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Competition Strategies during Writing in a Second Language: Age and Levels of Complexity

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Abstract: (1) Background: Research in second language (L2) writing in the European context is an emerging tendency in L2 studies. European countries have become new hosts to immigrants in very recent years and new applied research is needed to aid schools in their inclusion process. (2) Method: This study examined differences in writing performance by comparing 99 immigrant students in Portugal between 7 and 17 years of age. They were assessed in six distinct aspects by means of a written essay in order to perceive how maturity and language groups impact competencies such as lexicon, grammar, sociolinguistics and use of strategies. (3) Results: The results were examined according to the competition model of MacWhinney and Bates (1989; MacWhinney 2005) and concluded that older students wrote more proficient essays. First language (L1) and parallel instruction in L1 were examined as covariates against their effects. (4) Discussion: Students who received parallel instruction in their L1 had better results in L2 writing, but only age-produced significant differences will be discussed.

Keywords: second language writing; unified competition model; cognitive interdependence; immigrants in Portugal; age determinants

1. Introduction

Research in second language (L2) writing has produced evidence with regard to less commonly taught languages that have become more present in L2 learning and teaching, but there is little data concerning the writing processes involved in the transfer process and that relate those processes (of writing) to age differences. In the 1990s, scholars (Connor 1996) examined L2 writing in English considering the less commonly taught languages—with the status of home or first languages—as the main basis for the mental process of concept transfer, which indicated that the decoding difficulties arose mostly in the reasoning blocked by the mental lexicon in the first language (L1). The most observed difficulties of L2 learners during writing are related to the high complexity of verbal reasoning, which comprises the decoding and coding of concepts between the L1 and the L2, the lexicon retrieval (including the code-switching that may affect the lexicon selections) and the overlapping between languages with linguistic proximity, which may result in poor writing, particularly the use of descriptive words and complex sentences. Even regarding advanced L2 learners, the writing process is supported by the concept transfer, meaning that the concept decoding between languages is one of the main challenges for L2 learners. The concept transfer is cognitively highly demanding during the writing. The tendency was to overestimate written feedback as a strategy to develop L2 writing skills, especially in adult learners (Kepner 1991). Written feedback is associated with the editing of texts by L2 writers, which is considered of upmost importance for second language proficiency development. The written feedback is observed more

in intermediate learners (higher level of proficiency) and involves operations such as error corrections, lexicon choices and sentences reorganization (Han and Hyland 2015).

In the same decade, the planning processes of L2 learners during the writing were examined in order to understand how learners manage and review their texts. To that effect, researchers developed tests to assess fluency, for example, and related specific features, such as the morphosyntactic and lexicosemantic aspects (Silva 1993). However, these tests were mostly administrated to older subjects—university students—and younger learners were ignored in this assessment and in the evaluation of the self-editing method. Motivation was more recently included as a variable in the equation of age x writing about the writing skills and the levels of achievement among different ages (Pajares 2003; Schwabe et al. 2015). Spelling skills and oral grammar have been examined as the most influential previous skills for early writing of individuals characterized according to different age groups (Arfé et al. 2016). Another perspective for the analysis of the age factor and its influence is the age of migration and its impact on L2 proficiency (Guven and Islam 2015). In this study, we focused on the age factor as chronological age, not on the age of migration (which is related to the length of residence). Also regarding chronological age, we examined mostly the school age groups, considering the emergence of educational attainment in those ages and their migration experience.

The method of text editing during the writing process improves writing development in the L2 but writing skills benefit when that method—the form-focused context—is less explicit (less coded), as maintained by Ferris and Roberts (2001). Also, these authors worked substantially with older students and their writing skills assessment with regard to the age variable. More recent research in L2 writing analysed the transfer process related to linguistic distance and to the phonological aspect. The students benefit from their awareness of errors during the writing process, and also if they are aware of the distance between their L1 and the L2. Linguistic distance refers to the degree of distinctiveness between languages spoken worldwide. Less proximity between the students' home language and their second language will have implications on learning and teaching strategies and methods (Chiswick and Miller 2005; Zhang 2013) and will reflect on the competitive models involved in L2 learning (MacWhinney and Bates 1989; MacWhinney 2005). Still, it should be noted that these studies focused on adult immigrants as L2 writers. This study examines the home language instruction of immigrants as an influence on their proficiency in the L2 and on their cognitive performance, mainly referring to the age variable to explain the level of difficulty during writing coding and decoding in the L2 context.

1.1. Unified Competition Model: Languages and Age Differences

According to the unified competition model of MacWhinney (2005) and considering age effect, in L2 learning the cognitive strategies are used differently by young and adult students. Strategies should be choices and thoughts perceived by the learner during the processing (Figueiredo et al. 2015). Styles and rhythms of transfer are impacted by those strategies (MacWhinney 2005; Cohen 2014). For example, older adolescents are expected to have more difficulties in chunking (a cognitive strategy to understand and produce new words in a L2 with no L1 retrieval) when compared to younger individuals, related to cognitive mapping and lateralization for language learning (Dabrowska 2004; Uylings 2006; Weber-Fox and Neville 1996). The variability specificities across languages and respective cultures (and countries) are also greatly related to the variety of those cognitive strategies: "Culture-specific information is invariably reflected in the language spoken within a given community" (MacWhinney and Bates 1989, p. 4). Changes in languages lead to changes in cognition. In recent decades, the unified competition model appears to be well adapted to explain the L2 learning process that estimates the learner's previous knowledge (L1) and cognitive storage.

