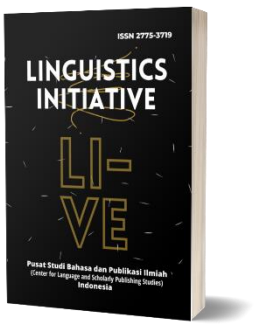

Linguistics Initiative
ISSN 2775-3719
Volume 3, Number 1, (2023)
https://doi.org/10.53696/27753719.3174
Published by *Pusat Studi Bahasa dan Publikasi Ilmiah*
(Center for Language and Scholarly Publishing Studies)

The Syntactic Complexity of Noun Phrases in Second Language Students' Writing

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Abstract
Investigations on learners' writing have multiplied over the recent decades, but writings created by students of institutions of education are still mostly unstudied. This research looks into how noun phrases (NPs) were used in writings created by students at Ghanaian colleges of education (CoEs). Lu's (2010) three metrics for measuring overall NP complexity for text—a length-based metric of NP complexity, mean length of clause (MLC), and two specific NP complexity metrics—number of complex nominals per clause (CN/C) and number of complex nominals per T-Unit (CN/T)—were chosen and applied to a total of 318 texts written by Levels 100, 200, and 300 students from three colleges of education in Ghana. The results from the one-way ANOVA and its post hoc analysis showed a significant difference between Levels 100 and 300 students as well as between Levels 200 and 300 students in their use of complex noun phrases. Overall, Level 300 students significantly used more complex NPs than students in the other levels. It is recommended that in further studies, lexico-grammatical features such as relative clauses, prepositional phrases, and nominal clauses, should be analysed to assess complexity since academic language is a multifaceted entity which may be researched in various fields like SLA, applied linguistics, and language testing.

Keywords
colleges of education, Ghana, noun phrase

Introduction

For pupils to function effectively in the future, their ability to read and write must be developed (Matthiessen, 2015; World Bank, 2018). Students' engagement in the scholarly language community depends on their ability to write. At higher academic levels like colleges and universities where specialized linguistic competence is essential, the development of writing ability is a crucial component of students' success (Gardner, Nesi & Biber, 2018; Hyland, 2002; Krashen, 1982; Zhu, 2004). Writers improve in their use of language, according to Ortega (2003), if they can develop precise and complicated language.

As second language learners acquire and use grammatical structures in production, they also demonstrate their ability to write well. This has led to several studies on L2 learners' progress and use of academic language. A huge number of such studies have focused on grammatical complexity (Bulté & Housen, 2012), producing inconclusive results. In particular, while some studies have found underdevelopment of grammatical elements, others have found grammatically complex structures (Agor, 2018; Bamigbola, 2015; Liu & Li, 2016).

The degree of intricacy, richness, or variety of distinct grammatical constructions is generally used to define grammatical complexity (Bulte & Housen, 2014). By studying the variations in the utilization of complex noun phrases (NPs) among Ghanaian learners, the current study adds to the body of literature. The results are intended to support previous research on the complexity of non-native/L2 writers' writings and to further reinforce the concept that complexity is a sign of aptitude as well as a measure of language growth and progress (Biber et al., 2011; Krashen, 1982).

Syntactic complexity, also known as syntactic maturity, is associated with combining sentence components, mostly clauses. Understood as a sign of maturity in a language, syntactic complexity increases with age (Beers & Nagy, 2009; Ortega, 2003). There are several ways of measuring the complexity of modifiers in the NP. They include using inferential statistical tools (Lu, 2010, 2011) or descriptively when the head has either a premodifier, postmodifier or both (Quirk et al., 1985). This study focuses on Jucker (1992) and Quirk et al.'s (1985) concept of concatenated modifiers, which involve noun modification by individual modifier(s). This can be examined by looking at the number of noun phrases in each sample to find out which ones have just one, two, or more modifiers. They are called concatenated modifiers if a single head is modified by so many modifiers (premodifiers or postmodifiers). See an example below:

1. After the first expose of the Ghana Port and Harbor officers for defrauding importers, Anas has attracted the sympathy of the international communities.

