspecified approach, but they also asked their students to memorize ready-made sample texts. These instructors taught learners how to recite samples according to the topic(s) they are required to write on. In addition, Saudi EFL learners are still incapable to composing effectively in English.

This observation was further enhanced by a pilot study of a sample of 72 students, 42 males and 30 females. A three-item questionnaire was distributed to the participants asking them to specify the most difficult language skill for them, the reasons behind this difficulty and how this difficulty affects their study in the course. The results in Figure 1 showed that writing came first in difficulty (n 32), speaking second (n 24), listening and speaking (n 4) third, listening (n 7) fourth and reading (n 5) fifth. The results in Figure (1) clearly reveal that students have serious problems with productive skills, 46 out of 72 expressed that they have challenges with those skills.
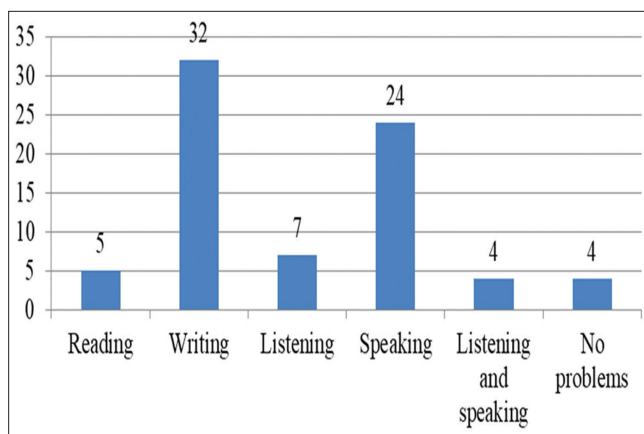


**Figure 1.** What is the Most Difficult Skill for You?

Al-Fadda (2012) found that Saudi EFL students are proficient in spoken English but their writing lags behind. Although students writings at university levels are almost always evaluated according to grammar, word choice, spelling, style, clarity, and organization (Reppen, 2002), the tendency of researchers to assess their writings according to the measures of complexity, accuracy, and fluency are scarce(e.g., Alghizzi, 2017).

**Statement of the Problem**

The problem of the current study is demonstrated in the poor performance of the students at the College of Languages and Translation regarding their CAF in narrative writing. This weakness may be attributed to the lack of the innovative methods followed in teaching. Therefore, the current study

sought to find answers to the following questions:

**Research Questions**

1. To what extent is native speakers kids' website effective in developing Saudi intermediate EFL undergraduates' syntactic complexity when writing narrative essays?
2. To what extent is native speakers kids' website effective in developing Saudi intermediate EFL undergraduates' narrative writings lexical complexity measures (density and sophistication and variation)?
3. To what extent is native speakers kids' website is effective in developing Saudi intermediate EFL undergraduates' accuracy when writing narrative essays?
4. To what extent is native speakers kids' website effective in developing Saudi intermediate EFL undergraduates' fluency when writing narrative essays?

**The Purpose of the Study**

The aim of this study was to investigate the role of native speakers' kids reading website as a form of virtual learning website in enhancing Saudi EFL learners' narrative writing syntactic complexity, lexical complexity, accuracy, and fluency.

**RELEVANT RELATED LITERATURE**

**Native Speaker Kids Reading Website (NSKRW)**

The two researchers in the current study attempted to use of computer assisted language learning (CALL) applications in writing. They managed to use British council "learn English kids" website. This website is used as a virtual learning website. In this regard, it can be noted that this reading website is used in the current study as a tool for online learning, as well.

Technology in its different forms makes a contribution to language learning in EFL context. With regard to teaching writing, various tools have been used in teaching and learning different genres of writing. To elaborate, web.1,2,3 tools have been used to enhance writing genres. Different tools of web.2 have been used in improving literacy skills in general and writing in particular. Among these tools are: blogs, wikis, Facebook, tagging, LinkedIn, virtual reality, social bookmarking, mashing, podcasts, folksonomies, and e-portfolios (e.g., Godwin-Jones, 2003, Al-Freih, 2015). In a similar vein, electronic learning (e-learning) as a mode of technology helps learners develop their writing skills. E-learning includes two forms of learning, namely, synchronous e-learning and asynchronous one (Hrastinski,2008). Each one of these two forms includes different tools. E-learning includes a large number of internet-based activities, videos, interactive sequences or instruction. The role of e-learning surpasses the use of technology to support learning as a part of blended learning (Jisc, 2016, Baumans, 2004). Consequently, children who study English as a foreign language are more involved in interactive exercises through the use of sites on computer. One of these sites is the reading site

for native speakers (NS) that brings fun to them and the academic learning, as well. In this regard, Fenty (2007) noted: "Computers allow students to have an interactive experience with school materials, and they have been found to increase student eagerness, interest, enjoyment, persistence and engagement with assigned tasks" (p. 21).

Commenting on the studies that focused on the use of websites as an independent variable, Roy (2014) argues that website analysis exercises and related design education might be a possible way to get students involved in constructive writing practices and for promoting critical thinking. The six week experiment emphasized on analyzing websites with open-ended questions, indirectly based on established design guidelines of the web user experience model. Twenty eight students participated in this study. The scores of accuracy indicated that readers performed well with questions on audience analysis and product goals. The findings also showed promise analysing questions on navigation/information/interface design, with an adequate reference that with more feedback and structured assessment mechanism, analytical ability of these non-native readers would develop, resulting in superior English text production and improved analytical ability. However, diversity in accuracy scores across weeks also indicated that more practice, feedback, and contextual exposure are required for performance improvement (Roy, 2014).

It was noted that the current study concurred with Roy study (2014) in adopting the same independent variable, namely, a virtual learning website. However, the two studies were different in treating with the dependent variable. In the coming lines the measures of complexity, accuracy, and fluency and their sub-constructs in relation to narrative writing will be highlighted.

### Complexity, Accuracy, and Fluency (CAF) in writing

Various definition have been emerged for CAF constructs by several researchers, however, such definitions have not provided the terrain in applied linguistics with a thorough overview of what may shape the constructs ( Housen and Kuiken, 2009). Complexity, the first construct, is defined, according to Lennon, (1990) as using a large number of structures and vocabulary. Complexity indicates the field of expanding or restructured second language knowledge. Pallotti (2009) calls complexity as the most complicated construct of the three because it includes at least eight aspects of communication and language (lexical, interactional, propositional, and several types of grammatical complexity. Complexity is discussed in the current study in view of two dimensions, namely, syntactic and lexical complexity. For syntactic complexity, Ortega (2003) defined it as "the range of forms that surface in language production and the degree of sophistication of such forms" (P.492), while, Wolfe- Quintero et al (1998), defined lexical complexity as "means that a wide variety of basic and sophisticated words are available and can be accessed quickly, whereas a lack of complexity means that only a narrow range of basic words are available or can be accessed" (P.101).

