

ERROR ANALYSIS IN THE EFL COMPOSITIONS OF THIRD-LEVEL STUDENTS¹

ANÁLISIS DE LOS ERRORES EN LAS COMPOSICIONES EN INGLÉS COMO LENGUA EXTRANJERA DE ESTUDIANTES UNIVERSITARIOS

ANA CRISTINA LAHUERTA MARTÍNEZ

Universidad de Oviedo, España

lahuerta@uniovi.es

<https://orcid.org/0000-0002-6210-1769>

ABSTRACT

This paper aims to examine accuracy in the EFL writing of undergraduate students from diverse domains of learning at B1, B2 and C1 according to CEFR. Compositions are analysed using three different accuracy measures, namely, the proportion of error free sentences, the proportion of error free clauses, and the proportion of errors in compositions. In addition, the distribution, and developmental patterns of the morphological, syntactic, lexical, spelling and punctuation errors, as English is used by the three groups of learners are also examined. Results show that an interaction exists between language proficiency and accuracy measures. Specifically, the total number of error-free sentences relative to the total number of sentences, the total number of error-free clauses per total clauses, and the total number of errors per total number of words were found to separate proficiency levels. These findings extended earlier studies by confirming the robustness of the error-free sentence and error-free clause ratios as indices of proficiency. In addition, this study advanced our understanding of the different dimensions of L2 writing performance by providing evidence on the viability of the error per word ratio as an indicator of L2 proficiency. The study also revealed that development in the grammatical morphemes, syntax, lexis, spelling, and punctuation appeared to be weak and incomplete for the three groups of learners investigated. Progress, for its part, has mainly been located between B1 and B2, and B1 and C1. The results also have pedagogical implications, as they provide teachers with relevant knowledge regarding the levels, prevalence, and seriousness of learner errors for the design of appropriate remedial instructional materials.

Keywords: accuracy, learner errors, EFL writing, academic writing, proficiency.

¹Proyecto: Código PINN-20-A-069. Título: Mejora de la destreza escrita de estudiantes universitarios: Redacción de textos en Inglés para Fines Específicos. Entidad financiadora: Proyectos de Innovación Docente de la Universidad de Oviedo.

RESUMEN

Este artículo tiene como objetivo examinar la corrección o ausencia de errores en las composiciones de estudiantes universitarios pertenecientes a diversos grados con niveles de conocimiento de la lengua inglesa de B1, B2 y C1 de acuerdo con el MCERL. Las composiciones son analizadas utilizando tres medidas diferentes de corrección, la proporción de oraciones sin errores, la proporción de cláusulas sin errores y la proporción de errores en las composiciones. Además, se examinan las tendencias respecto a los errores de tipo morfológico, sintáctico, léxico, de ortografía y puntuación en el uso de la lengua inglesa por los tres grupos de estudiantes. Los resultados indican una interacción entre la competencia lingüística y las medidas de corrección. Así, se obtuvo que la proporción de oraciones sin errores, la proporción de cláusulas sin errores y la proporción de errores en las composiciones separaban los niveles de competencia. Estos resultados amplían otros previos al confirmar la robustez de la proporción de oraciones sin errores y la proporción de cláusulas sin errores como índices de competencia. Además, este estudio mejora nuestro entendimiento de las diferentes dimensiones de la escritura en L2 al evidenciar la viabilidad de la proporción de errores en las composiciones como indicador de competencia en la L2. El estudio también reveló que el desarrollo en morfología, sintaxis, léxico, ortografía y puntuación es pobre para los tres grupos estudiados. El progreso se localiza entre B1 y B2 y entre B1 y C1. Los resultados tienen implicaciones pedagógicas ya que proporcionan información para el diseño de materiales correctivos apropiados.

Palabras clave: corrección, errores, ILE, escritura académica, competencia lingüística.

Recibido: 22/08/2024 *Aceptado:* 01/11/2024

1. INTRODUCTION

Questions of accuracy in second language (L2) writing have been an abiding interest during the last decade ... (e.g. Herrada Valverde et al., 2023; Mendoza, 2019). Accuracy (together with complexity and fluency) measures have been regarded as key elements in L2 writing research and have been used as valid and reliable indices of L2 learners' language proficiency (Barrot & Agdeppa, 2021). From a practical point of view accuracy measures can be used as a framework to better understand L2 performances in the writing classrooms and allocate appropriate pedagogical interventions (Barrot & Agdeppa, 2021).

In recent years, different indices have been used to measure accuracy. These include holistic scores, error-free units, weighted error-free T-unit, and error-free counts. All of them have proved to be useful measures of accuracy (Polio and Shea, 2014). Nevertheless, they fail to account for error types and questions like the gravity of errors (Polio & Shea, 2014). In our view, the joint implementation

of such indices together with others based on how many and what errors occur in production units such as words, clauses, or T-units will provide more insights into the writing performance of students as it may ascertain the various types of errors observed in the produced written output.

In this respect, the strength of the current study is both to investigate various accuracy measures as valid indices of proficiency and provide a more detailed and in-depth approach to this issue by examining error type and error distribution in the compositions of college-level L2 writers from diverse areas of knowledge (physical sciences, social sciences, engineering and the humanities) at lower-intermediate, intermediate and advanced levels of language.

This research article consists of the following sections: A review of the literature, followed by the empirical study conducted, with an explanation of the participants, method and measures used, data and statistical analysis; after that the results are presented, followed by a discussion and a final conclusion.

