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ARTICLE

Development of EFL Students' Writing in Secondary Education

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ABSTRACT

The aim of this paper is to explore and measure language learners' performance in L2 writing production using the complexity, accuracy, and fluency constructs. A total of 123 secondary education students took part in the study. Results are manifold. In the first place, they show that the measures of fluency, accuracy, grammatical and lexical complexity progress in a significant way: fourth grade students outperform first graders in the aforementioned measures. Secondly, fewer correlations between the writing measures used and the general quality of the compositions are found among the older students than among the younger ones, indicating that the correlations change depending on learners' age. Thirdly, 1st year students exhibit a higher ratio of errors, both in general and also by error category, although only two types decrease significantly in 4th year students: syntactic and spelling errors. Lastly, we find that errors tend to develop in a non-linear way.

1. Introduction

Writing is, alongside with reading comprehension, listening comprehension, and speaking, one of the skills comprised in the learning of a foreign language (FL). In order to help both students to a better--and easier--language acquisition and practitioners to have a clearer understanding of how this works, it is fundamental to get to know the way it develops along the different stages of language learning. Writing has been a useful tool to assess learners' language competence in a

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foreign language classroom. As Weissberg states, writing seems to reflect better than speech the emergence of new morphosyntactic forms and the development of grammar[1]. As Verspoor, Schmid, and Xu argue, written texts show active language use on the part of the second language (L2) user in all its facets, including the use of vocabulary, idioms, verb tenses, sentence constructions, and errors[2].

Larsen-Freeman sees language as a complex, dynamic system, and language use/acquisition as dynamic adaptedness to a specific context, and regards this view as a useful way of understanding change in progress, such as that which occurs with a developing L2 system[3]. This emergentist view sees learner language development not as discrete and stage-like, but more like the waxing and waning of patterns. She assumes that progress cannot be totally accounted for by performance in any one subsystem. She states that linguistic subsystems, dimensions of language proficiency (fluency, accuracy, and complexity), and even individual elements of language interact in ways that are supportive, competitive, and conditional. They are supportive in that development in one of these subsystems, dimensions, or elements might depend upon the development in another. However, while mutual, the relationship is not necessarily symmetrical, in that after a while, the development in one subsystem may have a competitive relationship with development in another, so that, for example, at one point in time, higher performance in one dimension of proficiency, say accuracy, can seemingly detract from performance in others, like fluency and complexity[3].

Written proficiency as a subset of language proficiency is also complex and cannot be totally accounted for by performance in any one subsystem or dimension of language proficiency. A way of understanding this complex phenomenon is therefore through an exploration into its multi-dimensions. Many researchers contend that the pivotal aspects of L2 writing performance can effectively be captured by the complexity, accuracy, and fluency (CAF) constructs[4]. As Rosmawati explains: "Being predominantly operationalised as a set of quantitative measures, the triad not only offers better perceptibility of development (evidenced by the changes in the numerical value of the indices) but also allows for better comparability across studies."[4] In a search for reliable measures to evaluate L2 development, the notions of complexity, accuracy, and fluency (CAF) were proposed as the principal constructs to capture the multidimensionality of the constructs in L2 performance[5][6][7][8].Research has shown that these three dimensions are robust indicators of a learner's written competence[9][10][11].

Fluency gauges "how comfortable the second language writer is with producing language"[11]. Accuracy can be defined as the absence of deviations from a particular linguistic norm, it is "the ability to be free from errors while using language to communicate in either writing or speech"[11]. Grammatical complexity means that "a wide variety of basic and sophisticated structures are available and can be accessed quickly"[11], and lexical complexity means that "a wide variety of basic and sophisticated words are available and can be accessed quickly"[11]. Therefore, complexity describes the learners' language knowledge while accuracy measures the appropriateness of language use, and fluency the automaticity of language use. These three constructs, as a triad, gauge the learners' development as a whole[4].

The aim of this paper is to explore and measure language development by gauging the progress in learners' performance in L2 production. In order to understand stages in language development, we will carry out an exploration into the multi-components of written development using the complexity, accuracy, and fluency constructs. All of these measures have generally shown improvement as proficiency increases[12][10][11]. We will compare the written competence of first and fourth grade secondary education students. There has not been much work published to date specifically on the comparison of the written production of these groups of students in the Spanish context and this paper intends to shed some light on this question.

2. Literature Review

Among the earliest studies, Bardovi-Harlig and Bofman examined grammatical complexity and accuracy in the written English of two groups of advanced adult foreign language learners divided according to their performance on a placement test (pass and non-pass group)[13]. Both groups showed similar complexity scores as measured by the number of clauses per T-unit. The analysis of errors, scored as syntactic, morphological, or lexical-idiomatic, revealed similar patterns of error distribution[13]. The smallest difference between groups was shown in syntactic errors. The greatest difference between groups was their production of lexical-idiomatic errors, which was significant. The difference in morphological errors was only weakly significant. Both groups produced the greatest number of errors in grammatical morphemes, with fewer errors in lexical choice, and the smallest number of errors in syntax[13]. In sum, findings suggest that these advanced language learners showed relative strength in syntax but relative weakness in morphology.