The second construct, accuracy, is defined by Skehan (1996) as "how well the target language is produced in relation to its rules" (p.23). Briefly, accuracy is defined by Foster and Skehan (1996) as the freedom of the written task from error. Wolfe-Quintero, Inagaki and Kim (1998) defined writing accuracy as being free from errors while using the language in written communication. Analyzing writing accuracy is based on counting the number of errors in a written text (Wolf-Quintero et al., 1998). Although it is not easy for EFL students to reach writing accuracy, they should do their best to improve it to make their writing as readable as possible (Baleghizadeh & Gordani, 2012). Therefore, many EFL teachers try hard to help their students produce accurate writings (Almasi & Tabrizi, 2016). The last construct, fluency, is defined by Abdel Latif (2013), as "the ability to produce texts in large chunks or spans and is optimally measured through using the length of writers' translating episodes or production units" (p.104). Nevertheless, the above mentioned three constructs and their sub-constructs have been discussed in view of the writing measures employed in the methodology in the current study.

Discussing the nature of the relationship among the measure of CAF, it is noted that one of the criticisms of CAF research in second language acquisition (SLA) has been the separate treatment of the three constructs. Larsen-Freeman (2009) argues that research should consider CAF in harmony, stating that *"if we examine the dimensions one by one, we miss the fact that the way that they interact changes with time as well" (p. 582).*

To elaborate, it is noted by the researchers that all the constructs of CAF should be treated as one entity. Plakans et al (2016) state that fluency is a strong predictor of writing level; while grammatical accuracy, as considered through error types, decreases as scores increases, and complexity has a significant but relatively smaller impact than other CAF features.

According to a number of researchers (Cumming et al., 2006;Biber & Gray, 2013; Gebril & Plakans, 2013), a few studies have employed integrated writing tasks in CAF research, which leaves the area without a complete picture of how these particular tasks affect the written performance of second / foreign language writers and how scores from skills integrated tasks can be interpreted in light of these common metrics in second language acquisition (SLA).

On the other hand, there are certain studies which shed light upon the complexity, accuracy and fluency and the differences among such constructs. So (2015) conducted a case study to explore the influence of L2 writing instruction in two types of blended learning enhancing and transforming on the development of students' fluency, complexity, and accuracy as well as writing ability in higher education. The participants of the study were 12 students in academic English writing courses of two universities in Korea. Data sources included the students' essays in two tests (tests 1 and 3), reflective learning journals, and interviews. Qualitative data from reflective journals and interviews were descriptively analyzed. The main findings of the study are as follows. First, the students in transforming blended learning wrote

test 3 essays more fluently than the students in enhancing blended learning. Second, the students in two groups showed decrease in the measures of complexity in test 3; however, their test 3 essays were considered more understandable. Last, the students in two groups showed the development of accuracy when compared to test 1. Based on the main findings, pedagogical implications are suggested.

As So's study aims to explore the influence of L2 writing instruction in two types of blended learning enhancing and transforming on the development of tertiary level students' fluency, complexity, and accuracy as well as writing ability. Thus, the current study concurred with the above mentioned study in focusing on enhancing Saudi EFL writers' complexity, accuracy and fluency.

In a similar vein, Abdi-Tabari (2018) conducted a study to explore the effects of pre-task planning (PTP), online planning (OLP), and the combination of pre-task and online planning (PTP/OLP) on second language (L2) written production. This study also investigated L2 learners' pre-task planning and while-writing processes. Participants were randomly divided into four groups of equal size (N = 40) and were asked to produce written narratives elicited by means of a picture composition. Each group wrote a narrative under a randomly selected planning time condition: (1) under the PTP condition, participants had 10 minutes to plan and 15 minutes to write, (2) under the OLP condition, participants had 25 minutes to write with no preparation time, (3) under the PTP/OLP condition, participants had 10 minutes to plan and 25 minutes to complete the writing task, and (4) under the no planning (NP) condition, they had 15 minutes to write without preparation time. Consequently, their writings were then evaluated in the light of complexity, accuracy, and fluency. Analysis of the narratives and the MONVA results showed that PTP significantly enhanced overall complexity, complexity via phrasal elaboration, and lexical diversity. Additionally, it had a substantial effect on writing fluency. OLP significantly improved overall complexity, complex subordinations, and lexical diversity. It also benefited in the production of error-free clauses and enhanced writing fluency. Finally, PTP/OLP aided overall complexity, complexity via phrasal elaboration, and lexical diversity. It also had a beneficial effect on error-free clauses and on writing fluency. Analysis of questionnaires and interviews revealed that PTP facilitated allocation of attention to language aspects during the task performance and OLP encouraged revising and monitoring. PTP/OLP provided better opportunities for L2 writing processes. In the light of what have been mentioned in Tabari's study, it can be concluded that the current study contradicted with the previous study in the results although both of them used virtual environment as an independent variable and narrative writing as a dependent one. For example, the results were insignificant in writing fluency as a whole and in EFC/C in the current study, and this proves the contradiction between the two studies.

Concerning the Arabian context in developing writings' CAF, Seiffeddin and El-Sakka (2017) investigated the effect of direct-indirect corrective feedback via e-mail on the writing accuracy of students at kindergarten section, Suez Faculty of Education, Egypt. The study adopted the quasi experimental design. The main instrument of the study was a pre-post writing test. The participants were forty-eight junior EFL students at the kindergarten section. They are selected randomly. During the treatment, the experimental group received direct-indirect teacher corrective feedback on their writing compositions via e-mail while the control group received no feedback. Differences between the participants' mean scores on the pre-test and post-test were calculated for each group separately using Paired Samples test which revealed significant differences between the pre-test and post-test of the experimental group mean scores. Independent Samples test was used to calculate the differences between the experimental and the control groups' mean gain scores on the pre and post-test of writing. Significant differences existed in favour of the experimental group mean gain scores.

Alghizzi (2017) investigated the influence of four factors: proficiency levels, text types, times, and learning environments on the writing complexity, accuracy, and fluency of Saudi students majoring in the English language. The study seeks to determine how and when the CAF constructs and sub constructs of low- and high-proficiency Saudi EFL undergraduates in three learning contexts: traditional learning context (TLC), blended learning context (BLC), and online learning contexts (OLC), are affected longitudinally across two writing tasks (classification and argumentative) that differed in their level of complexity. Also, it intends to specify when and which of the three learning contexts: TLC, BLC, and OLC, will lead to the most/least increases or decreases in the CAF constructs and sub-constructs of the low- and high proficiency Saudi EFL undergraduates across the two composition tasks. The results revealed that blended learning participants developed in the syntactic complexity across mean length of sentence, VP/T, C/T, CN/T in the classification essay, whereas in argumentative (C/S, C/T, DC/T, CT/T). For accuracy, it remains unaffected with altering of certain tasks. The ANOVA test results indicated mixed findings because each of the three learning environments resulted in benefits in some ways. In the two proficiency levels, the TLC, BLC, and OLC had the same level of success/unsucess in enhancing all the measures of some CAF constructs in both writing tasks in the short term and long term. Nevertheless, in the other CAF constructs, there was no uniform linear development or deterioration of all measures across the six groups. In each of these constructs, the differences between these groups emerged from one or more measures, but not from all measures. Each of these learning contexts stood alone in being the most or least successful in increasing some constructs. Nonetheless, this was dependent on the participants 'proficiency levels, text types, and timescales.