From the sentence above, the modifiers (*of the Ghana Port and Harbour officers, for defrauding importers*) modify one head noun, *expose*. On the contrary, an NP can also be modified by modifiers containing NPs which are themselves modified. This is referred to as embedded modifiers (Jucker, 1992; Quirk et al., 1985). An example is given below

2. He is the son of the man who visited us.

Here, the modifier, *of the man who visited us*, contains the noun, *man*, which is, in turn, modified by the relative clause, *who visited us*.

As noted earlier, concatenated modifiers are two or more modifiers found in a NP that modify the same head noun (Jucker, 1992; Quirk et al., 1985). The complexity of the concatenated modifier is grouped into levels: Level 1 is when the head is modified by one modifier; Level 2 is when two modifiers modify the same head noun; Level 3 occurs when three modifiers modify the same head noun, and Level 4 occurs when four or more modifiers modify the head noun. For example:

3. Announcement from government to the people.
4. The interesting game organised by SRC for the students.
5. Serious roles in the home performed by some men which are very helpful to women.

Examples 3-5 illustrate the NPs with concatenated modifiers at Levels 2, 3, and 4 respectively. In Example 3, the head noun, *Announcement,* is modified by these modifiers: *government* and *to the people*. That is an example of concatenated modifiers at Level 2.

In an embedded modifier, an NP is considered to be in Level 1 if the NP modifiers constitute the head of a clause argument. Thus, an embedded modification occurs when all the modifiers in a structure do not modify the head word, except one. Hence, if there are two modifiers where one of the noun modifiers does not modify the head noun, it is said to be at Level 1. Also, if a noun head is modified by only one modifier directly while the other two modifiers do not modify the head but the other modifiers in the clause, it is at Level 2. Only one modifies the head noun directly at Level 3, out of the four modifiers. Then at Level 4, only one modifier modifies the head; four or more modifiers do not modify the head directly but other modifiers in the clause. For example:

6. The joy of eating lunch prepared by the matron.
7. The task of gathering information bothering on issues of democracy.
8. The support to parents who cannot pay for their wards who have sicknesses that cost high.

In Example 6, the head noun, *joy,* is modified by only *of eating lunch*. The embedded modifier, *prepared by the matron*, is rather modifying the modifier, *lunch*. This type of embedded modifier is at Level 1. Also, in Example 7, the head noun, *task*, is modified by *of gathering information*. The embedded modifier on *issues of democracy* are rather modifying the modifier, *bothering.* This type of embedded modifiers is at Level 2. Example (8) has only the modifier, *to parents*, modifying the head noun, *support*. The embedded modifiers (*who cannot pay for their wards* and *who have sicknesses that cost high*) are somewhat modifying *parents* instead of the head noun, *support*. This type of embedded modifiers is at Level 3.

The NP structures in the current study were sampled to identify the different types and gauge their complexity. For students at Level 100, Level 200, and Level 300, three measures of overall NP complexity for each text were calculated using the L2 syntactic complexity analyser (L2SCA) developed by Lu (2010). Two specific NP complexity metrics—number of complex nominals per clause (CN/C) and number of complex

nominals per T-Unit (CN/T)—as well as a length-based metric of NP complexity make up the three measurements.

Regarding studies on NP complexity, Liu and Li (2016) looked at NP sophistication in the English-speaking context of Chinese academic writing. Using an automatic syntactic complexity analyzer, the study looked at the overall complexity of NP and specifically identified aspects of NP post-modification based on the theory of Biber et al. (1999). Textual analysis from the two corpora was used to contextualize the quantitative results. It was discovered that students' writing had a considerable underdevelopment of NP post-modification complexity. Liu and Li (2016) instructed that instructors should enhance student writers' NP complexity.