2. LITERATURE REVIEW

Abundant research has been conducted related to accuracy in the L2 writing of college-level students at different proficiency levels. Early research work like Homburg (1984) examined accuracy by means of the total number of errors per T-unit and types of errors. He found that the number of second-degree errors (errors that only relatively interfered with comprehension) and the total number of errors per T-unit differentiated among the three proficiency levels studied (intermediate, upper-intermediate, and advanced). A significant relationship between error production and proficiency was also found by Tedick's (1990) study based on the examination of error-free structural units. This study on ESL graduates' writing performance reported significant differences for number of error-free T-units and mean length of error-free T-units across three proficiency levels (beginning, intermediate and advanced). Posterior studies, like Kuiken and Vedder (2008) also examined accuracy considering types of errors. Thus, these authors identified first-, second- and third-degree errors based on the "communicative seriousness of the errors" (p. 53) without regard for error categories such as spelling or morphosyntactic problems. Using this approach, they found statistically significant differences between the first- and second-degree errors per T-unit across all levels of task complexity.

Longitudinal studies like Storch and Tapper (2009) assessed accuracy over the time of an English for Academic Purposes (EAP) course in the writing of postgraduate learners. The students' texts were analysed using a range of measures for accuracy: a ratio of error-free T units per total T-units and a ratio of error-free

clauses per total clauses. Findings showed an improvement in accuracy scores, reflected in all measures of accuracy used.

More recent research focus on how accuracy develops across the different CEFR proficiency levels: Mendoza (2019) studies accuracy in the writing of nonnative postgraduate students at B1, B2 and C1. Results showed that only upper intermediate and advanced students were able to write accurate academic texts. Barrot and Gabinete (2019) examined the difference in accuracy of the argumentative essays of ESL and EFL college learners by means of error-free clauses and error-free T-units. Their analysis of essays produced by B1_2 learners revealed that ESL learners' written output was more accurate than EFL learners' work. Although this study provided relevant insights about accuracy in argumentative texts, the essays were limited to B1_2 learners. In a later study, the scope was broadened as Barrot and Agdeppa (2021) investigated whether accuracy measures differentiated the four proficiency levels of L2 writers. Their analysis revealed that error-free clauses and the weighted clause ratio, that is, the proportion of weighted accuracy raw score of all clauses, could distinguish among proficiency levels. This finding was later confirmed, as in their analysis of accuracy measures in L2 writing in various Asian L1 backgrounds, Phuoc and Barrot (2022) found out that the weighted clause ratio consistently differentiated proficiency levels in each of the different L1 backgrounds. For their part, Thewissen and Anishchanka's (2022) study of how grammatical accuracy develops across the intermediate and advanced CEFR proficiency levels revealed a trend towards more accurate grammar characterised by fewer grammatical errors as learners progressed along the proficiency continuum. Findings showed that the major change in grammatical accuracy was found between the two intermediate levels (B1 and B2). This result was also obtained by Wu et al. (2023) with Chinese upper-intermediate and advanced medical students' English academic writing as results showed significant differences in accuracy, and a significant decrease of various kinds of errors such as lack of subject, improper word order, subject verb disagreement, and misuse of tense and voice.

A number of research works have also been carried out specifically into error analysis in L2 writing. These studies have focused on a wide variety of errors (e.g., Olsen 1999; Chan, 2010; Laufer and Waldman, 2011; Dahlmeier et al. 2013; Phuket and Othman 2015; Thi et al. 2023). Olsen (1999), for example, studied the written texts of Norwegian EFL learners and found a relationship between the students' language proficiency and their errors in writing: less proficient learners have a higher number of grammatical, orthographical, and syntactic errors. Chan (2010) identified grammatical error types in the writing of university and secondary education Cantonese English as a second language (ESL) learners at an intermediate proficiency level. Errors included calquing, incorrect ordering of

adverbials, misuse of conjunctions, omission of subjects, misuse of prepositions, misuse of relative clauses, and punctuation problems. Several studies address specific features like collocations. Thus, Laufer and Waldman (2011) investigated the use of English verb-noun collocations in the writing of native speakers of Hebrew at three proficiency levels, intermediate, upper intermediate and advanced. The data revealed that learners at all three proficiency levels produced far fewer collocations than native speakers, that the number of collocations increased only at the advanced level, and that errors, particularly interlingual ones, continued to persist even at advanced levels of proficiency. Collocations as frequent error categories were present in Dahlmeier et al.'s findings (2013); they carried out a corpus analysis of undergraduate university students' errors using the NUS Corpus of Learner English (NUCLE). The authors found that wrong collocations/idioms/prepositions, local redundancies, articles or determiners, noun numbers, and mechanics were the most frequent error categories. Similarly, another study by Phuket and Othman (2015) analysed the narrative essays composed by Thai university students who had studied English through regular Thai language instruction at school for at least twelve years before entering the university. They found among the most frequent types of errors, word choice, verb tense, preposition, and comma usage. Word choice and punctuation errors were also identified as frequent in the writing of undergraduate EFL students by Thi et al. (2023), who investigated the syntactic complexity and language-related error patterns in the writing of undergraduates from Myanmar and Hungary at B1 and B2 according to the CEFR. Findings from the analysis of the students' language-related errors indicated significant differences in their error patterns. The most typical errors found in the two groups include those in punctuation, word choice, and noun endings.