## METHODOLOGY

### Design

This study employs the pre-post-test quasi-experimental design. Employing this design, the researcher assigned one group randomly (experimental one) from EFL students, college of languages and translation, Al Imam university, Saudi Arabia. The experimental group was first pretested in

sub-constructs of narrative writing complexity, accuracy, and fluency to find out their initial levels in the dependent variables. During the experiment, the experimental group was exposed to the English native speaking kids' website. At the end of the treatment, the experimental group was post-tested.

### Setting

The study was carried out at the college of languages and translation, at Al-Imam Muhammad Ibn Saud Islamic University in the second semester of the academic year 2018/2019. The duration of the application of the experiment lasted for three months and two weeks.

### Participants

At the previously mentioned four-year college, each year is divided into two semesters corresponding to two levels-one of level three four groups of Saudi EFL male undergraduates was recruited for the experiment. Initially, the number of participants was 24, but half way through the experiment some of the participants decided to withdraw from the course and only 11 participants remained. Demographically, the age of these participants ranged from 19 to 21 and their exposure length to English ranged from 9 to 11 years. Finally, based on the English writing proficiency test (see appendix A)-which was adapted from IELTS- administered by the two researchers to the students at the beginning of the study, their proficiency level was determined to be of an intermediate level.

### EFL Writing Course and Teaching Approach

At the time of the study application, level three students were required to take a writing course entitled (Eng.211) for two hours weekly. The designated textbook for that course was: 'Effective Academic Writing 2: The Short Essay' by Alice Savage and Patricia Mayer (2005). The book consists of six chapters: paragraph to short essay, descriptive essays, narrative essays, opinion essays, comparison and contrast essays, and cause and effect essays. However, students were only required to merely take the first three chapters as the others were specified for level four students. Also, the teaching approached incorporated was a process-genre approach. Such approach, as emphasized by White and Badger (2003) and Nordin and Mohammad (2017), is believed to be the most effective in improving EFL students' writings since it combines the best of the other approaches (i.e., product, genre, and process). The approach requires subjects to analyse, with the help of their instructor(s), ad hoc samples of written texts of specific genres, to provide similar written productions of their own, and finally, to do multiple drafts based on the comments and corrections made by their teacher(s) and their fellow-colleagues on the first drafts.

### Procedures for Data Collection

In the first week of the semester and in different classrooms, all participants met with the writing instructor (i.e., one of the researchers) to receive an introduction on the course syllabi which included some information on the textbook, teaching approach, materials, requirements and tests' dates.

In the second week, the group undertook a pre-test. The test required students to write a narrative essay on their first day at college. This topic-as well as that of the post-test- was modified from the IELTS English Proficiency exam to be of transparent nature to allow students to write more. There was no constraint put on the submission time or even the length of the texts. The significance of the pre-test is not only to compare its results with those of the post-test, but also to identify all participants' proficiency level(s). Then, the group received another detailed orientation on one specific experiment-related requirement alone. The fulfilment of such requirement depended on, first; visiting British Council's 'Learn English Kids' website. This website contains different forums on: Listen and Watch, Read and Write, Speak and Spell, Grammar and Vocabulary, Fun and Games, Print and Make. In the Listen and Watch forum, there are other sub-forums: Songs, Short stories, Poems, and Video Zone with videos, audios, transcripts, activities, and answers. Then, the participants were instructed to copy these different types of short texts and stories as many as they could. They were also told that that they could move to second short texts, story, songs, etc., if they felt that they had memorized the first one by heart and knew all of the difficult words if there were any. All of their written copies should be put in a portfolio and they were promised 10 marks at the end of the semester only if they managed to keep records of such assignment.

Finally, at the end of the semester (i.e., week 14), all participants undertook their post-test and they were asked to write a narrative essay on their success or failure experience moment they encountered during the last 10 years.

### Data Preliminary Analysis

After collecting all of the participants' pre-tests and post-tests (i.e., 22 samples) in hardcopy forms, they were transferred to electronic versions by using WORD documents which is capable of transferring them to plain texts. This was an important procedure as part of the written text analyses was undertaken using analyzing software programs. Then, all of the data were analyzed electronically and/manually, based on different types of measures designated for each of CAF constructs. For instance, there are 55 indices used in the research divided to: syntactic complexity (11 measures), lexical complexity: lexical density (one measure), lexical sophistication (five measures), and lexical variation (19 measures), accuracy (12 measures), and fluency (seven measures). The reason to incorporate many indices is that Kuiken and Vedder (2007) concluded that "the use of more global and more specific measures may complement each other" (p. 276).

### *Syntactic Complexity*

The analysis of such construct was done using Haiyang Ai's (2017a) online batch mode (available at http://aihaiyang. com/software/l2sca/batch/) which is a simplified version of

the original complicated L2 Syntactic Complexity Analyzer (L2SCA**)** software developed by Xiaofei Lu. By calculating the occurrences of a number of syntactic structures and production units electronically[1], the software is able to produce the results of 14 measures, three of which were used for fluency, of SC proposed in the literature on L2 development (Lu, 2010). The software was found to be effective and reliable in general (e.g., Kim, 2014; Long & Tabuki, 2014), and in comparison to the manual analysis (e.g., Yoon & Polio, 2014). The syntactic complexity measures are sentence complexity ratio (C/S), T-unit complexity ratio (C/T), complex T-unit ratio (CT/T), dependent clause ratio (DC/C), dependent clauses per T-unit (DC/T), coordinate phrases per clause (CP/C), coordinate phrases per T-unit (CP/T), sentence coordination ratio (T/S), complex nominals per clause (CN/C), complex nominals per T-unit (CN/T), and verb phrases per T-unit (VP/T).