Other cross-sectional studies are those of Carlisle

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(1989), Lorenzo and Rodríguez (2014), and Yang, Lu, and Weigle (2015). Carlisle analysed the writing of Hispanic 4th and 6th graders in a bilingual program and compared their writing with that of Hispanic students in a submersion program and native English speakers in a regular program[14]. The variables investigated were rhetorical effectiveness, overall quality of writing, productivity or total number of words written, syntactic maturity defined as the average number of words per T-units, and error frequency. Results revealed that the sixth graders had significantly higher scores than did the fourth graders on all the variables except for error frequency. However, the correlation was negative, indicating that older students tended to make fewer errors. An analysis of the correlation between measures showed that rhetorical effectiveness correlated significantly with the overall quality of writing, and that productivity, syntactic maturity, and error frequency correlated significantly with rhetorical effectiveness and the overall quality of writing[14].

Lorenzo and Rodríguez approached the appearance and evolution of academic written language structures in a second language, in formal bilingual contexts[15]. The authors analysed a corpus of historical narratives of subjects from the third year of secondary education to the second year of post-compulsory secondary education (baccalaureate). The study employed complexity measures, among them the mean length of sentence, mean length of clause, clauses per sentence, verb phrases per T-unit, dependent clauses per clause, coordinate phrases per clause, complex nominals per T-unit, and complex nominals per clause. The lexical complexity analysis used 25 different measures such as diverse type-token ratio measures, variation of different parts of speech, verb sophistication, and lexical range. Results showed that learners in the lowest grades produced an amalgamated language, characterized by a lack of dependent clauses, T-units, and coordinate phrases[15]. However, this language skill was consolidated in higher grades as all measures examined improved. Although changes were continuous they were nevertheless unstable, with higher peaks reaching significance levels in the uppermost course[15].

Yang et al. focused on syntactic complexity, which was conceptualized and measured as a multi-dimensional construct with interconnected sub-constructs[16]. They examined the relationship between ESL writing syntactic complexity and writing quality, as well as the role of topic in the relationship. The participants were ESL graduate students who wrote two argumentative essays on two different topics. The authors found syntactic complexity as measured by mean length of sentences and mean length of T-unit to be a significant predictor of writing scores across the two topics[16].

Longitudinal studies are also to be found in the literature, for instance those of Knoch, Rouhshad, and Storch (2014) and Knoch, Rouhshad, Oon, and Storch (2015). Knoch et al. (2014) found significant writing development but limited to certain measures in students who had spent some period of study abroad[17][18]. Knoch et al. examined students' ESL writing proficiency following a year's study in an Australian university[17]. The study used a longitudinal design and investigated writing development using global writing scores, as well as measures of accuracy, fluency, grammatical and lexical complexity. Accuracy was measured via the percentage of error-free clauses and the percentage of error-free T-units. Fluency was measured by counting the number of words in each essay. Grammatical complexity was measured via the number of words per T-units, the number of words per clauses, and the number of clauses per T-unit. Lexical complexity measures included percentage of words from the Academic Word List (AWL), lexical sophistication, and D-value (D-value is a measure of lexical richness which is derived by computing a set of type/token ratios for each text)[17]. The results of the study showed that global scores of writing showed no change over time. The only significant improvement participants in the current study showed was in their fluency (measured via text length). That is, they could write longer texts in the time allowed. There were no observed gains in accuracy, syntactic and lexical complexity[17].

Knoch et al. (2015) examined undergraduate students' L2 (ESL) writing proficiency following a three-year degree study in an L2-medium university. The study used a test-retest design which required participants to write a 30-minute argumentative essay on the same topic at the commencement and at the end of their degree program. A range of measures was used to assess writing, including global and discourse measures (accuracy, fluency, complexity). Accuracy was measured via the percentage of error-free T-units and clauses. Fluency was measured by counting the number of words for each essay, by the number of T-units, and T-unit length, i.e., the average number of words per T-unit. Grammatical complexity was measured via the average numbers of words per clause, clauses per T-unit, and the ratio of dependent clauses to all clauses. For lexical complexity, three different measures were used which included percentage of words from the Academic Word List, lexical sophistication, and average word length[18]. Consistent with Knoch et al. (2014), global scores of writing did not improve significantly over the three years of degree study. In terms of the discourse measures, also consistent with Knoch et al. (2014), fluency (measured via word count) increased significantly over

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three years of degree study, suggesting that participants were able to produce more words within the same allotted time, whereas accuracy, grammatical and lexical complexity did not change over time[18].

Navés, Torras, and Celaya (2003) and Godfrey, Treacy, and Tarone (2014) also report longitudinal studies, but comparing the performance of different groups. Navés et al. (2003) investigated the development of the written production of six groups of primary and secondary education learners using fluency, accuracy, and complexity measures[19]. For fluency, they employed eight measures, such as the total number of words, the total number of clauses, or the total number of sentences. For accuracy, they took into account the error-free sentences, the percentage of error-free sentences, and the number of rejected units. For grammatical complexity, they used twenty-seven features, such as the number of subordinated clauses, the number of coordinated clauses, the number of non-finite nodes, the ratio of clauses per sentence, the ratio of non-finite nodes per clause, the ratio of non-finite node per sentence, and the ratio of subordinated clauses per clause. Finally, they employed 13 measures of lexical complexity, such as noun tokens, noun types, adjective tokens, adjective types, primary verb types, open class words, or lexical density[19].