A relevant body of research tries to capture L2 accuracy developmental patterns (e.g. Bardovi-Harlig and Bofman, 1989; Thewissen, 2013; Lahuerta, 2017). Bardovi-Harlig and Bofman (1989), who studied errors in the written English of two groups of advanced EFL learners divided according to their performance on a placement test showed a linear error development. The analysis of errors revealed that the two groups could be distinguished by the number of errors they produced, but the errors they produced showed the same distribution among error types (1989: 23). For their part, Thewissen (2013) and Lahuerta (2017), who studied the errors of EFL students at different English proficiency levels, showed a nonlinear development of errors. Thewissen (2013) investigated second language accuracy development via an error-tagged version of an EFL learner corpus. Findings showed a nonlinear development as only two error types, namely the total errors and lexical single errors, displayed a progress-only type of development across the B1 to C2 continuum (2013: 95). Lahuerta (2017),

who examined and compared the written compositions of two groups of upper intermediate and advanced undergraduates reported error developmental patterns characterised by stabilization and even regression.

3. STUDY

The review of the literature above shows a general trend characterised by an improvement in accuracy scores as proficiency increases. Nevertheless, the limited number of measures used in the studies, with predominance of those based on whether a structural unit of some type is error-free, point to the need for more research in measuring writing accuracy for a more comprehensive approach to this issue. It is our view that the combination of measures based on how many errors occur in relation to production units with others examining whether a structural unit of some type is error-free, will contribute to an increased understanding of the issue.

Moreover, very few works focus on the number of errors in the written production or on the analysis of different error types. Regarding the analysis of error types, scant attention is given to diverse error categories. It is our view that an error count and subsequent analysis of a wide variety of error types and subtypes may provide a more fine-grained approach to accuracy in EFL university level writing.

Finally, a limited number of studies involve a broad range of proficiency levels, which may allow gaining a better understanding of the role of errors in EFL writing proficiency.

Thus, the present paper will examine accuracy in the compositions of third-level students at three levels of language proficiency (from B1 to C1 according to the CEFR) and will describe the distribution and developmental patterns of morphological, syntactic, lexical, spelling and punctuation errors, as English is used by learners from diverse domains of learning. The kind of analyses conducted in the present study contributes to our theoretical understanding of writing development. In addition to this, the participant sample comes from different knowledge areas, what contributes to expand the scope of research, which usually focuses on language majors.

The current study would provide significant implications for L2 writing pedagogy as identifying the differences in accuracy and the developmental error patterns across proficiency levels would help L2 writing teachers gain a better understanding of what measures are indicative of language proficiency and the

evolution errors follow from intermediate to advanced proficiency levels. Such awareness can guide them in making evidence-based pedagogical interventions.

Our research questions are the following:

Research question 1. Is there a significant difference in accuracy as measured by the proportion of error-free sentences, error-free clauses, and number of errors in the writing of college-level L2 students across different proficiency levels?

Research question 2. What is the distribution of errors and the developmental patterns these errors follow in the writing of college-level L2 students across different proficiency levels (from B1 to C1 according to the CEFR)?

3.1. Participants

The participants were 182 students majoring in Chemistry, Geography, History and Music Sciences, and Computer Science Engineering at a Spanish University. Their age ranged from 19 to 23. There were 102 women and 80 men. They were divided into three groups according to their Oxford Placement Test results: group A was formed by 22 students with a score between 150 and 169 (advanced); group B was made up of 58 students with a score between 135 and 149 (upper intermediate); and group C was formed by 102 students with a score between 120 and 134 (intermediate). Tables I, II and III below show the distribution of students by degree, English competence according to CEFR, and area of knowledge respectively.

Table I. *Distribution of students by major.*

DEGREE	NUMBER OF PARTICIPANTS
CHEMISTRY	50
GEOGRAPHY	9
HISTORY AND MUSIC SCIENCES	84
ENGINEERING	39
TOTAL	182

Table II. *Distribution of the sample by competence level as per CEFR.*

ENGLISH COMPETENCE AS PER CEFR	NUMBER OF PARTICIPANTS
B1	102
B2	58
C1	22
TOTAL	182

Table III. *Distribution of the sample by area of knowledge.*

DEGREE	B1	B2	C1
CHEMISTRY	35	11	4
GEOGRAPHY	6	2	1
HISTORY AND MUSIC SCIENCES	40	30	14
ENGINEERING	21	15	3
TOTAL	102	58	22

3.2. Method

For the present study, the data come from a written composition activity which was administered to participants in their own classroom. For this activity, students had to write in a piece of paper an expository essay on a topic related to their field of study, based on a prompt:

Chemistry: Explain the impact of acid rain on the immediate environment and the plants.

Geography: Why is it such an essential task to protect rainforests?

History and Music Sciences: What Connections can be made between Popular Music and Contemporary Culture?

Engineering: How does engineering contribute to modern world innovations?

All the participants were given 45 minutes for the writing activity. In this way, both time and topic constraints were controlled in order to make results comparable (Wolfe-Quintero et al., 1998).

3.3. Measures

The essays were evaluated by means of both holistic ratings of writing quality as well as by a selection of quantitative measures gauging different aspects of accuracy.