### *Lexical Complexity*

Bulté and Housen (2015, p. 42) "stressed the importance of calculating a sufficiently wide range of [syntactic and lexical] complexity measures in order to obtain a comprehensive picture of L2 development." Therefore, Ai's (2017b) another online batch mode (available online at http://aihaiyang.com/software/lca/batch/) was used. This batch mode is again a simplified version of the Lexical Complexity Analyzer (LCA) software developed by Xiaofei Lu. The software has been used in many studies (e.g., Lorenzo & Rodríguez 2014; Mazgutova & Kormos, 2015; Tsai, 2013; Yang, 2014). Crossley and McNamara (2009, p. 121) contended that the automatic analysis programs such as the LCA, eliminate human raters' fallibility and intuitive judgment, and are "more accessible and theoretically sound approach for the quantitative evaluation of texts" (p. 121). Moreover, by calculating some types of production units (e.g., words, sophisticated words, lexical words, etc.), the software is able to yield the results for 25 lexical complexity measures (Lu, 2012). These measures belongs to three types of lexical complexity: Lexical density (LD); lexical sophistication: lexical sophistication-I (LS1), lexical sophistication-II (LS2), verb sophistication-I (VS1), corrected VS1 (CVS1), and verb sophistication-II (VS2); and lexical variation: number of different words (NDW), NDW (first 50 words) (NDWZ), NDW (expected random 50) (NDWERZ), NDW (expected sequence 50) (NDWESZ), type/token ratio (TTR), mean segmental TTR (50) (MSTTR), corrected TTR (CTTR), root TTR (RTTR), bilogarithmic TTR (LogTTR), uber index (Uber), lexical word variation (LV), verb variation-I (VV1), squared VV1 (SVV1), corrected VV1 (CVV1), verb variation-II (VV2), noun variation (NV), adjective variation (AdjV), adverb variation (AdvV), modifier variation (ModV).

### *Accuracy*

In the case of accuracy, there were twelve measures used. These measures were three frequency measures: Errors (E), error-free T-units (EFT), error-free clauses (EFC), and nine

ration measures: errors per word (E/W), errors per clause (E/C), errors per T-unit (E/T), error-free clause ratio (EFC/C), error-free clauses per T-unit (EFC/T), error-free clauses per sentence (EFC/S), error-free T-units per word (EFT/W), error-free T-units per ratio (EFT/T), error-free T-units per sentence (EFT/S). Although all of these measures were analyzed by the researchers manually, there are two important factors to mention to maintain the consistency of all results. One is that the definitions of some production units (e.g., T-unit, clause, sentence, etc.) used in this analysis-and for fluency's-are adopted from those used in the L2SCA software. Two is that the types of errors/mistakes counted here were grammatical, morphological, and spelling, and any other types such as capitalization, punctuation, or lexical choice were neglected.

### *Fluency*

In fluency, there were four frequency measures (i.e., words [W], clauses [C], T-units [T], and sentences [S]), and three ratio measures (mean length of clauses [MLC], mean length of t-units [MLT], and mean length of sentences [MLS]). Despite the fact that the results of all of these measures were generated by the L2SCA, the researchers also reanalysed them manually to substantiate the consistency of the results. The outcome of the manual analysis proved such software to be reliable. However, the three ratio measures (i.e., MLC, MLT, and MLS) were transferred to fluency because Wolfe-Quintero, Inagaki, and Kim (1998) stressed that any length measures lack the ability to differentiate how different text lengths are achieved.

### *Data Statistical Analysis*

After yielding the results of all CAF's measures, they were entered in statistical package for social studies (SPSS) program (version 20) and were analysed using Wilcoxon Signed-Rank Test. The test was used to draw two comparisons, first between each CAF measure's mean in the pre-test with its mean in the post-test, and second between the total mean of all measures of each CAF in the pre-test with the total mean of all measures of each CAF in the post-test.

## RESULTS

### Syntactic Complexity Results

Table 1 displays the syntactic complexity measures' pre-test and post-test comparison results (see appendix A).

The table indicates that, in the comparison between the mean of each of the 11 syntactic complexity measures in the pre-test with its mean in the post-test, there were some statistically significant differences. The means of CP/T (M= 0.56), CP/C (M= 0.33), CN/C (M= 1.10), and CN/T (M= 1.98) were significantly higher in the pre-test than their means: CP/T (M= 0.19), CP/C (M= 0.11), CN/C (M= 0.68), and CN/T (M= 1.26) in the post-test. The z. values were: 2.84, 2.85, 2.57, and 2.13, respectively. However, the table also showed that, in terms of the comparison of all syntactic complexity measures' total mean in the pre-test (M= 13.25) with that in the post-test (M=11.36), there was no statistically
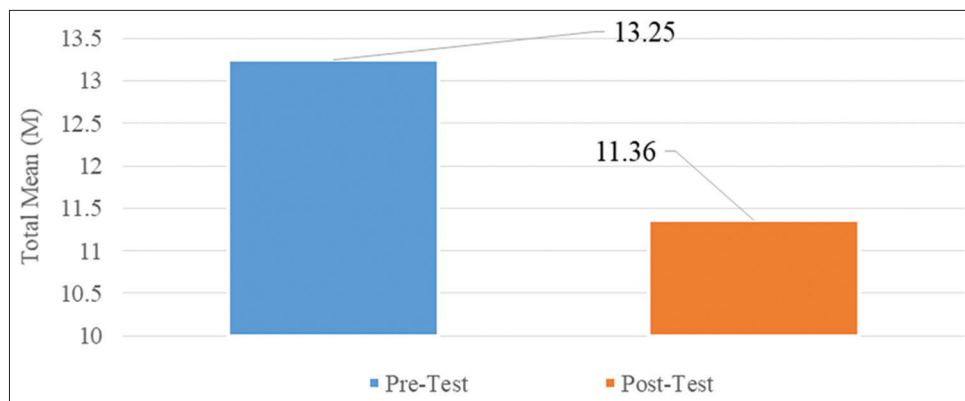
**Figure 2.** Syntactic Complexity as a Whole

significant difference as the z. value was 0.97. All of these results revealed that the syntactic complexity of Saudi intermediate EFL university students decreased partially and not as a whole. The construct in participants' narrative writings was impacted partially and negatively by the application of the native speaker kids' website. Figure 2 indicates the comparison results of syntactic complexity as a whole.

### *Lexical Complexity (Density and Sophistication) Results*

Table 2 shows lexical density and lexical sophistication measures' pre-test and post-test comparison results (see appendix B).

In the table, there was one statistically significant difference between the mean of lexical density measure (M = 0.47) in the pre-test and its mean (M = 0.53) in the post-test. The latter was significantly higher than the former as the z. values was 2.80. For lexical sophistication, none of the two types of comparisons showed any statistically significant differences. All of these findings revealed that although Saudi EFL intermediate undergraduates' lexical density developed, their lexical sophistication did not increase/decrease partially or as a whole. The lexical density in the participants' narrative essays was the only sub-construct affected positively by the application of the native speaker kids' reading websites. Figure 3 shows the comparison results of lexical sophistication as a whole.
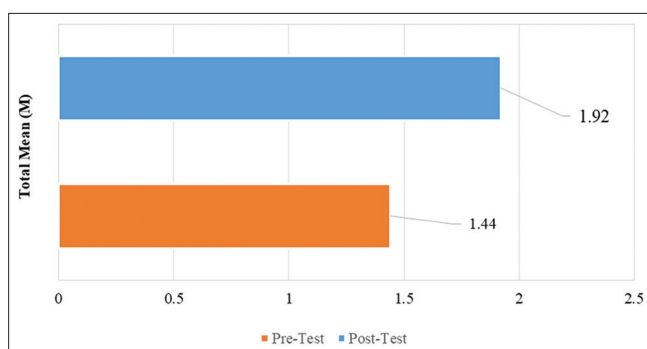


**Figure 3.** Lexical Sophistication as a Whole

### *Lexical Complexity (Lexical Variation) Results*

Table 3 displays lexical variation measures' pre-test and post-test comparison results (see appendix C).