The complex order of English NPs was also studied by Bamigbola (2015). To explain some NP features that cause confusion for ESL learners, the study drew on information from a variety of grammatical models. From texts in textbooks, news stories, magazines, and student papers, Bamigbola chose complicated NPs, demonstrating that the complicated sequencing had a major impact on any conversation. Students' inability to comprehend the form and use of NPs was a major contributor to the challenges that ESL students encountered. Bamigbola suggested a functional approach to study the nominal group to help L2 learners to have a better understanding of its structures.

Zabala (2004) conducted a related study, with the premise that integration of the structural and functional aspects of language use is necessary for language acquisition. The study concentrated on linguistic properties of narratives that were written and spoken orally by native speakers of Korean and Japanese. The study's conclusions showed that the structural and discoursal characteristics of reported English use were generally consistent, suggesting a need for further studies.

In the University of Cape Coast students' writing, Obeng (2012) looked at gender variation in complicated noun phrases (UCC). The study's foundation was a corpus of 400 examination scripts. Obeng came to the conclusion that while men tended to employ embedded modifiers more frequently than women, both genders tended to use concatenated modifiers more frequently. Although male students outnumbered female students in terms of total number of complex NPs utilized, male students outnumbered female students in terms of complexity level. Obeng underlined the importance of determining how the various courses have an impact on students' writing.

Elliott (2019) examined nouns in many academic fields. He examined papers from upper-level Michigan students (MCUSPs). Which students started to resemble expert discipline norms was something he tried to balance out. Seven paper types—an argumentative essay, a creative piece, a critique or assessment, a proposal, a report, and a response paper—are included in the MICUSP. The corpus was analyzed using AntConc (Anthony, 2014). According to the findings, senior students' writing varied depending on the topic.

Evidence from studies done so far on NPs supports that nominal complexity is an indicator of academic writing maturity (Biber et al., 2011). Generally, these studies have recommended that studies on NPs should not only be on the structural types but also on

the functional usage of the NPs (Bamigbola, 2015; Wang & Beckett, 2017; Zabala, 2004). Also, there is the need to compare students' writings whether among natives and non-natives or students' writings to professional texts to see whether students' texts, especially at the advanced levels, are increasing in complexity. This means that ESL learners should go through the developmental progression process in terms of NP complexity. Again, these studies have demonstrated that there is the need to study students' writings to look at how they use the structural and functional types of the NP and compare the grammatical complexity existing across disciplines, levels and gender. In fact, with the exception of Obeng (2012), most of these studies were not done in Ghana, leaving content and context gaps to be filled by the present study.

In Ghana, most studies on students' writings have looked at students' overall performance on content, mechanical accuracy, organisation and errors in expressions. A case in point is Agor's (2018) investigation of five hundred (500) essays written by 200 undergraduates in four tertiary institutions between the years 2015-2017 as his data. In all, 50 students (25 males and 25 females) represented each institution. He focused on the English intra-sentence writing problem areas during lecture time. The researcher used two data analysis techniques: test item analysis and tables to analyse responses supplied by respondents and statistical procedures under Quirk et al.'s (1985) theoretical framework. He discovered that graduate students in their last year who were studying English showed varying levels of awareness with intra-sentence writing challenges.

Tabiri (2019) also examined ESL students' problems in the organisation of lexico-grammatical resources in text creation. He employed Dane's theoretical framework of thematic progression for assessing the organisation of information in 15 compositions written by Form 3 students in the Sunyani Senior High School. The study revealed that ESL students face problems of proper thematic progression, which results in disunity in the development of paragraphs.

Salakpi (2020) looked into the difficulties in paragraphing student teachers' essays, using Mount Mary College of Education as a case study. 757 students in Levels 100 and 200 made up the sample size for the study, which used a quantitative methodology. Written texts and interviews with students were conducted using Owusu's (2012) Essay Analytical Framework (EAF). The majority of the student teachers had a variety of difficulties when writing the introduction, body, and conclusion paragraphs, the survey showed.