For the global ratings, an analytic scale adapted from Connor-Linton and Polio (2014) was used. It included five different features, namely, Content, Organization, Language Use, Vocabulary and Mechanics. The global composition score was obtained by calculating the mean of the five features. Some of the excerpts from the rubrics used for the rating scales are, for example “no major error in word order and complex structures”, “no errors that interfere with comprehension”, “excellent sentence variety” (for a detailed description of the scale, see Connor-Linton and Polio, 2014: 8).

Regarding accuracy measurement, accuracy was measured using three indices: the total number of error-free sentences relative to the total number of sentences; the total number of error-free clauses relative to the total clauses; and the total number of errors per total number of words.

We also measured each type of error identified relative to the total number of words. To classify the errors into the corresponding category, we followed two classifications: (1) Bardovi-Harlig and Bofman’s (1989: 21) classification of syntactic, morphological and lexical error types and sub-types; the choice of this classification is due to the fact that it offers a clear definition of each error category and therefore allows identifying and classifying errors easily into each category; in addition, it also covers a broad range of error sub-types into each error type; (2) Thewissen’s (2013) classification of syntactic, morphological, lexical, punctuation and spelling error types and sub-types. This more recent classification was intended to complete some types and sub-types not included in the former classification. Thus, lexical errors, defined simply as vocabulary errors in Bardovi-Bofman’s (1989) classification, are further classified into lexical errors on single words and lexical phrase errors following Thewissen (2013). In addition, this classification includes punctuation and spelling error types.

Each category is described as follows:

1. Syntactic errors consisted of errors of word order, errors resulting from the absence of constituents, and errors in combining sentences. Word-order errors included errors in the order of major constituents (such as pragmatically unacceptable deviations from SVO) and minor constituents (such as adverb placement). Errors resulting from the absence of constituents included deletion of a major constituent (subject, verb, or object), and sentence fragments that lacked finite verbs. Errors in sentence combining included errors in complementation, relativization, or coordination.

2. Morphological errors comprised errors in nominal morphology (plural and number agreement), errors in verbal morphology (tense and subject-verb agreement), errors in determiners and articles, errors in prepositions and errors in

derivational morphology (e.g. lack of suffixes, etc.).

3. Lexical errors. These are vocabulary errors further subdivided into lexical errors on single words and lexical phrase errors.

4. Spelling and punctuation errors. Punctuation errors were divided into three different types: confusion between punctuation markers, missing markers, and redundant markers.

3.4. Data analysis

All essays were analysed manually for both the holistic ratings of writing quality and for the calculation of the different error types by two researchers, one the author of this paper and the other an associate professor, both familiar with this type of procedure. For the analysis, the essays were segmented in sentence and clausal units in Microsoft Excel spreadsheets, and they were manually analysed and annotated for the different types of errors studied by both researchers. The main difficulties encountered concerned the inclusion of an error within the appropriate category or subcategory. When these discrepancies occurred, they were discussed among the researchers until an agreement was reached. Errors of each type at each level of proficiency were counted in relation to the total number of words in the learner's composition.

These two researchers are reliable regarding the rating of the quality of the writings with the scales listed above: Inter-rater reliability coefficients, based on the correlations between the scores assigned to a certain set of compositions read by two researchers, range from a low of .774 to a high of .853.

3.5. Statistical analysis

A statistical analysis was carried out with the programme R Development Core Team 2018, 3.4.4. version.

The comparison of the variables across the three levels of competence was carried out using the Kruskal-Wallis test and the Student test for independent samples. Correlations were judged using the Spearman correlation coefficient.

4. RESULTS

Research question 1 examined whether there was a significant difference in accuracy as measured by several quantitative measures (error free sentence ratio, error free clause ratio and error ratio) in the writing of college-level L2 students

across different proficiency levels (from B1 to C1 according to the CEFR).

As it can be seen in Table IV, there is an increase in the error-free sentence and error-free clause ratio and a decrease in the total number of errors per total number of words from B1 to C1.

Table IV. *B1, B2 and C1 students' written competence as measured by three accuracy measures.*

	Group	Mean	Median	S.D.
Error free sentence ratio	B1	0.30	0.29	0.20
	B2	0.57	0.60	0.21
	C1	0.82	0.86	0.15
Error free clause ratio	B1	0.43	0.42	0.20
	B2	0.65	0.68	0.22
	C1	0.81	0.85	0.11
Error ratio	B1	0.19	0.18	0.06
	B2	0.14	0.14	0.02
	C1	0.11	0.11	0.01

As shown in Table V, the three measures were able to differentiate each pairing of proficiency levels: Significant differences in accuracy as measured by the error-free sentence ratio were found in all the pairs studied: B1/B2 (p-value= 0.001), B1/ C1 (p-value= 0.001) and B2/C1 (p-value= 0.007). Significant differences were also found in accuracy as measured by the error-free clause ratio in all the pairs studied: B1/B2 (p-value= 0.001), B1/C1 (p-value= 0.001) and B2/C1 (p-value= 0.008). Finally, there were also significant differences in the percentage of errors per total number of words in all the pairs studied: B1/B2 (p-value= 0.001), B1/ C1 (p-value= 0.001) and B2/C1 (p-value= 0.004).

We can state that as proficiency increases, so does the learners' overall level of accuracy in English. The data show a positive trend in the three measures used with the strongest progress found between B1 and B2 and between B1 and C1.