One of the main findings of this study is that there seemed to be two different patterns of development in EFL written production depending on learners' age[19]. Pattern I shows almost no interlanguage development between the first three groups of younger learners (aged below 12) and then a steady increase in the older groups (aged above 12) for most syntactic complexity measures and for adverbs (lexical complexity). Pattern II shows a steady development in the first four groups of younger learners (aged below 14). This development stops in the older groups (aged above 14) for accuracy, fluency, and some lexical measures. Another relevant finding was that accuracy, fluency, syntactic and lexical complexity do not develop in tandem, but correlate differently depending on the learners' age group and the strength of the relationship between the measures in the four components[19].

For their part, Godfrey et al. examined the writing of eight university learners of French – four during study abroad and four in on-campus courses – over the period of a semester[20]. This study applied measures focused on the complexity, accuracy, fluency, and form - function relationships of writing samples collected at the beginning and end of the semester. The measure of fluency was the total number of words per essay. Accuracy was measured by counting the percentage of correct instances in which a student had to make a decision about gender. Syntactic complexity was analysed with a clause/T - unit analysis[20]. Results showed that progress toward more advanced academic L2 writing occurred for both groups of students, although in different ways. Students in both groups improved their fluency in writing, as measured by length of their essays, but the domestic group seemed to increase essay length more than the study abroad group did. On a measure of accuracy, the study abroad group increased both their use of French gendered nouns and their accuracy in gender marking more than the on - campus group did. A T - unit analysis showed that, while both groups increased the syntactic complexity in their writing, the domestic group improved more than the study abroad group did. Both groups' use of linguistic forms and expressions to make supported claims and use of appropriate discourse markers improved, while the on - campus group increased their hedging of such claims more than the study abroad group[20].

Other studies adopt a dynamic perspective. In this view, CAF constructs are treated as dynamic (sub)systems, whose growth is expected to be non-linear and displays a high degree of variability as the expression of development[3][21] (Larsen-Freeman, 2006, 2012). Some of these studies, namely Larsen-Freeman (2006) and Rosmawati (2014), examining written development over a period of time, found out significant improvement in the groups studied, together with a great degree of individual variability and fluctuations[3][4].

Larsen-Freeman (2006) examined the oral and written production of five Chinese learners of English, comparing group and individual performances over a six-month period[3]. The measures used were fluency (average number of words per T-unit), grammatical complexity (average number of clauses per T-unit), accuracy (the proportion of error-free T-units to T-units), and vocabulary complexity (a sophisticated type-token ratio-word types per square root of two times the words). Findings showed that over a six-month period, participants were writing more fluently and accurately, and their writing had become more complex in grammar and in vocabulary. However, whereas group averages could be represented by a more or less smoothly ascending curve, some individual performances regressed and progressed, and others remained somewhat unchanged over time. The rate of change fluctuated for different participants at different times and the largest rate change occurred for accuracy.

Rosmawati (2014) explored complexity and accuracy development in the academic writing of an advanced L2 learner during her postgraduate study in Australia over one academic semester[4]. The data were coded for syntactic and grammatical complexity as well as accuracy. The

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measure employed to gauge syntactic complexity was a frequency count of sentence types (simple, compound, complex, and compound-complex sentences). To measure overall grammatical complexity this study employed a word per finite-verb ratio, which took into account complex noun structures besides measuring subordination and coordination. Two accuracy measures were also used, namely, error types and overall accuracy ratio, which consisted of the number of error-free clauses compared to the number of clauses. The errors detected in the sample texts were coded as global errors, local errors, and mechanical errors. The results suggested that both complexity and accuracy development were highly variable, non-linear, and idiosyncratic. The student produced simple, complex, and compound-complex sentences, although their distribution was not, at all, balanced. In terms of accuracy development, her writing showed a great degree of variability with visible fluctuations, although it seemed to have improved toward the end of the semester. The interaction between complexity and accuracy, too, was dynamic and non-linear. The two constructs were competing for a period of time before changing their interaction towards a positive supporting relationship.

Another longitudinal investigation adopting a dynamic perspective, but in this case examining three languages, was that of Yang and Sun (2015)[22]. These authors (2015) investigated the development of complexity, accuracy, and fluency in five undergraduate multilingual learners' L1 (Chinese), L2 (English), and L3 (French) writing throughout an academic year[22]. All the writing samples were analysed in terms of fluency (mean number of words per T-unit), accuracy (the proportion of error-free T-units to total number of T-units), lexical complexity (Guiraud's index: word types divided by the square root of the word tokens), and grammatical complexity (mean number of clauses per T-unit). Non-linear and dynamic developmental processes and a great deal of variation were identified in inter-individual's (between individuals) L1, L2, and L3 writing as well as in intra-individual's (within one individual) L1, L2, and L3 writing via CAF analysed. Results also demonstrated that CAF components correlated with each other in multilingual learners' writing over time. The interplay was especially conspicuous between lexical complexity and grammatical complexity, indicating a strong competitive relationship within each pair[22].