Although these studies on students' writings considered some aspects of structure in Ghanaian students' writings under different academic levels (pre-tertiary and tertiary), emerging studies on students' writings are drifting to NP structures and grammatical complexity as recommended by studies reviewed above as such, the present study is focused on grammatical complexity of NPs in students 'writing. Though Obeng (2012) has looked at NPs in students' writings, he focused the gender variable. The present study focused on academic level. Also, while Obeng (2012) used a different analytical tool, Chi-square, this study employs Lu's (2010) L2SCA for the quantitative data analysis.

The studies reviewed in this section made use of written registers with different theoretical and conceptual frameworks. This study concentrates on the narrative written

texts of advanced student writers at the CoE's in Ghana similar to the genre used by Zabala (2004) though he added spoken narratives. The narrative texts were analysed by looking at the noun phrase as a linguistic choice based on Quirk et al. (1985) to describe the structures that are frequent in the texts of students in CoEs in Ghana. In the end, the research examined the variation in the use of complex NPs among the levels in CoEs, leading to their grammatical complexity.

Method

The design was descriptive and quantitative. Williams (2011) claims that in descriptive quantitative research, variables are quantified and analyzed to produce results. In the current study, 3,192 students from three CoEs in the Eastern and Greater Accra Regions (EAGAR), namely the Presbyterian College of Education (PCE henceforth), the Presbyterian Women College of Education (PWCE henceforth), and the Accra College of Education, provided written texts that served as the population. These students were divided into L100, L200, and L300 levels (ATRACOE). Table 1 lists the population in summary form.

***Table 1**. Population of the Study*

College	Level 100	Level 200	Level 300	Total
PCE	494	429	553	1476
PWCE	232	295	241	768
ATRACOE	324	311	313	948
Total	**1,050**	**1,035**	**1,107**	**3,192**

In Ghana, there are 46 CoEs that have been divided into the Eastern and Greater Accra Regions (EAGAR ZONE), Volta Region (VOLTA ZONE), Northern Region (NORTHERN ZONE), Ashanti and Brong Ahafo Region (ASHBA ZONE), Central Region, and West Region (CENTWEST ZONE).The study focused on the EAGAR zone and purposefully chose PCE, PWCE, and ATRACOE. Each college of education used to be divided into three levels: Level 100, Level 200, and Level 300. Krajcie and Morgan recommended using 318 student scripts out of the 3192 total students (1970). They contend that a sample size of 346 for a population of 3500 will adequately reflect the total population.

The sample size recommended by Krejcie and Morgan for this study to provide a representative sample of the entire population was adhered to. In order to create the sample, 10% of each level's total population for each college was used (for example, the sample for PWCE Level 100 is 10/100x243=23). Accordingly, 147 out of 318 screenplays were chosen for Level 300 students, 77 out of 318 scripts were chosen for Level 200 students, and 94 out of 318 scripts were chosen for Level 100 students. The sample size for a college was ultimately determined by the various samples drawn from its various levels. As Krejcie and Morgan claim, this is adequate representation. The 318 narrative pieces were chosen using an approach of multi-stage sampling. Sarantakos (1998) points out that this involves using more than one sampling technique to choose your

respondents. At various points in the study, the two primary sampling techniques (purpose and simply random sampling) were used to collect the necessary texts.

In all, 318 narrative texts on "*The Memorable Event I have Witnessed in College*" of not more than 200 words each were selected through simple random sampling technique. Since students' writings did not bare their names but levels, for easy identification, scripts without levels were excluded from the sample. In all 318 narrative writing from students of CoEs were used. A summary of the study's sample is shown in Table 2.