Table V. *Differences in accuracy across proficiency levels.*

	B1 vs B2 (p-value)	B2 vs C1 (p-value)	B1vs C1 (p-value)
Error free sentence ratio	0.001	0.007	0.001
Error free clause ratio	0.001	0.008	0.001
Error ratio	0.001	0.004	0.001

Research question 2 investigated the distribution of errors and the developmental patterns these errors follow in the writing of college-level L2 students across different proficiency levels (from B1 to C1 according to the CEFR).

We observe a similar distribution of errors for the three groups with the largest percentages of errors found in morphology, followed by syntax, lexis, and spelling errors. Punctuation errors are the least frequent (Table VI).

Table VI. *Distribution of errors across proficiency levels.*

	Group	Mean	Median	SD
Syntactic error ratio	B1	0.63	0.63	0.61
	B2	0.52	0.52	0.51
	C1	0.50	0.50	0.51
Morphological error ratio	B1	1.10	1.10	1.02
	B2	1.08	1.02	1.01
	C1	1.02	1.02	1.00
Lexical error ratio	B1	0.46	0.43	0.41
	B2	0.44	0.43	0.41
	C1	0.31	0.31	0.30
Spelling error ratio	B1	0.12	0.11	0.11
	B2	0.11	0.10	0.11
	C1	0.10	0.10	0.11
Punctuation error ratio	B1	0.07	0.07	0.07
	B2	0.04	0.04	0.04
	C1	0.04	0.04	0.04

Regarding the developmental patterns these errors follow (see Table VII below), the data revealed that morphological errors display a statistically significant difference in behaviour between adjacent proficiency levels (B1 and B2; B2 and C1) and non-adjacent proficiency levels (B1 and C1). An increase in proficiency level goes hand in hand with improvement in morphology. The figures indicate that progress is strongest between B1 and B2 and B1 and C1. Although progress remains significant, it nevertheless slows down between B2 and C1.

Syntactic errors show a statistically significant difference in behaviour between two adjacent proficiency levels (B1 and B2) and between two non-adjacent proficiency levels (B1 and C1). The figures indicate that progress is very strong in both cases.

Strong progress is also found in lexical errors between two adjacent proficiency levels (B1 and B2) and between two non-adjacent proficiency levels (B1 and C1).

Spelling errors display a statistically significant difference in behaviour between two adjacent proficiency levels (B1 and B2) and two non-adjacent proficiency levels (B1 and C1). Progress is stronger between B1 and C1.

Finally, punctuation errors show statistically significant progress between two non-adjacent proficiency levels (B1 and C1).

Table VII. *Differences in error types across proficiency levels.*

	B1 vs B2 p-value)	B2 vs C1 (p-value)	B1vs C1 (p-value)
Morphological errors	0.001	0.05	0.001
Syntactic errors	0.001	ns	0.001
Lexical errors	0.001	ns	0.001
Spelling errors	0.05	ns	0.001
Punctuation errors	ns	ns	0.001

Tables VIII, IX and X below present the mean percentage of error sub-types within the categories of morphology, syntax, and lexis. Differences between levels were statistically significant only in the following morphological error types: plural, incorrect determiners, tense misuse, unnecessary article, and errors in derivational morphology.

The number of these errors significantly decreases as proficiency increases between one or more proficiency pairs. Errors in the use of plural showed a significant improvement in the following pairs: B1 and B2 (p-value= 0.049) and B1 and C1 (p-value= 0.007). Similarly, incorrect determiners showed a significant improvement between B1 and B2 (p-value= 0.016) and between B1 and C1 (p-value= 0.03). Tense misuse errors decreased from B1 to C1 (p-value= 0.001), as did the incorrect use of unnecessary articles, which decreased significantly from B1 to C1 (p-value= 0.008), and errors in derivational morphology, which showed a significant improvement in the B1 vs C1 pair (p-value= 0.019).

Table VIII. *Morphological error sub-types’ mean percentage for B1, B2 and C1 students.*

	Mean			
	B1	B2	C1	
<i>Nominal morphology</i>				
Plural	0.07	0.04	0.02	*
Number agreement	0.01	0.01	0.01	
<i>Verbal morphology</i>				
Subject-verb agreement				
-s omitted	0.02	0.02	0.01	
-s overgeneralized	0.01	0.01	0.01	
Tense				
Ill formed	0.03	0.02	0.01	
misuse	0.06	0.03	0.00	*
Articles				
Incorrect article	0.01	0.01	0.00	
No article	0.01	0.01	0.00	
Unnecessary article	0.09	0.06	0.01	*
Determiners				
Incorrect determiners	0.09	0.04	0.01	*
No determiner	0.02	0.02	0.01	
Unnecessary determiner	0.02	0.01	0.01	
Prepositions				
Incorrect preposition	0.03	0.03	0.01	
No preposition	0.01	0.01	0.00	
Unnecessary preposition	0.01	0.01	0.00	
Derivational morphology	0.02	0.01	0.00	*

Differences between levels were significant in one syntactic error, missing constituents, or the absence of constituents. There was a significant decrease in these errors from B1 to B2 (p-value= 0.001).

Table IX. *Syntactic error sub-types’ mean percentage for B1, B2 and C1 students.*

	Mean		
	B1	B2	C1
Word order	0.05	0.05	0.04
Complements	0.03	0.03	0.02
Relative clauses	0.04	0.04	0.02
Coordination	0.03	0.03	0.02
Missing constituents	0.06	0.02	0.02

There is significant quantitative progress in accuracy for the two lexical errors studied (see Table X). Lexical errors on single words improved significantly from C1 to B1 (p-value= 0.001), and from B1 to B2 (p-value= 0.001). Lexical phrase errors significantly diminished in the following pairs: B1 and C1 (p-value= 0.001), and B1 and B2 (p-value= 0.001).