Finally, other two studies conveying a dynamic approach were carried out by Verspoor et al. (2012), and Thewissen (2013). Verspoor et al. (2012) analysed texts written by a group of learners of English as an L2 in their first and third year of high school[2]. They investigated 64 separate variables involving sentence constructions, clause constructions, verb phrase constructions, chunks, the lexicon, and accuracy measures across five different proficiency levels, from beginner to intermediate[2]. Findings showed that at the higher proficiency levels all measures looked at improved: more complex constructions at all levels emerged and fewer errors occurred. Results also showed that measures of sentence length, lexical complexity, the total number of dependent clauses, chunks, and errors, and the use of present and past tense distinguished between proficiency levels of writing expertise. However, almost all specific constructions showed non-linear development, variation, and changing relationships among the variables. The data suggest that learners who go from level 1 to 2 are especially busy learning words; after a certain threshold of vocabulary has been reached, the learners seem to focus more on syntactic complexity between levels 2 and 3, which continues a bit between levels 3 and 4, but there it is mixed with lexical measures. After most syntactic constructions are in place, there is a focus again on lexical matters between levels 4 and 5[2].

Thewissen investigated second language accuracy developmental trajectories via an error‐tagged version of an English as a Foreign Language (EFL) learner corpus. Learner essays were annotated for errors and they were rated according to the Common European Framework of Reference for Languages descriptors for linguistic competence[23]. This study showed that it was lexis that progressed most strongly from the intermediate to the advanced levels. Findings showed a non-linear developmental pattern as only two error types displayed a linear, progress-only type of development (viz., the total errors and lexical single errors). Progress and stabilization and stabilization-only patterns accounted for 94% of all error types. Progress-only and regressive types of development, however, constituted the exception rather than the rule[23]. This study also suggests that both stabilization and regression should not in and of themselves be negatively interpreted and may in fact at times be the result of growing L2 capacities, such as increasing levels of complexity, especially at the more advanced levels.

The literature reviewed above reveals that the analysis of the measures used to assess written competence shows significant improvement across proficiency levels as well as over time. The studies also show a reduction in the number of errors as proficiency increases. Moreover, studies reveal various correlations between the writing measures used. In order to help research in this field so that practitioners achieve a better understanding of L2 writing development, we decided to gather further data regarding the secondary education stage.

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3. Empirical Study

3.1 Aim of the Study

The present study aims to analyse and compare the written competence of two groups of secondary education students at different proficiency levels. Written competence is characterised, as stated above, by three dimensions of language proficiency: fluency, accuracy, and complexity. We assume that foreign language writers will write more fluently, or write more in the same amount of time, write more accurately, or produce fewer errors in their writing, and write more grammatically and lexically complex sentences as they become more proficient. Despite this assumption, we decided to compare two groups at different levels as we wanted to explore the progress from one level to the other in specific measures of writing, fluency, accuracy, grammatical and lexical complexity. The following research questions are the focus of the study:

1. Is there a significant difference in writing between both groups in every measure? If not, which measures (if any) – fluency, accuracy, grammatical complexity, lexical complexity – progress in a significant way in both levels?
2. Is there a significant relationship between the overall grade and the measurements – fluency, accuracy, grammatical complexity, and lexical complexity? Is there a significant relationship among the measurements –fluency, accuracy, grammatical complexity, and lexical complexity? (e.g., fluency-accuracy; accuracy-grammatical complexity; fluency-grammatical complexity; and so on).
3. Which level makes more overall errors? What kind of errors – syntactic, morphological, or lexical – has the largest percentage in each level? Does the overall number of errors decrease significantly? Which subtypes of errors decrease significantly in the levels? Do some errors increase instead of decreasing significantly?

3.2 Participants

To limit variation caused by predictors such as L1, age, aptitude, and task as much as possible, the present corpus was controlled for these factors[10]. A total of 123 students, belonging to 2 different levels of secondary education (1º CSE = 69; 4º CSE = 54) at a state-funded private school in a city in northern Spain took part in the study. Although a few of the participants were not native Spanish speakers, all of them could speak Spanish fluently.

3.3 Method

During the month of January of 2015, students were asked to write an essay in English. The topic of the essay for all of them was "The Television" and they were told they could deal with any particular issue regarding that topic they wanted to write about.

3.4 Procedure

To measure fluency, we counted the total number of words. In addition, we used sentence length (total number of words divided by total number of sentences) and clause length (total number of words divided by total number of clauses) as measures of the fluency of writing. For accuracy, the measures used were error-free clauses ratio (total number of error-free clauses divided by total number of clauses) and errors per word ratio (total number of errors divided by total number of words). As additional measures, we also calculated the number of syntactic, morphological, lexical, punctuation, and spelling errors divided by the number of words. Regarding the grammatical complexity measures, we used the sentence complexity ratio (total number of clauses divided by total number of sentences). Finally, for lexical complexity we used the ratio of the number of word types to the square root of two times the word tokens.

Errors were analysed and scored as syntactic, morphological, or lexical following Bardovi-Harlig and Bofman[13]. Thus, 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. Morphological errors included errors in nominal morphology (plural, case, possessive, and person), errors in verbal morphology (tense, subject-verb agreement, and passive formation), errors in determiners and articles, errors in prepositions, and errors in derivational morphology (e.g., lack of suffixes, etc.). As lexical errors, we counted lexical-idiomatic, or vocabulary errors.

3.5 Results

Research question 1: Is there a significant difference in writing between both groups in every measure? If not, which measures (if any) – fluency, accuracy, grammatical complexity, lexical complexity – progress in a significant way in both levels?