***Table 2**. Sample for the Study*

College	Level 100	Level 200	Level 300	Total
PCE	49	43	55	147
PWCE	23	30	24	77
ATRACOE	32	31	31	94
Total	**104**	**104**	**110**	**318**

The sample for PCE, Akropong was made up of 147 written texts from Table 2. This included 55 written scripts from students in Level 300, 43 written scripts from Level 200, and 49 written texts from Level 100 pupils. Additionally, the sample for the PWCE in Aburi consisted of 77 written texts, 23 of which were authored by students in the Level 100, 30 by those in the Level 200, and 24 by those in the Level 300. Last but not least, the sample for ATRACOE, Accra consisted of 94 written texts, 32 of which were authored by Level 100 students, 31 by Level 200 students, and 31 by Level 300 students.

As a result, 147 written texts total were used, out of a total of 1,476 students from PCE, Akropong, 768 students from PWCE, Aburi, and 94 texts total were used, out of a total of 948 students from ATRACOE, Accra. There were representative samples of 147, 77, and 94 written texts from PCE, PWCE, and ATRACOE students. This is consistent with the claim made by Alreck and Settle (1985), who claim that a sample size of at least 10% of a population is necessary to achieve appropriate confidence. They contend that a sample needs to be larger to offer estimation and precision and vice versa, depending on how dispersed or variable the population is.

To examine the variation in the use of complex NPs across the educational levels in CoEs, three indices used for measuring noun phrase complexity were utilised: the mean length of clause (MLC), complex nominal per T-unit (CN/T), and complex nominal per clause (CN/C). These three indices were merged to generate the overall noun phrase complexity level. The ANOVA was utilised for this study to find whether there was a significant difference in noun phrase complexity among Levels 100, 200 and 300 students. A one-way ANOVA was employed when comparing the mean scores of several continuous variables for three or more distinct groups of subjects (Pallant, 2010). With the three samples of the study (Levels 100, 200, and 300), a one-way ANOVA was the best inferential statistics to use.

However, the homogeneity of variance assumption of ANOVA was not met since the Levene's tests significance was less than 0.05. Therefore, the robust homogeneity test

was used to correct this violation, in this case, the Welch test. Welch test is appropriate for ANOVA when the groups in the study utilise different sample sizes, and unequal variance is assumed.

Results

Table 3 presents the summary of variation results according to the level of education in CoEs in the use of noun phrase complexity.

Table 3. ANOVA Results on Noun Phrase Complexity Usage by Students

Variables	**Mean**			**ANOVA**	
	L100	**L200**	**L300**	**F(2, 307)**	**P-value**
Mean length of clause	7.73	7.86	8.32	3.31	.038*
Complex nominal per T-unit	1.04	1.06	1.23	7.72	.001*
Complex nominal per clause	0.77	0.74	0.91	11.25	.000*
Noun Phrase Complexity	3.18	3.22	3.49	5.05	.007*

Significance level at 0.05

Mean Length of Clause

Table 3 summarises the mean score of the mean length of clause. Regarding the mean length of clause (MLC) in the writings, the analysis showed that the Level 300 students had the highest mean (Mean = 8.32). This was followed by Level 200 (Mean = 7.86) and finally level 100 (Mean = 7.73). The results from Table 3 indicate that Level 300 students had eight words within a clause; Level 200 students had seven words within a clause and Level 100 students had seven words within a clause. This means that Level 300 students' number of words per clause outnumbered those of level 200 and 100 students, while there was no significant difference between the score of MLC for Levels 200 and 100. The study found a statistically significant difference in the use of MLC for the three groups (F= 3.31, P = 0.038 < alpha level of 0.05). Thus, Level 300 students significantly used more MLCs than any other levels.

Complex Nominal Per T-Unit

The results from Table 3 also reveal that the Level 300 students utilised the highest number of the complex nominal per T-unit (CN/T) (Mean = 1.23). This was followed by Level 200s (Mean = 1.06) and then Level 100s (Mean = 1.04). Thus, Level 300 students had 1.23 complex nominal clauses in a T-Unit, Level 200 students had 1.06 complex nominal clauses in a T-Unit, while Level 100 students had 1.04 complex nominal clauses in a T-Unit. The results also show a significant difference in the use of complex nominal per clause for the three groups (F =7.72, P-value = .001 < alpha = 0.05). This means that Level 300 students significantly used more CN/T than any of the other levels. Also, Level 300 students were sophisticated in using complex nominal clauses within a T-Unit.