Table X. *Lexical error sub-types’ mean percentage for B1, B2 and C1 students.*

	Mean		
	B1	B2	C1
Lexical errors on single words	0.02	0.01	0.00
Lexical phrase errors	0.02	0.01	0.00

5. DISCUSSION

One of the aims of the present study was to investigate whether accuracy measures differentiate three distinct proficiency levels of L2 writers. We discuss our findings with reference to previous studies on accuracy as an index of proficiency. Our study agrees with that of Storch and Tapper (2009), Barrot and Gabinete (2019), and Barrot and Agdeppa (2021), who reported that the error-free sentence and clause ratios could distinguish among proficiency levels. In addition, our study reveals that a further measure, rarely used in the literature, based on the analysis of how many errors occur in relation to production units, namely the proportion of errors per words, is a valid index of proficiency.

Our results point to a positive developmental trend showing that, as proficiency increases, so does the learners’ overall level of accuracy in English. It is worth

pointing out that strong progress is found both between adjacent pairs (B1 and B2; B2 and C1), and between non-adjacent pairs (B1 and C1).

This study also examined the distribution and developmental patterns of errors, as English is used by the three groups of learners. Results corroborate earlier findings regarding the distribution of errors in EFL learners. Thus, in line with Bardovi-Harlig and Bofman's (1989) findings with advanced students and Lahuerta's (2017) results with advanced and upper intermediate students, the three proficiency groups produced the greatest number of errors in grammatical morphemes, with fewer errors in syntax and lexical choice.

Regarding the developmental pattern errors follow, the data pointed to a nonlinear type of development, as only one error category, morphological single errors, displayed a linear, progress-only type of development. Morphology is the only category that progressed across all the proficiency levels. This means that the number of morphological errors steadily and significantly decreased as proficiency increased. This significant improvement occurs both between adjacent as well as non-adjacent proficiency levels.

The data pointed to different types of development for the three groups across the B1 to C1 continuum. The number of syntactic, lexical, and spelling errors decreased significantly between one adjacent pair, B1 and B2, and one non-adjacent pair, B1 and C1. In the case of punctuation errors, the only significant decrease occurred between one non-adjacent pair, B1 and C1.

Our findings seem to support previous claims that learning itself "is very rarely linear and that L2 development involves more than steadily climbing from one level to the next" (e.g., Thewissen, 2013, p. 95). Progress does not tend to follow a linear path towards a native-speaker-like performance, as evidenced by our findings. They provide empirical substantiation for the claim that language is a dynamic system, and grammatical accuracy does not advance in a steady way towards proficiency (Larsen-Freeman, 1983).

When examining each error sub-type, the results revealed that students had more grammar errors relating to the use of plural, unnecessary article, and incorrect determiners in the three competence levels. Tense misuse was a predominant error in B1 and B2 compositions. Regarding syntactic errors, misuse of relative clauses and errors in word order are the most common error types. These results do tally with previous findings. For example, previous studies on tenses (e.g. Hawkins & Buttery, 2010; Thewissen, 2013) conclude that tenses remain a weak area, even for more advanced groups. Dipolog-Ubanan (2016) highlighted that the most common errors in the writing of EFL undergraduates were tenses, use of articles and determiners. Concerning syntax, misuse of relative clauses is identified as a common error type in Chan (2010) and Thewissen (2013).

With respect to the evolution of each error sub-type, only eight of these errors

(five morphological, one syntactic and two lexical) showed a statistically significant developmental trend in at least one proficiency pair. Two of these error sub-types (errors in plural and use of incorrect determiners) showed strong progress from B1 to B2 and marked progressive development in non adjacent levels, B1 and C1. Although these two errors remain in the learner data, the developmental result is positive as they show a reduction between B1 and B2. In addition, the mean percentages have decreased significantly by the time learners reach the C1 level of proficiency.

Tense use, articles, and derivational morphology, on the other hand, only displayed significant improvement between the two extreme levels considered, B1 and C1. Studies like Larsen-Freeman (1983, 2006) associate articles' difficulty with both the learners' proficiency level as well as their L1 background. In Spanish, the use of an article is compulsory, and this appears to explain why some English uses remain a problematic area for our participants even at advanced competence levels. The slow progress shown by tenses confirms that tenses remain a difficult area. This led Thewissen (2013) to conclude that tenses cannot be used as a reliable measure to distinguish between proficiency levels in writing; in other words, their progress is not marked enough to show variation in proficiency. The difficulty posed by English tenses may be due to the necessity to master both tense and aspect (Thewissen, 2013).

Regarding derivational morphology, we could associate its difficulty with the students' L1 background as several suffixes in English may be regarded as unique items, that is, items that are specific to a particular language and without a direct counterpart in the students' native language (Tello, 2024).

Only one syntactic error type, the absence of constituents, showed significant progress. This error developmental pattern was strong between one adjacent pair, B1 and B2. The performance between B2 and C1 is characterised by a plateau like stabilisation tendency which, in our view does not mean that there is not any development whatsoever. The mean error percentages for this error type display a tendency toward improvement from B2 to C1 although they were not picked up statistically.