As we can see in Table 1, there is a significant difference in fluency between first year and fourth year students. This occurs in all the fluency measures of writing used: (a) total number of words or total length (M=79.72, M=194.50; Kruskal-Wallis test, $p<0.01$), (b) sentence length (M=13.10, M=18.47; Kruskal-Wallis test, $p<0.01$), and (c) clause length (M=7.09, M=7.77; Kruskal-Wallis

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test, p<0.05). There is also a significant difference in accuracy as measured by error-free clause ratio (M=0.15, M=0.25; Kruskal-Wallis test, p<0.05) and by errors per word (M=0.25, M=0.15; Kruskal-Wallis test, p<0.01). We also found a significant difference in grammatical complexity as measured by sentence complexity ratio (M=1.88, M=2.43; Kruskal-Wallis test p<0.01). Finally, there is a significant difference in lexical complexity as measured by word variation (M=1.80, M=2.48; Kruskal-Wallis test, p<0.01). We can affirm that fourth year students are more fluent and accurate writers than first year students, and their writings are more grammatically and lexically complex.

Table 1. Difference in CAF measures across levels.

		n	Mean	Median	s. d.
Fluency Total n. words	1st year CSE	69	79.72	76.00	33.36
	4th year CSE	54	194.50	189.00	55.65
Fluency Sentence length	1st year CSE	69	13.10	11.00	6.33
	4th year CSE	54	18.47	18.13	5.58
Fluency Clause length	1st year CSE	69	7.09	6.52	2.36
	4th year CSE	54	7.77	7.23	1.98
Accuracy Error-free clause ratio	1st year CSE	69	0.15	0.09	0.16
	4th year CSE	54	0.25	0.25	0.18
Accuracy Errors per word ratio	1st year CSE	69	0.25	0.21	0.14
	4th year CSE	54	0.15	0.15	0.06
Grammatical Complexity	1st year CSE	69	1.88	1.66	0.79
	4th year CSE	54	2.43	2.31	0.70
Lexical Complexity	1st year CSE	69	1.80	1.87	0.56
	4th year CSE	54	2.48	2.39	0.69

Research question 2: Is there a significant relationship between the overall grade and the measurements – fluency, accuracy, grammatical complexity, and lexical complexity? Is there a significant relationship among the measurements – fluency, accuracy, grammatical complexity, and lexical complexity? (e. g., fluency-accuracy; accuracy-grammatical complexity; fluency-grammatical complexity; and so on).

A Pearson correlation coefficient was carried out to find out the correlations between the global score and the rest of writing measures used. As we can see in Table 2, in the first year of CSE, ten out of twelve measures are significantly related to the general quality of the composition. The only exceptions are a measure of fluency (sentence length) and the grammatical complexity measure (sentence complexity ratio). In the fourth year of CSE, seven of the twelve measures are significantly related to the general quality of the composition, namely, one fluency measure (total number of words) and all the accuracy measures with the exception of punctuation errors ratio.

Table 2. Correlation between global scores and writing measures.

	First year		Fourth year	
	p	p value	p	p value
Composition score – Number of words	0.386	<0.001	0.333	0.014
Composition score – Sentence length	-0.045	0.715	-0.047	0.732
Composition score – Clause length	-0.255	0.035	-0.224	0.102
Composition score – Error-free clause ratio	0.688	<0.001	0.799*	<0.001
Composition score – Errors per word ratio	-0.775	<0.001	-0.805	<0.001
Composition score – Syntactic errors	-0.608	<0.001	-0.405	0.002
Composition score – Morphological errors	-0.465	<0.001	-0.665	<0.001
Composition score – Lexical errors	-0.345	0.004	-0.384	0.004
Composition score – Spelling errors	-0.385	0.001	-0.415	0.001
Composition score – Punctuation errors	-0.267	0.026	-0.076	0.585
Composition score – Sentence complexity ratio	0.148	0.224	0.132	0.342
Composition score – Word variation	0.575	<0.001	0.263	0.055

With respect to the correlations among writing measures, we found that measures interact in different ways depending on the grade. The following are the significant correlations found in the first year of CSE:

Fluency-Accuracy: We found a significant correlation between total number of words or total length and errors per word ratio (p=-0.519, p<0.001), between total number of words or total length and error-free clause ratio (p=0.3359, p<0.05), and between clause length and error-free clause ratio (p=-0.2917, p<0.05). Significant correlations were also found between total number of words and syntactic errors ratio (p=-0.5272, p<0.0001), total number of words and lexical errors ratio (p=-0.2942, p=0.0141), and total number of words and spelling errors ratio (p=-0.3281, p=0.0059). On the other hand, punctuation errors increase alongside with clause length (p=0.3304, p=0.0056). Fluency and accuracy appear to go

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hand in hand. In other words, the more fluent learners are, the more accurate their writing tends to be in general and specifically regarding syntax, lexis, and spelling. The only exception is punctuation errors; it seems that clause length poses punctuation problems to students.

Accuracy and Lexical Complexity: Error-free clauses and errors per word ratio significantly correlate with lexical complexity ($p=0.2850$, $p<0.05$; $p=-0.4497$, $p<0.001$). We can then say that accurate writers write more lexically complex texts, which is corroborated by the number of errors by type students make. There are significant negative correlations between syntactic errors and lexical complexity ($p=-0.4179$, $p<0.05$), lexical errors and lexical complexity ($p=-0.4972$, $p<0.0001$), and spelling errors and lexical complexity ($p=-0.2458$, $p<0.05$). All these data mean that students who write lexically complex texts commit less syntactic, lexical, and spelling errors.