Complex Nominal Per Clause

The results from Table 3 also reveal that for the complex nominal per clause (CN/C), it was found that the Level 300 students used it the most in their writings (Mean = 0.91). This was followed by Level 100 (Mean = 0.77) and Level 200 students (Mean = 0.74). Thus, Level 300 students used more complex nominal structures in a clause than Level 200 and Level 100 students. The study again found a statistically significant difference in the use of CN/C for the three groups (F= 11.25, P = 0.00 < alpha level of 0.05). Thus, again, Level 300 students significantly had more CN/Cs.

Post-hoc Analysis of the 3 Indices across the three Levels of Education

The study further presented the post-hoc tests using Games-Howell tests due to an equal variance not assumed and an unequal sample group. The post-doc results depict precisely where the differences among the groups occur (Pallant, 2010).

Table 4. Differences in 3 Indices across the three Levels of Education

Variables	**ANOVA multiple comparison**	
	Mean diff.	**P-value**
	L100/200	
Mean length of clause	-0.13	0.85
Complex nominal/T-unit	-0.03	0.86
Complex nominal/clause	0.03	0.74
NP Complexity	-0.04	0.91
	L100/300	
Mean length of clause	-0.59	0.04*
Complex nominal/T-unit	-0.21	0.00*
Complex nominal/clause	-0.14	0.00*
NP Complexity	-0.32	0.01*
	L200/300	
Mean length of clause	0.87	0.13
Complex nominal/T-unit	-0.19	0.01*
Complex nominal/clause	-0.17	0.00*
NP Complexity	-0.27	0.03*

Significance level at 0.05

Table 4 presents a comparison of the usage of overall complex noun phrases and its indices, mean length of clause (MLC), complex nominal per T-unit (CN/T), and complex nominal per clause (CN/C) between Levels 100 and 200, Levels 100 and 300, and Levels 200 and 300 using the post-hoc ANOVA multiple comparisons.

The post-hoc analysis using Games-Howell tests found no significant difference in the use of MLCs between Levels 100 and 200 (Mean diff = -0.13, P = 0.85 > alpha level of 0.05) as well as between Levels 200 and 300 (Mean diff = 0.87, P = 0.13 < alpha level of 0.05). The results, however, revealed a significant difference in the use of MLCs between Levels 100 and 300 (Mean diff = -0.59, P = 0.04 < alpha level of 0.05).

With regard to the use of CN/T, the post-hoc test showed that the difference was not significant between Levels 100 and 200 students (Mean diff = -0.03, P = 0.86 > alpha level of 0.05), as shown in Table 4. The post-hoc analysis, however, revealed a significant difference in the use of CN/T between Levels 100 and 300 (Mean diff = -0.21, P = 0.00 < alpha level of 0.05) and between Level 200 and 300 (Mean diff = -0.19, P = 0.01 < alpha level of 0.05).

In relation to CN/C, the results from the post-hoc test showed that the difference in its use was not significant between Levels 100 and 200 students (Mean diff = 0.03, P=0.74> alpha level of 0.05). The post-hoc analysis, however, showed a significant difference in the use of CN/C between Levels 100 and 300 (Mean diff = -0.14, P = 0.00 < alpha level of 0.05) and between Levels 200 and 300 students (Mean diff = -0.17, P = 0.00 < alpha level of 0.05).

Therefore, the results of Level 300s (Mean = 3.49) over Level 200s (Mean = 3.22) and Level 100s (Mean = 3.18) can further be explained that NPs produced by Level 300 students, at a significance level of 0.05 indicates that they are more complex because they have been exposed to more linguistic inputs. Naturally, their level should be above Levels 100 and 200.