The table shows that out of the 19 measures used for lexical variation, 11 measures revealed statistically significant differences. The means of NDW (M = 81.19), CTTR (M = 4.72), RTTR (M = 6.68), Uber (M = 16.58), VV1 (M = 9.24), CVV1 (M = 0.60), VV2 (M = 0.22), NV (M = 0.53), AdjV (M = 0.12), AdvV (M = 0.06), and ModV (M = 0.18) in the pre-test were significantly lower than their means: NDW (M = 123.81), CTTR (M = 5.49), RTTR (M = 7.77), Uber (M = 19.60), VV1 (M = 19.53) CVV1 (M = 0.75), VV2 (M = 1.56), NV (M = 0.72), AdjV (M = 0.12), AdvV (M = 0.10), and ModV (M = 0.22) in the post-test. The z. values were: 1.82, 1.68, 1.69, 1.68, 1.68, 2.93, 2.76, 1.96, 2.71, 2.40, 1.71, respectively. Likewise, there was statistically significant difference between the total mean of all sub-construct's measures (M = 235.54) in the pre-test and their total mean (M = 295.23) in the post-test. The mean of the former was significantly lower than the latter. The z. value was 2.13. All these results indicated that the sub-construct of the Saudi intermediate EFL university students increased significantly; both partially and as a whole. The lexical variation in participants' narrative essays was positively affected by the application of the native speaker kids' reading website, both partially and as a whole. Figure 4 displays the comparison results of the lexical variation as a whole.
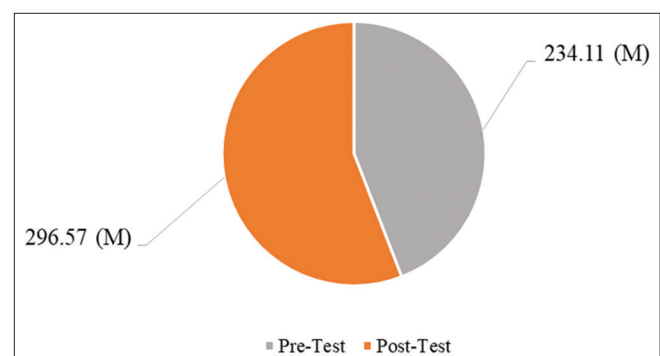


**Figure 4.** Lexical Variation as a Whole

### **Accuracy Results**

Table 4 shows accuracy measures' pre-test and post-test comparison results (see appendix D).

In the table, 10 accuracy measures indicated statistically significant differences. The means of E (M = 10.81), E/W (M =

0.06), E/C (M = 0.60), and E/T (M = 1.19) were higher in the pre-test than in the post-test: E (M = 6.27), E/W (M = 0.03), E/C (M = 0.23), and E/T (M = 0.44). The z. values were: 2.50, 2.04, 2.40, and 2.31, respectively. On the contrary, the means of EFC (M = 12.63), EFC/T (M = 0.56), EFT (M = 6.09), EFT/W (M = 0.02), EFT/T (M = 0.43), and EFT/S (M = 0.51) were lower in the pre-test than in the post-test: EFC (M = 25.18), EFC/T (M = 0.76), EFT (M = 16.45), EFT/W (M = 0.06), EFT/T (M = 0.80), and EFT/S (M = 1.01). The z. values were: 1.69, 2.40, 2.40, 2.84, 2.93, and 2.93, respectively. However, in terms of the comparison of the total means of E, E/W, E/C, and E/T (M= 12.66) in the pre-test with theirs in the post-test (M = 6.97), there was statistically significant difference (z. value was 2.66) in the sense that it decreased significantly in the latter test[3]. For the other comparison between total mean of the other measures: EFC, EFC/C, EFC/T, EFC/S, EFT, EFT/W, EFT/T, EFT/S in the pre-test (M = 34.40) and theirs in the post-test (M = 47.36), there was a statistically significant results (z. value was 2.40) in the sense that it increased in the latter test more than in the former one. All of these results indicated that the accuracy of Saudi intermediate EFL undergraduates decreased and increased partially and as a whole. The construct in participants' narrative writings was impacted positively by the application of the native speaker kids' website. Figure 5 shows the comparison results of the accuracy as a whole.
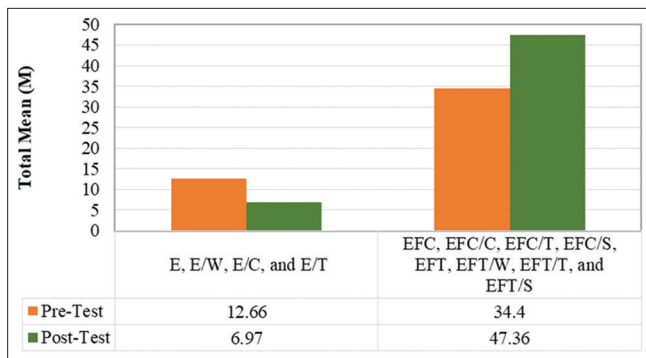


**Figure 5.** Accuracy as a Whole

**Fluency Results**

Table 5 displays fluency measures' pre-test and post-test comparison results (see appendix E).

Close inspection of Table 5 above shows that out of the 7 measures (W, C, T, S, MLC, MLT, and MLS) used, only MLC revealed a statistically significant difference. The mean of the measure in the pre-test (M = 7.93) was lower than its mean (M= 9.77) in the post-test. The z. value was 2.31. However, the total mean of all measures in the pre-test (M = 294.52) was not significantly different from their total mean (M = 364.28) in the post-test as the z. value was 0.35. All of these findings indicated that the fluency of Saudi intermediate EFL university students increased partially and not as a whole. The construct in participants' narrative writings was impacted partially but positively by the application of the native speaker kids' website. Figure 6 displays the results of fluency as a whole.
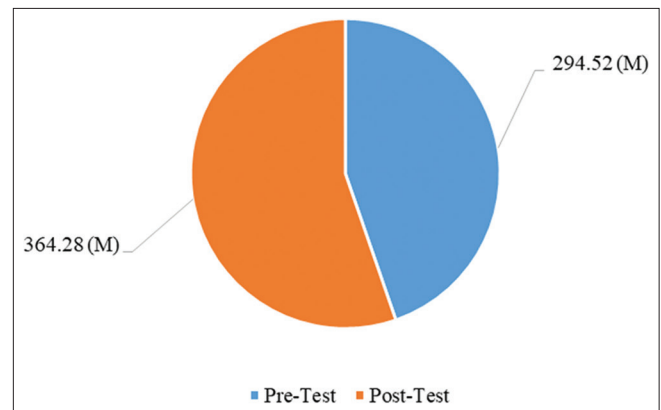


**Figure 6.** Fluency as a Whole

**DISCUSSION**

Saudi EFL learners' CAF are investigated to unveil the impact of English native speaker kids' website on improving narrative writing in the current study. Narrative writing was selected, particularly, as it is materialization of English language production and is more feasible to measure objectivity compared to speaking. Furthermore, the emphasis on narrative in this study emerged as a result of the relation between reading about short stories in the virtual learning website and narration. Another reason is Saudi EFL university students' need to write comments and analyses in the subjects they study like novel, poetry, and drama. Results indicated that there is a discrepancy in the results. The syntactic complexity of Saudi intermediate EFL students' narrative writing decreased partially not as a whole whereas lexical sophistication did not increase/decrease partially or as a whole. In the regard of complexity, it was found that the sub-constructs of lexical density and lexical variation are affected positively and enhanced partially and as a whole. For accuracy construct, the results increased and improved partially and as a whole, nevertheless, the results decrease partially and as a whole for the same construct. The construct of fluency increased partially only with mean length clause ratio (MLC ratio).