Fluency and Lexical Complexity: Total length correlates with lexical complexity ($p=0.4686$, $p<0.001$). The longer the compositions, the more lexically complex they are.

Accuracy and Grammatical Complexity: Error-free clause ratio is correlated with grammatical complexity ($p=0.2565$, $p<0.05$). The more accurate the compositions, the more grammatically complex they are.

Fluency and Grammatical Complexity: Sentence length is correlated with grammatical complexity ($p=0.7900$, $p<0.001$). The longer the sentences, the more grammatically complex they are.

With respect to fourth grade, we found the following correlations:

Fluency-Accuracy: We found a significant correlation between total length and error-free clause ratio ($p=0.2916$, $p<0.05$) and between total length and errors per word ratio ($p=-0.4358$, $p<0.05$). Accurate and fluent writing continue to go hand in hand when learners are older. This is corroborated by the significant correlations found between total number of words and syntactic errors ratio ($p=-0.3004$, $p=0.0273$), and the total number of words and morphological errors ratio ($p=-0.3630$, $p=0.0070$). Therefore, we can state that the longer texts the students write, the more accurate they are both in general and regarding syntax and morphology.

Fluency and Grammatical Complexity: Total length and sentence length significantly correlate with sentence complexity ratio ($p=0.2956$, $p<0.05$; $p=0.7674$, $p<0.001$). The longer the compositions, the more grammatically complex they are. Clause length significantly correlates with sentence complexity ratio, although the correlation is negative ($p=-0.3108$, $p=0.0222$). The shorter the clauses, the more grammatically complex compositions are. This could be explained by the fact that the participants at the higher level wrote more coordinated clauses as well as far more, and more complicated, subordinated ones.

Research question 3: Which level makes more overall errors? What kind of errors--syntactic, morphological, or lexical--has the largest percentage in each level? Does the overall number of errors decrease significantly? Which subtypes of errors decrease significantly in the levels? Do some errors increase instead of decreasing significantly?

With respect to the mean percentage of errors by number of words, we find that the highest percentage of errors is in the first year students' compositions ($M=0.2458$; $M=0.1470$). We observe that the distribution of errors is virtually the same for both groups, that is, both groups made the same types of errors with the same frequency regardless of how many errors they made. As we can see in Table 3, first and fourth year students exhibited a higher ratio of syntactic errors ($M=0.0500$; $M=0.0237$), followed by morphological ($M=0.1017$; $M=0.0785$), lexical ($M=0.0258$; $M=0.0134$), spelling ($M=0.05$; $M=0.02$), and finally punctuation errors ($M=0.02$; $M=0.01$).

When we analyse the development of errors from first to fourth grade we find that only two types of errors show a significant difference between groups: syntactic errors and spelling errors. As competence progresses, syntactic and spelling errors diminish in a significant way. Morphological, lexical, and spelling errors also diminish though not in a significant way. For their part, punctuation errors do not change.

Table 3. Percentage of error types per word ratio.

		n	Mean	Median	s. d.	P
Syntactic errors	1st year CSE	69	0.0500	0.0348	0.05	P=0.03
	4th year CSE	54	0.0237	0.0195	0.02	
Morphological errors	1st year CSE	69	0.1017	0.0928	0.06	p=0.07
	4th year CSE	54	0.0785	0.0720	0.04	
Lexical errors	1st year CSE	69	0.0258	0.0116	0.06	p=0.01
	4th year CSE	54	0.0134	0.0115	0.01	
Spelling errors	1st year CSE	69	0.05	0.030	0.05	p<0.01
	4th year CSE	54	0.02	0.016	0.02	
Punctuation errors	1st year CSE	69	0.02	0.01	0.02	p=0.70
	4th year CSE	54	0.01	0.01	0.01	

Let's now focus on error subtypes. Table 4 and Table 5 show the mean percentage of morphological and syntactic error subtypes in first and fourth grade. As we can see, all syntactic errors decrease from first to fourth year students, and one syntactic error subtype (missing constituents:

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Table 4. Distribution of morphological errors in first and fourth grade.

Morphological errors			First year		Fourth year	
			Mean	Median	Mean	Median
Nominal morphology		Plural	0.010049	0.000	0.0073	0.0048
		Case	0.0013	0.000	0.0009	0.000
		Possessive	0.000568	0.000	0.000677	0.000
		Person	0.001295	0.000	0.000500	0.000
Verbal morphology	Subject-Verb agreement	-s omitted	0.004586	0.000	0.005483	0.00421
		-s overgeneral.	0.000567	0.000	0.000581	0.000
	Tense	Ill-formed	0.011280	0.000	0.003636	0.000
		Misuse	0.008769	0.000	0.011446	0.00843
	Passive	Passive	0.000405	0.000	0.000334	0.000
Articles		Incorrect article	0.000909	0.000	0.000161	0.000
		No article	0.003109	0.000	0.002071	0.000
		Unneces. article	0.018894	0.009709	0.014226	0.00804
Determiners		Incorrect deter.	0.004440	0.000	0.006384	0.00512
		No determiner	0.000350	0.000	0.000097	0.000
Prepositions		Incorrect prep.	0.010754	0.000	0.007671	0.00586
		No preposition	0.002683	0.000	0.001533	0.000
		Unneces. prep.	0.001536	0.000	0.001039	0.000
Derivational morphology			0.003300*	0.000	0.001786*	0.000

Table 5. Distribution of syntactic errors in first and fourth grade.