An interesting finding is that learners appear to progress significantly in their choice of appropriate single lexical items as the two lexical errors studied diminished significantly from B1 to B2 and from B1 to C1. Studies that investigate the L2 development of lexical features are rare (e.g., Ife et al., 2000; Thewissen, 2013). The present study shows that lexis progressed strongly from the intermediate to the advanced levels. The finding for lexis is therefore encouraging because, as Thewissen (2013: 85) argues, "grammar and morphosyntactic rules tend to occupy major (EFL) teaching and students have hardly any naturalistic opportunities to develop lexical control".

Finally, the present study also examined errors in important L2 areas such as punctuation and spelling, all of which have received scarce developmental attention to date. In the case of spelling, our study confirms previous findings (e.g. Lahuerta, 2017; Thewissen, 2013) showing that spelling errors significantly decrease by the time learners reach an upper intermediate level. In line with previous research studies (e.g. Thewissen, 2013), punctuation errors are improvement-resistant features across proficiency levels, as our study shows that these error categories diminish significantly only in a non-adjacent pair (B1 and C1). Some recent studies like Perdomo (2023) identify frequent errors related to punctuation, quotations, and references in research articles written in Spanish by university students, which may explain their difficulty when it comes to English.

6. CONCLUSIONS

This study presented several relevant findings regarding accuracy and error distribution and development in the writing of undergraduates majoring in diverse degrees when they write in English as a Foreign Language. Overall findings reveal that an interaction exists between language proficiency and accuracy measures. Specifically, the three measures used were able to differentiate each pairing of proficiency levels.

The study provided useful insights about error distribution and development in a college-level context. Thus, it revealed that development in the grammatical morphemes, syntax, lexis, spelling, and punctuation appeared to be weak and incomplete for the three groups of learners investigated.

Progress, for its part, has mainly been located between B1 and B2, and B1 and C1. A ceiling effect can be argued to be operating between B2 and C1 for syntactic, lexical, spelling and punctuation errors that already start off with a low mean error percentage at B1. This would contribute to explaining the limited improvement between B2 and C1. This limited improvement trend nevertheless calls for further research with larger amounts of data and subsequent analyses that may help shed further light on this result.

The results also have encouraging pedagogical implications, as they provide teachers with relevant knowledge regarding the levels, prevalence, and seriousness of learner errors for the design of appropriate remedial instructional materials. As this research offers a detailed source of information about the specific errors committed by L2 learners with diverse but identified linguistic competences, it could contribute to the establishment of pedagogic interventions that could correct the linguistic deficiencies observed.

The present study has some limitations that should also be addressed in future

studies. Thus, this study did not examine the genre-specific variations in accuracy of the four domains of learning across proficiency levels, i.e. how accuracy varies in the social sciences, physical sciences, engineering, and the humanities.

Future studies may need to investigate how accuracy measures in L2 writing differentiate proficiency levels in diverse domain of learning and how these measures vary from one domain to another. This would provide a more complete picture of the patterns of accuracy measures.

REFERENCES

- Bardovi-Harlig, K., & Bofman, T. (1989). Attainment of syntactic and morphological accuracy by advanced language learners. *SSLA*, 11, 17-34. <https://doi.org/10.1017/S0272263100007816>
- Barrot, J., & Agdeppa, J. (2021). Complexity, accuracy, and fluency as indices of college-level L2 writers' proficiency. *Assessing Writing*, 47(1), 1-11. <https://doi.org/10.1016/j.asw.2020.100510>
- Barrot, J., & Gabinete, M.K. (2019). Complexity, accuracy and fluency in the argumentative writing of ESL and EFL learners. *Iral-International Review of Applied Linguistics in Language Teaching*, 59(2), 11-25. <https://doi.org/10.1515/iral-2017-0012>
- CEFR (2020). *Common European Framework of Reference for Languages: Learning, Teaching, Assessment. Companion volume. With New Descriptors. Language Policy Programme Education Policy Division Education Department Council of Europe*.
- Chan, A.Y.W. (2010). Toward a taxonomy of written errors: Investigation into the written errors of Hong Kong Cantonese ESL learners. *TESOL Quarterly*, 44(2), 295-319. DOI:10.2307/27896726
- Connor-Linton J., & Polio, C. (2014). Comparing perspectives on L2 writing: Multiple analyses of a common corpus. *Journal of Second Language Writing*, 26, 1-9. DOI:10.1016/J.JSLW.2014.09.002
- Dahlmeier, D., Tou Ng, H., & Wu, S.M. (2013). Building a Large Annotated Corpus of Learner English: The NUS Corpus of Learner English. *Proceedings of the Eighth Workshop on Innovative Use of NLP for Building Educational Applications*, 22-31.
- Dipolog-Ubanan G.F. (2016). L1 influence on writing in L2 among UCSI Chinese students: A Case study. *Pertanika Journal of Social Sciences and Humanities*, 24(4), 1835-1847.
- Hawkins, J., & Buttery, P. (2010). Criterial features in learner corpora: Theory and illustrations. *English Profile Journal*, 1, 1-23. <https://doi.org/10.1017/>