Noun Phrase Complexity

Table 4 revealed a significant difference in the usage of the complex noun phrase by students of different academic levels (F= 5.05, P = 0.007 < alpha level of 0.05). The results showed that the Level 300 students (Mean = 3.49) employed complex noun phrases in their writings more than the Levels 200 and 100 students. The Level 200s (Mean = 3.22) also used complex noun phrases more than their juniors in Level 100 (Mean = 3.18).

For the general noun phrase complexity, even though Level 200s (Mean = 3.22), on the average, used more complex noun phrases than the Level 100s (Mean = 3.18), the post-hoc test showed that the difference between the use of the complex noun phrase was not significant (Mean diff = -0.04, P = 0.91 > alpha level of 0.05). However, the post-hoc analysis using the Games-Howell tests found a significant difference in the use of complex noun phrases between Levels 100 and 300 (Mean diff = -0.32, P = 0.01 < alpha level of 0.05) and between Levels 200 and 300 (Mean diff = -0.27, P = 0.03 < alpha level of 0.05).

Discussion

The results clearly showed that Level 300 students used more complex NPs than Levels 100 and 200. This implies that though there was a high relative frequency of use of pre-modifiers in Level 200 students' essays, overall, the Level 300 students' texts per the use of the inferential statistical tool (syntactic complexity analyser) appear to be syntactically complex, indicating sophisticated forms of language in writing and making them the most proficient and linguistically-developed. This result is grounded on Krashen's (1982) input hypothesis that as students advance in writing, there is an increase in linguistic complexity to demonstrate grammatical progression and fluency. Therefore, it is much

anticipated that upper-level students like the Level 300s demonstrate more competence and maturity in using the complex NP. This is due to the fact that these students have been practising these skills longer than their colleagues at the lower levels.

Evidence from studies done so far on NPs supports the fact that nominal complexity is an indicator of academic writing maturity (Biber et al., 2011). Therefore, Level 300 students can be said to have matured in academic writing compared to Levels 100 and 200. This evidence is in line with Strid (2016). This reinforces the idea that the longer one practises writing, the higher the ability to compose complex phrases. Therefore, it can be concluded that narrative accounts written by Ghanaian students in CoE are complex and that Level 300 students produce more complex NP structures.

The results also showed that among all the levels of students, Level 100 students were those that less frequently used complex NPs. However, the Level 200 students were found to use less of CN/C, which is quite surprising, as we expect senior levels to often do better in their writings than their juniors. The post-hoc tests further confirmed the insignificant difference between Levels 100 and 200 students' usage of NPs. About the use of the mean length of a clause in written texts, the difference was significant only between Levels 100 and 300. This means that Levels 100 and 200, on average, utilised the same MLC in their writing. Also, the Level 100 students' usage of complex nominal per clause was not different from their colleagues in Level 200. However, the Level 300 students' usage of complex nominal per clause was greater than both Levels 100 and 200. Again, there was no significant difference between Levels 100 and 200 students' complex nominal per clause usage. However, that of Levels 200 and 300 varied significantly. The results suggest that other factors, especially students' background, may also influence academic writings.

Conclusion

The overall complexity about the quality, proficiency and maturity indicated that Level 300s were the most syntactically complex. The high relative frequency of use of complex NPs (pre-modifiers) made Level 200s semantically complex but not the overall matured and grammatically complex writers. The study, therefore, concludes that the more students advance from a lower level to a higher level of education, the more they can use more complex NPs in texts to demonstrate their maturity in writing. Therefore, students must be provided with necessary grammatical inputs to progress from semantic complexity to syntactic complexity as they move from one academic level to another. The study recommend that a variety of features of academic language such as relative clauses, prepositional phrases, and nominal clauses should be analysed to assess complexity since academic language is a multifaceted entity and may be quantified in countless ways.

Acknowledgments

I am grateful to Mr. Ebenezer Agbaglo for his guidance and assistance.

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