Syntactic errors		First year		Fourth year	
		Median	Mean	Mean	Median
Word order	Major	0.008739	0.000	0.000876	0.000
	Minor	0.005766	0.000	0.004489	0.0019
Embedding	Complements	0.001233	0.000	0.000909	0.000
Fragments and missing constituents	Fragments	0.015711	0.000	0.007489	0.0044
	Missing const.	0.016699	0.01098	0.004196	0.000
	Repeated const.	0.002201	0.000	0.001191	0.000

M=0.016699, M=0.004196, $p<0.01$) decreases in a significant way. On the other hand, in the case of morphological errors, although first year students also tend to commit more morphological errors, there are six morphological error subtypes with a higher mean in the fourth year of CSE. In addition, one morphological error subtype (incorrect determiners: M=0.004440, M=0.006384, $p<0.05$) increases significantly.

We observe some similarity in the distribution of morphological error subtypes between first and fourth year students. The use of unnecessary articles, tense misuse, the use of incorrect prepositions, nominal morphology (plural), and the use of incorrect determiners are among the most frequent errors in both grades. Absence of determiner is the least frequent error in both grades. There is less similarity in the distribution of syntactic error sub-

types between the two groups, although missing constituents and fragments are very frequent in both grades.

4. Discussion

The comparison between first and fourth graders allows us to identify how the four indicators of writing proficiency (fluency, accuracy, grammatical and lexical complexity) develop within a school setting. Our study shows that the measures of fluency, accuracy, grammatical and lexical complexity progress in a significant way. We observe that fourth grade students outperform first graders in all the measures of writing used. These results in a secondary-level context support previous findings by Carlisle (1989), Larsen-Freeman (2006), Verspoor et al. (2012), Rosmawati (2014), Godfrey et al. (2014), Lorenzo and Rodríguez (2014), and Yang and Sun (2015) that, although in different contexts and with students of different levels of competence, show significant writing differences among course levels and a tendency towards improvement in written competence[14][3][2][4][20][15][22]. They are also partly in line with the results of Knoch et al. (2014, 2015) that showed significant writing improvement in fluency or text length[17][18].

With respect to the correlations between the writing measures used and the general quality of the compositions, fewer correlations are found in the older students than in the younger ones. It seems that a possible accuracy-complexity trade-off effect may be operating from first to fourth year with increasing risk taking (i.e., increasing complexity) affecting significant improvement (i.e., accuracy). For instance, the case for clause length, which is correlated significantly with the overall score in the 1st year but not in the 4th could be explained by the fact that, compared with the lower stage students, the participants at the higher level wrote more coordinated clauses as well as much more, and more complicated, subordinated ones. The difficulty posed by that fact could have affected scores negatively. Similarly, the results for lexical complexity, which also correlated significantly with composition scores in 1st CSE but not in 4th, could be explained by the fact that fourth year students have already acquired a large vocabulary and try to make use of it. It would appear that those of them who take more risks trying to express their ideas in written form make more lexical mistakes. This agrees in part with Verspoor et al.'s (2012) results[2], which showed that students focus on lexical matters at the higher stages of high school, so maybe the group in our study was trying to adjust the vocabulary acquired over some time.

For their part, the correlations found between the various measures of written competence used change depending on learners' grade. Thus, we can affirm that in both groups the more fluent learners are, the more accurate and grammatically complex their writing tends to be. However, we find a significant correlation between accuracy and lexical complexity, fluency and lexical complexity, and between accuracy and fluency only in the first year group, showing that in this grade longer compositions are more accurate, and longer and more accurate compositions induce more lexically complex essays. These findings are consistent with results by Navés et al. (2003) that showed that the correlations between measures depended on learners' age group[19]. In fact, in line with Navés et al., we can perceive a significant relationship between fluency and grammatical complexity, which grows stronger in the higher level[19]. With a completely different pattern, but in line also with Navés et al.'s results, we find that the correlations between fluency and accuracy, and between accuracy and lexical complexity, seem to diminish as students get older, especially in the second case, in which the relationship disappears[19]. In the case of fluency and lexical complexity, Navés et al.'s results did not show a clear relationship, whereas in our study the correlation existing in 1st CSE disappeared in 4th CSE[19].

First year students exhibited a higher ratio of errors in general and in each of the specific error categories. We observe that, as proficiency increases, so does the learners' overall level of accuracy in English. However, only two types of errors showed a significant difference between groups: syntactic errors and spelling errors. First and fourth year students commit mostly morphological errors followed by syntactic, lexical, spelling, and, finally, punctuation errors. This is in part consistent with Larsen-Freeman's (1983) report that morphological errors were the most common in both an oral task and a written task across a variety of competence levels[24]. It also agrees with Bardovi-Harlig and Bofman (1989) that showed that two groups of advanced learners produced the greatest number of errors in grammatical morphemes[13].