S2041536210000103

- Herrada Valverde, G., M.J., R-Conde, & Herrada Valverde, R.I. (2023). Estudio de las habilidades de lectoescritura de los estudiantes universitarios mediante tareas de síntesis. *RLA Revista de Lingüística Teórica y Práctica*, 61(1), 143-168. <https://revistas.udec.cl/index.php/rla/article/view/11673>
- Homburg, T. J. (1984). Holistic evaluation of ESL compositions: Can it be validated objectively? *TESOL Quarterly*, 18(1), 87-107. <https://doi.org/10.2307/3586337>
- Ife, A., Vives Boix, G., & Meara, P. (2000). The impact of study abroad on the vocabulary development of different proficiency groups. *Spanish Applied Linguistics*, 4, 55-84.
- Kuiken, F., & Vedder, I. (2008). Task complexity and measures of linguistic performance in L2 writing. *IRAL - International Review of Applied Linguistics in Language Teaching*, 45(3), 261-284. <https://doi.org/10.1515/iral.2007.012>
- Lahuerta, A.C. (2017). Analysis of accuracy and grammatical complexity in the writing of upper intermediate and advanced learners of English. *RLA Revista de Lingüística Teórica y Aplicada*, 55(1), 13-23. DOI:10.4067/S0718-48832017000100013
- Larsen-Freeman, D. (1983). Assessing global second language proficiency. In H. Seliger and M. H. Long (Eds.), *Classroom oriented research in second language acquisition* (pp. 287-304). Rowley Mas.s.: Newbury House.
- Larsen-Freeman, D. (2006). The emergence of complexity, fluency, and accuracy in the oral and written production of five Chinese learners of English. *Applied Linguistics*, 27(4), 590-619. <https://doi.org/10.1093/applin/aml029>
- Laufer, B., & Waldman, T. (2011). Verb-noun collocations in second language writing: A corpus analysis of learners' English. *Language Learning*, 61(2), 647-672. <https://doi.org/10.1111/j.1467-9922.2010.00621.x>
- Mendoza, A. (2019). La identificación de habilidades y estrategias de escritura de estudiantes de posgrado no hispanohablantes a través de entrevistas semiestructuradas. *RLA. Revista de Lingüística Teórica y Aplicada*, 56(1), 85-113. <https://revistas.udec.cl/index.php/rla/article/view/675>
- Olsen, S. (1999). Errors and compensatory strategies: A study of grammar and vocabulary in texts written by Norwegian Learners of English. *System*, (2), 191-205. [https://doi.org/10.1016/S0346-251X\(99\)00016-0](https://doi.org/10.1016/S0346-251X(99)00016-0)
- Perdomo, B. (2023). Research articles written in Spanish by undergraduate students: Errors and students' perceptions. *Nueva Revista del Pacífico*, 79, 58-83. <https://www.researchgate.net/publication/377181194>
- Polio, C., & Shea, M. (2014). An investigation into current measures of linguistic accuracy in second language writing research. *Journal of Second Language Writing*, 26, 10-27. <https://doi.org/10.1016/j.jslw.2014.09.003>

- Phuket, P. R., & Othman, N.B. (2015). Understanding EFL students' errors in writing. *Journal of Education and Practice*, 6(32), 99-106.
- Phuoc, V. D., & Barrot, J.S. (2022). Complexity, accuracy, and fluency in l2 writing across proficiency levels: A Matter of L1 background. *Assessing Writing*, 54, 100673. <https://doi.org/10.1016/j.asw.2022.100673>
- R Core Team (2018). *R: A Language and Environment for Statistical Computing*. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.
- Storch, N., & Tapper, J. (2009). The Impact of an EAP course on postgraduate writing. *Journal of English for Academic Purposes*, 8, 207-223. <https://doi.org/10.1016/j.jeap.2009.03.001>
- Tedick, D. J. (1990). ESL writing assessment: Subject-matter knowledge and its impact on performance. *Studies in Second Language Acquisition*, 9, 123-143. [https://doi.org/10.1016/0889-4906\(90\)90003-U](https://doi.org/10.1016/0889-4906(90)90003-U)
- Tello, I. (2024). Diminutives: A corpus-based analysis of the gravitational pull hypothesis. *SKASE Journal of Translation and Interpretation*, 17(1), 2-23.
- Thewissen, J. (2013). Capturing L2 accuracy developmental patterns: Insights from an error-tagged EFL learner corpus. *The Modern Language Journal*, 97, 77-101. <https://doi.org/10.1111/j.1540-4781.2012.01422.x>
- Thewissen, J., & Anishchanka, A. (2022). Interaction between grammatical accuracy and syntactic complexity at different proficiency levels: Insights from a learner corpus. *Studies in Corpus Linguistics*, 104, 209-240. <https://doi.org/10.1075/scl.104.09the>
- Thi, N.K., Van Vo, D.V., & Nikolov, M. (2023). Investigating syntactic complexity and language-related error patterns in EFL students' writing: corpus-based and epistemic network analyses. *Language Learning in Higher Education*. <https://doi.org/10.1515/cercles-2023-2009>
- Wolfe-Quintero, K., Inagaki, S., and Hae-Young K. (1998). *Second language development in writing: Measures of fluency, accuracy, and complexity*. University of Hawai'i at Manoa.
- Wu, Chenze, W., Zhang, Y. W., & Li, A.W. (2023). Peer feedback and Chinese medical students' English academic writing development: A Longitudinal Intervention study. *BMC Medical Education*, 23(1), 578. <https://doi.org/10.1186/s12909-023-04574-w>