Participants syntactic complexity was passively affected to some extent as Saudi intermediate students are not very familiar with the type of grammatical structures they could use in writing, which were little different from what they have been used to. In this respect, many studies found no beneficial impact of online planning on writing complexity. For example, Abdi Tabari in two studies (2017, 2018) indicated that the provision of online planning only promoted syntactic complexity but had no effect on syntactic variety and lexical variety. Accordingly, the current study concurred with the above mentioned two studies in the regard that syntactic complexity is developed partially. Commenting on the other sub-constructs of writing complexity, particularly, lexical density, it was noted that there is a great deal of similarity between the current study and Atasoy & Temizkan study (2016) in the regard of positive improvement of lexical density partially and as a whole. It was also noted that the measure led to the most increase in narrative writing among the ratios of syntactic complexity, namely, (CP/C) which

achieved the most increase as the critical value reached 2.85. On the contrary, the ratio that led to the most decrease in the same measure was (DC/T) as it reached 0.17.

To explore the impact of native speaker kids' website on lexical density, sophistication, and variation, it was noted that Saudi EFL intermediate undergraduates achieved high scores in lexical density construct in favor of the post test. However, the results were insignificant concerning lexical sophistication measures. This, in turn, resulted in low improvement in lexical sophistication measures. For lexical variation measures, it was found that there is an enhancement and positive impact on the participants' narrative essay, both partially, and as a whole.

One of the reasons of the lack of improvement of syntactic complexity, lexical sophistication is that there is no planning when starting reading through forums on the reading website. This point of view is an indicator for Ellis view (2005) that gave a heavy emphasis to the pre-task planning and its role in achieving greater fluency and complexity.

With regard to accuracy, the current study is congruent with Ahmadi-Azad's study (2014) as the results of the two studies enhanced writing accuracy partially and as a whole. According to Ahmadi-Azad's study, learners' errors were reduced by coded written corrective feedback (WCF). However, the frequency of error reduction is not the same. In the current study, there are significant statistical differences in the post-testing regarding all ratios of accuracy measure except EFC/C and EFC/S. In the same vein, the current study is consistent with Abdi-Tabari's study (2018) in enhancing overall accuracy. However, the later study is not in line with the current study concerning (EFC/S). While Abdi Tabari's (2018) study resulted in the production of error-free clauses per sentence, the current study found no significance between the native speakers reading website and (EFC/S). To sum up, the results of the current study is consistent with (Farahani and Meraji 2011, Ghavamnia et al, 2013, Abdi-Tabari, 2016,Nosratinia and Razavi, 2016,) in enhancing accuracy while writing. Comparing among the ratios of accuracy measure, it was noted that (EFT/T) was the highest ratio in improving narrative writing where it reached 2.93 while (EFC/C) was the lowest decrease in narrative writing accuracy measure where it reached 1.16. However, through the results, it can be deduced that the decrease in all ratios of CAF measures refer to a negative indicator except the error dimension (E) in particular. In other words, this means that if there is a decrease in (E) dimension, there will be positive results in participants' narrative writing.

The rate of positive improvement in the accuracy measure in the current study could be interpreted in view of different reasons. One of the reasons is Saudi EFL learners' assumption that a good piece of writing should not include any mistakes. Another reason is the capability of using Microsoft processor word and its traits that underlines the ungrammatical sentences and misspelling. A third and an important reason is the interaction with virtual learning website, namely, British council " learn English kids" which is the independent variable in the current study.

Results of the current study are partially in line with Fellner and Apple (2006) study. The later study examined the impacts of blogs on EFL writing fluency. The study findings indicated a significant (350%) increase in word count in EFL writing fluency, and this, in turn, is similar to our study which showed that mean length clause ratio of fluency (MLC) was the only sub-construct that was positively impacted and developed. In a similar vein, Biria and Jafari (2013) found that the fluency of written texts by pairs was not significant enough in comparison to the fluency of essays produced by individuals. Thus, the previous study is consistent with the current study that found no improvement in written fluency except the only sub-construct, namely, (MLC) ratio.

Six ratios of fluency measure were not enhanced as fluency in writing is one of the difficult skills. Kowal (2014) stated that the enhancement of writing fluency is a complex process. It represents the ability to write fast, or without exerting efforts, and the skill to produce longer text units without many pauses or revision that may influence on the flow of text creation.

To interpret the inconsistency in the results of the current study, Skehan model of task difficulty should be explored. Skehan model (1998, 2001, and 2003) examines difficulty rather than complexity of the task. For instance, when learners read an article on "important events in life", they will show various levels of comprehension because of the level of their English proficiency, reading skills, language aptitude, and working memory capacities. According to Skehan's Limited Attention Capacity Model (LACM), learners have limited attentional resources so that they cannot direct their adequate attention to all aspects of language at the same time (Skehan and Foster, 2001). Thus, the researchers suggested that there as an immense increase in promoting certain constructs and sub-constructs of CAF on the one hand. On the other hand, there is a decrease in the other constructs of CAF. All this discrepancy is due to the degree of difficulty, and the complexity of the task, in addition to the rate of the attention directed to the task.

Finally, the results of the current study confirmed the findings of the previous related studies. To elaborate, it was noted that most of the findings of the current study are in line with those of the studies conducted by (Ahmadian, et al, 2015, Alghizzi, 2017, Abdi-Tabari, 2017, 2018, Aref and Mojavezi 2019, Ayden, 2019 ). It is worth mentioning that one of the arresting points in the current study is the spirit of collaborative atmosphere among the participants during the experiment and this refers to the participants' desire in mastering reading websites tools in the digital epoch. It can be stated that linguistic subsystems, dimensions of language proficiency (complexity, accuracy, and fluency), and even individual elements of language interact in ways that are supportive, competitive, and conditional. Furthermore, among the advantages of such website is that learners can interact with this site in an asynchronous way.