It seems that as competence progresses, syntax improves, whereas students continue to show incomplete and variable acquisition of grammatical morphemes. As we have seen, all syntactic errors decrease from first to fourth grade and one syntactic error in particular, the absence of constituents (subjects, verbs, objects), significantly decreases, pointing to better overall discourse management at fourth grade. On the other hand, some morphological errors like the incorrect use of determiners, the incorrect use of the possessive, incorrect subject-verb agreement, tense misuse, or incorrect derivational morphology contin-

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ue to pose problems for fourth year students. With respect to determiners, the surprising significant increase in this error subtype at level four could be partly explained by the much more frequent use in fourth year students' essays of these items, as a further revision of the compositions shows. In addition, Thewissen found out that the incorrect use of determiners was strongly associated with the lower intermediate B1 level and markedly decreased by the time learners reached the B2 upper intermediate level[23]. In our study, fourth year students are at a low intermediate B1 level, which could explain the regression trend displayed by these errors.

In the case of the possessive, subject-verb agreement, and tenses, the non-progressive tendency is disappointing, as a great deal of time and effort is spent on these grammatical items in the students' curriculum. With respect to tenses, Thewissen also found out that tense usage constituted a rather improvement-resistant area for her EFL groups[23]. A series of studies based on different learners and methodologies all show that tenses remain a weak area, even for more advanced groups[25][26][27][28][29][30]. While tense errors were found to be improvement-resistant in spite of the strong pedagogical attention they receive in secondary education, it is possible that errors in derivational morphology might be improvement-resistant partly because, with the exception of the formation of the comparative and the superlative, it is not a central concern in the classroom.

With respect to lexical progress, there is not a significant increase in lexical competence as proficiency increases, unlike the results obtained by previous studies[2][23]. In part, this could reflect the proficiency level of the groups investigated here. As Thewissen found out, lexis progresses most strongly from the intermediate to the advanced levels[23]. Similarly, Verspoor et al. argue that students focus on lexical matters at the higher stages of high school[2]. Our students, who are at a low intermediate level, may have not acquired enough command of the main areas of syntax and grammar to leave room for lexis to develop.

In addition to grammar, syntax, and lexis, the present study also traced the developmental trajectories displayed by errors in important L2 areas such as punctuation and spelling. In line with a previous work by Thewissen[23], our study shows that spelling errors diminish in a significant way as proficiency increases. On the other hand, and also in agreement with Thewissen[23], punctuation errors remain an improvement - resistant feature across proficiency levels. This error, which involves missing punctuation markers and the confusion between two punctuation markers, shows no sign of improvement as proficiency increases. This constitutes a key finding, as spelling and punctuation tend to be under-researched areas in second language acquisition and teaching, especially from a developmental perspective.

In general, we find that, in line with results by Thewissen[23], errors tend to develop in a non-linear way. Although there are more instances of error progress type of development, we also find instances of error stabilisation and regression type of development. Following Thewissen's argument[23], we state that stabilisation and regression should not be negatively interpreted in the sense that a significant amount of learning has not taken place. Although errors remain in terms of raw occurrences, they may in fact at times be the result of growing L2 capacities with increasing risk taking, or a sign that increasing complexity is at play.

Gathering information about errors not only in grammar, but also lexis, syntax, spelling, and punctuation contributes to a greater understanding of the difficulties encountered by students at different levels of proficiency in the L2 areas that play a significant role in L2 writing. As we have seen, as proficiency increases, writers make fewer mistakes. However, older writers still encounter difficulties as only two types of errors significantly decreased: syntactic errors and spelling errors.

5. Conclusion

The present study has aimed at identifying the development shown by two EFL groups, showing a significant trend of development in written competence from first to fourth grade in both groups, indicating that the measures of fluency, accuracy, and grammatical and lexical complexity progress at the same rate.

Nevertheless, we can clearly perceive changing relationships among the constructs used to measure second language writing--namely, complexity, accuracy, and fluency--, and, in turn, between them and the holistic writing scores in the two analysed levels. This irregular pattern can be explained in Larsen-Freeman's (2006) terms: "We need a more dynamic view of language and of its learning" as "the messiness is not 'noise', but rather a natural part of dynamically emergent behavior assembled by the individual."[3] In fact, as other practitioners have already stated when referring to SLA development, progress in constructs such as the ones studied here – CAF – is highly variable and not linear, and shows different patterns[4].

This developmental dynamism in levels and, mainly, in individual students poses a great challenge to specialists. As Verspoor et al. state: "Language develops in so many dimensions simultaneously and there is such a great deal of variation in the way learners behave that […] we should look at change in all directions […] making sure

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that all sides have developed equally."[2]. This developmental variation in individual students will be the research aim of subsequent studies.

Besides identifying the development shown by the EFL groups, the present work has also contributed to the field of written competence development in other ways. Thus, in addition to grammar, the study has also shown the developmental path errors follow in important L2 areas such as lexis, syntax, spelling, and punctuation, all of which have received scarce developmental attention to date.

Moreover, this study has presented a number of insights for EFL learners, insights that are encouraging on the whole as progress was a regular trend among the learners being studied, who mainly learned English in an instructed rather than in a naturalistic setting.

Finally, we acknowledge some limitations of the present study. Although the groups of participants selected for the study were as homogeneous as possible, some variables such as out-of-school exposure to English or socio-cultural family background could not be controlled. New studies will have to be carried out in the future taking these variables into account, so as to confirm the results obtained in the present study. Alternatively, groups of learners and even individual learners could be followed longitudinally to see the way their writing develops across different SLA stages.

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