## CONCLUSION

Findings showed that the syntactic complexity of Saudi intermediate EFL students' narrative writing decreased partially not as a whole. Thus, the use of virtual learning website

was not successful with (SC). Regarding the findings of lexical complexity ( i.e., density, sophistication and variation), it was noted that showed that there are statistically significant differences in the comparison between the means of pre-test and the post-test in favour of the post-test regarding lexical density , while, lexical sophistication did not increase/decrease partially or as a whole. For lexical variation, the results were significant in the post testing. Analyzing accuracy measures, the findings showed that the accuracy of Saudi intermediate EFL undergraduates decreased and increased partially and as a whole. However, their fluency did not improve as a whole except the ratio of (MLC).

Emphasizing on the pedagogical implications of the current study, the researchers, supervisors, designers of curricula, and EFL teachers should be aware of the measures of complexity, accuracy, and fluency in enhancing different genres of writing. Moreover, the current study suggested insights or indicators in dealing with native speaker kids' website. This website can promote critical thinking, and provide examples for students to model and to learn. Not only this but also it can be applied inside and outside the classroom. The participants were pleased with the group dynamics, the materials and the proposed activities.

Among the practical implications of the current study is the importance of CAF constructs in measuring improvement in genres of writing. This implication is an outstanding reflection to Housen and Kuiken's view (2009) in utilizing CAF as indicators for the oral and written assessment of language learners, and as descriptors of writing proficiency.

In summary, it could be concluded that further research should be conducted to replicate this study over different populations. A similar study may also be implemented to show the impact of using native speakers' reading website on other language skills. Finally, Colleges of Languages and Translation, and all educational institutions interested in teaching should also draw staff members' attention to use such reading website as an instructional tool to provide a scaffold learning environment conductive to student learnings.

## END NOTES

1. The definitions of these syntactic structures and production units, some of which were used when undertaken the analysis of accuracy and fluency manually, are discussed in details in Lu's (2010, pp. 9-13) study.
2. Because there is only one measure of lexical density, an increase in it will indicate an increase in the subconstruct as a whole and vice versa.
3. In accuracy, there are two types of measures. The first type is EFC, EFC/C, EFC/T, EFC/S, EFT, EFT/W, EFT/T, EFT/S, in the sense that an increase in them indicates an increase of the construct and vice versa. However, in the second type of measures (E,E/W, E/C, and E/T), there is a reversed result in the sense that an increase in any of these measures indicates a decrease of theconstruct whereas a decrease indicates an increase of the construct. Therefore, two adverbs (i.e. positively

and negatively) were used to clarify the types of effect occurred as a result of the application of the experiment.

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**APPENDIX**

**Appendix A.** Syntactic Complexity Measures' Pre-test and Post-test Comparison Results

| Syntactic complexity measures | Tests | N | Mean | Standard deviation | Critical value(Z) |
|---|---|---|---|---|---|
| CP/T | The Pre-Test | 11 | 0.56 | 0.29 | 2.84** |
| | The Post-Test | 11 | 0.19 | 0.10 | |
| CP/C | The Pre-Test | 11 | 0.33 | 0.20 | 2.85** |
| | The Post-Test | 11 | 0.11 | 0.07 | |
| CN/C | The Pre-Test | 11 | 1.10 | 0.29 | 2.57** |
| | The Post-Test | 11 | 0.68 | 0.20 | |
| C/S | The Pre-Test | 11 | 2.29 | 1.23 | 0.44 |
| | The Post-Test | 11 | 2.26 | 0.86 | |
| VP/T | The Pre-Test | 11 | 2.38 | 1.08 | 0.17 |
| | The Post-Test | 11 | 2.30 | 0.85 | |
| C/T | The Pre-Test | 11 | 1.88 | 0.80 | 0.00 |
| | The Post-Test | 11 | 1.80 | 0.66 | |
| DC/C | The Pre-Test | 11 | 0.35 | 0.20 | 0.22 |
| | The Post-Test | 11 | 0.36 | 0.10 | |
| DC/T | The Pre-Test | 11 | 0.80 | 0.71 | 0.17 |
| | The Post-Test | 11 | 0.69 | 0.39 | |
| T/S | The Pre-Test | 11 | 1.17 | 0.18 | 1.06 |
| | The Post-Test | 11 | 1.24 | 0.17 | |
| CT/T | The Pre-Test | 11 | 0.41 | 0.24 | 0.89 |
| | The Post-Test | 11 | 0.47 | 0.16 | |
| CN/T | The Pre-Test | 11 | 1.98 | 0.72 | 2.13** |
| | The Post-Test | 11 | 1.26 | 0.65 | |
| Syntactic Complexity as a Whole | The Pre-Test | 11 | 13.25 | 4.66 | 0.97 |
| | The Post-Test | 11 | 11.36 | 3.53 | |

(*) indicates the significant results at 0.05. (**) indicates the significant results at 0.01

**Appendix B.** Lexical Density and Lexical Sophistication Measures' Pre-test and Post-test Comparison Results

| Lexical density and sophistication measures | Tests | N | Mean | Standard deviation | Critical value(Z) |
|---|---|---|---|---|---|
| $LD^2$ | The Pre-Test | 11 | 0.47 | 0.04 | 2.80** |
| | The Post-Test | 11 | 0.53 | 0.51 | |
| LS1 | The Pre-Test | 11 | 0.29 | 0.15 | 1.51 |
| | The Post-Test | 11 | 0.22 | 0.05 | |
| LS2 | The Pre-Test | 11 | 0.19 | 0.08 | 0.04 |
| | The Post-Test | 11 | 0.20 | 0.04 | |
| VS1 | The Pre-Test | 11 | 0.10 | 0.13 | 0.25 |
| | The Post-Test | 11 | 0.08 | 0.06 | |
| VS2 | The Pre-Test | 11 | 0.16 | 0.18 | 0.62 |
| | The Post-Test | 11 | 0.52 | 0.96 | |
| CVS1 | The Pre-Test | 11 | 0.23 | 0.17 | 0.80 |
| | The Post-Test | 11 | 0.37 | 0.35 | |
| Lexical Sophistication as a Whole | The Pre-Test | 11 | 1.44 | 0.60 | 0.27 |
| | The Post-Test | 11 | 1.92 | 1.40 | |

(*) indicates the significant results at 0.05. (**) indicates the significant results at 0.01

**Appendix C.** Lexical Variation Measures' Pre-test and Post-test Comparison Results

| Lexical variation measures | Tests | N | Mean | Standard deviation | Critical value(Z) |
|---|---|---|---|---|---|
| NDW | The Pre-Test | 11 | 81.19 | 36.16 | 1.82* |
| | The Post-Test | 11 | 123.81 | 59.90 | |
| NDWZ | The Pre-Test | 11 | 37.18 | 4.28 | 0.58 |
| | The Post-Test | 11 | 36.00 | 2.75 | |
| NDWERZ | The Pre-Test | 11 | 36.42 | 2.82 | 1.33 |
| | The Post-Test | 11 | 38.41 | 1.73 | |
| NDWESZ | The Pre-Test | 11 | 35.72 | 2.97 | 0.30 |
| | The Post-Test | 11 | 36.46 | 1.81 | |
| TTR | The Pre-Test | 11 | 0.48 | 0.06 | 1.29 |
| | The Post-Test | 11 | 0.51 | 0.07 | |
| MSTTR | The Pre-Test | 11 | 0.72 | 0.05 | 0.53 |
| | The Post-Test | 11 | 0.73 | 0.03 | |
| CTTR | The Pre-Test | 11 | 4.72 | 0.82 | 1.68* |
| | The Post-Test | 11 | 5.49 | 0.87 | |
| RTTR | The Pre-Test | 11 | 6.68 | 1.17 | 1.69* |
| | The Post-Test | 11 | 7.77 | 1.22 | |
| LogTTR | The Pre-Test | 11 | 0.85 | 0.02 | 1.65 |
| | The Post-Test | 11 | 0.87 | 0.02 | |
| Uber | The Pre-Test | 11 | 16.58 | 3.27 | 1.86* |
| | The Post-Test | 11 | 19.60 | 2.48 | |
| LV | The Pre-Test | 11 | 0.70 | 0.12 | 1.65 |
| | The Post-Test | 11 | 0.77 | 0.11 | |
| VV1 | The Pre-Test | 11 | 9.24 | 3.36 | 1.70* |
| | The Post-Test | 11 | 19.53 | 9.45 | |
| SVV1 | The Pre-Test | 11 | 1.92 | 0.76 | 1.18 |
| | The Post-Test | 11 | 3.06 | 0.65 | |
| CVV1 | The Pre-Test | 11 | 0.60 | 0.08 | 2.93** |
| | The Post-Test | 11 | 0.75 | 0.09 | |
| VV2 | The Pre-Test | 11 | 0.22 | 0.03 | 2.76** |
| | The Post-Test | 11 | 1.56 | 4.78 | |
| NV | The Pre-Test | 11 | 0.53 | 0.09 | 1.96* |
| | The Post-Test | 11 | 0.72 | 0.12 | |
| AdjV | The Pre-Test | 11 | 0.12 | 0.02 | 0.71 |
| | The Post-Test | 11 | 0.21 | 0.03 | |
| AdvV | The Pre-Test | 11 | 0.06 | 0.02 | 2.40** |
| | The Post-Test | 11 | 0.10 | 0.03 | |
| ModV | The Pre-Test | 11 | 0.18 | 0.03 | 1.71* |
| | The Post-Test | 11 | 0.22 | 0.04 | |
| Lexical Variation as a whole | The Pre-Test | 11 | 234.11 | 47.65 | 2.13** |
| | The Post-Test | 11 | 296.57 | 73.69 | |

(*) indicates the significant results at 0.05. (**) indicates the significant results at 0.01

**Appendix D.** Accuracy Measures' Pre-test and Post-test Comparison Results

| Accuracy measures | Test | N | Mean | Standard deviation | Critical value(Z) |
|---|---|---|---|---|---|
| E | The Pre-Test | 11 | 10.81 | 4.81 | 2.50** |
|  | The Post-Test | 11 | 6.27 | 1.27 |  |
| E/W | The Pre-Test | 11 | 0.06 | 0.04 | 2.04** |
|  | The Post-Test | 11 | 0.03 | 0.01 |  |
| E/C | The Pre-Test | 11 | 0.60 | 0.40 | 2.40** |
|  | The Post-Test | 11 | 0.23 | 0.09 |  |
| E/T | The Pre-Test | 11 | 1.19 | 1.19 | 2.31** |
|  | The Post-Test | 11 | 0.44 | 0.25 |  |
| Accuracy as a Whole | The Pre-Test | 11 | 12.66 | 0.09 | 2.66** |
|  | The Post-Test | 11 | 6.97 | 1.37 |  |
| EFC | The Pre-Test | 11 | 12.63 | 6.75 | 1.69* |
|  | The Post-Test | 11 | 25.18 | 17.98 |  |
| EFC/C | The Pre-Test | 11 | 1.06 | 0.53 | 1.15 |
|  | The Post-Test | 11 | 1.37 | 0.48 |  |
| EFC/T | The Pre-Test | 11 | 0.56 | 0.15 | 2.40** |
|  | The Post-Test | 11 | 0.76 | 0.09 |  |
| EFC/S | The Pre-Test | 11 | 13.1 | 0.91 | 1.16 |
|  | The Post-Test | 11 | 1.73 | 0.68 |  |
| EFT | The Pre-Test | 11 | 6.09 | 4.20 | 2.40** |
|  | The Post-Test | 11 | 16.45 | 12.91 |  |
| EFT/W | The Pre-Test | 11 | 0.02 | 0.01 | 2.84** |
|  | The Post-Test | 11 | 0.06 | 0.02 |  |
| EFT/T | The Pre-Test | 11 | 0.43 | 0.10 | 2.93** |
|  | The Post-Test | 11 | 0.80 | 0.09 |  |
| EFT/S | The Pre-Test | 11 | 0.51 | 0.12 | 2.93** |
|  | The Post-Test | 11 | 1.01 | 0.21 |  |
| Accuracy as a Whole | The Pre-Test | 11 | 34.40 | 10.67 | 2.40** |
|  | The Post-Test | 11 | 47.36 | 30.72 |  |

(*) indicates the significant results at 0.05. (**) indicates the significant results at 0.01

**Appendix E.** Fluency Measures' Pre-test and Post-test Comparison Results

| Fluency measures | Tests | N | Mean | Standard deviation | Critical value(Z) |
|---|---|---|---|---|---|
| W | The Pre-Test | 11 | 204.90 | 84.92 | 0.53 |
|  | The Post-Test | 11 | 252.36 | 159.55 |  |
| C | The Pre-Test | 11 | 21.09 | 7.06 | 1.29 |
|  | The Post-Test | 11 | 31.45 | 18.17 |  |
| T | The Pre-Test | 11 | 13.18 | 7.38 | 1.24 |
|  | The Post-Test | 11 | 19.63 | 14.08 |  |
| S | The Pre-Test | 11 | 11.54 | 6.75 | 1.07 |
|  | The Post-Test | 11 | 15.54 | 10.05 |  |
| MLC | The Pre-Test | 11 | 7.93 | 0.78 | 2.31** |
|  | The Post-Test | 11 | 9.77 | 2.20 |  |
| MLT | The Pre-Test | 11 | 17.87 | 6.93 | 1.33 |
|  | The Post-Test | 11 | 14.31 | 5.23 |  |
| MLS | The Pre-Test | 11 | 21.22 | 9.08 | 0.71 |
|  | The Post-Test | 11 | 18.01 | 7.05 |  |
| Fluency as a whole | The Pre-Test | 11 | 294.52 | 100.12 | 0.35 |
|  | The Post-Test | 11 | 364.28 | 199.37 |  |

(*) indicates the significant results at 0.05. (**) indicates the significant results at 0.01