MacWhinney's competition model enabled understanding of the processes involved in the comprehension and production of language across different languages and systems (MacWhinney and Bates 1989; MacWhinney 2005). This is a model centred on performance because this is linked directly to language use. Structure and function are not separated by this model,

as commonly observed in other models in the 1980s, mainly regarding the functionalism applied to language acquisition and learning (MacWhinney and Bates 1989). MacWhinney's model has similarities with the Cummins' linguistic interdependence hypothesis (MacWhinney 2005). Both models, developed in the 1980s, explain the high probability that prior instruction in schools (in the countries of origin) enhances L2 learning through academic strategies of language transfer (Cummins 2013; Bialystok et al. 2005; MacWhinney 2005). That transfer is not related to the L1–L2 transfer but to other transfer perspectives of L2 studies: students acquired knowledge and cognitive routes through the teaching and learning methods that schools adopt. We will use both the competition and interdependence models to refer to L2 writing and cognitive competitive processes according to the age of the decoders.

Considering that theories such as the Universal Grammar (Cook 1985) sustain the principles of the acquisition process for child language learning, and that other frameworks focus on the critical periods for the optimal acquisition and learning of languages (Lenneberg 1967), here we intend to examine other acquisition processes that involve children and adults, and second language setting. To that effect, we focused on the unified competition theory that shares principles of interdependence with the Cumulative Enhancement Model (CEM; Berkes and Flynn 2012; Flynn et al. 2004; Mykhaylyk et al. 2015), another framework that recently examined the influence of L1 storage and the processes of retrieval and transfer/interference during L2 task decoding. Cumulative linguistic knowledge is very important to determine outputs in L2 proficiency acquisition. Concerning the competition theory, it is important to observe the several correlated components proposed. Those components refer to the learners' strategies and the availability of resources: arenas, storage, cues, codes and resonance. The components are specifically or simultaneously activated to perform decoding; for example, arenas refer to the areas of mental lexicon or phonology, to morphology and syntax, as well as to auditory processing. The activation and prominence of the arenas are also constrained by age. Phonology is one of the areas with more constraints for adults, compared to children. On the other hand, adults develop better morphosyntax.

The cues define the mapping and content generation/comprehension process: forms and functions act as a sum needed during comprehension or production. Mishina-Mori (2005) verified that the cues of the competition model explained better the convergence of forms transferred between two distinct languages: Japanese and English. In other language cue comparative analysis, Morett and MacWhinney (2013) explained the impact of cues (information on gender, number, aspect and tense) on rapid learning in a context of balanced (bilingual) Spanish–English. That 'sum' of cues applies to the other component—resonance—which refers to the neural networks involved during a language and linguistic process. More complex cues (sentences with complex agreements) could be very difficult for L2 early beginners. The codes refer to data activation—transfer between codes. The competition model focuses on cognitive grammar transfer, despite the several types or domains of transfer that the model presents. The cognitive grammar transfer refers to a linguistic–cognitive context (Hulstijn et al. 2014), but the existing evidence applies mostly to English as a target language for L2 learners.

1.2. Competition among Systems and Cognitive Processes

According to the previous section, L1 contributes to transfer or interference (competition) determined by the type of L1 features as an additional effect. A transparent language (as a L1) within other transparent languages (as a L2) contributes to a powerful L2 learning as there are more cue frequencies and resonance across codes. This equation is different for the English language as a target L2, since English is, a priori, an opaque language with lesser sound/letter matching. The competition improves in the last context. In sum, MacWhinney's model embraces two perspectives of transfer/interference: The L1 as one source (i) and the previous instruction of cognitive learning as the other source (ii). Age is a variable that intervenes in both scenarios.

The competition model also provides an argument for the contrastive analysis theory when the transfer is not a linear process (Odlin 1989), as it explains how different L2 learners stand in their writing errors according to their L1. The L1 determines the type of errors and their frequency during the decoding and coding. Considering the L1 case in the case of creole languages, there is an absence of studies to understand the competition model considering the incomplete grammar (and incomplete neural mapping) that creole peoples have. Immigration to Portugal accounts to a large extent for the creole speaking population (from Africa) as L2 learners. In a previous study, creole speakers showed more difficulties, compared to the other language groups, in writing and oral decoding in L2 proficiency tests (Figueiredo et al. 2015). The arguments that explain the sources of errors of these learners are distinct from other learners' errors (Clegg and Afitska 2011; MacWhinney and Bates 1989; Williams 2014). The interdependence hypothesis determines why European Portuguese learners learn English easier and not vice-versa. The high variety of phonetic features of the Portuguese mental lexicon determines the high probability to learn the sound/letter traits of other languages faster.

On the other hand, the meaning-to-form or form-to-meaning method enables different results in L2 learning for L1 learners (Trenkic et al. 2014). Mastery of form and focused instruction have been widely researched in L2 understanding with regard to the psycholinguistic processes involved (Ellis 2001; Spada 1997). By psycholinguistic processes we mean the strategies users adopt to understand grammar elements and their corrective feedback (Spada 1997), independent of spontaneous forms of speech. The form-to-meaning results in better outcomes for those who have a linguistic distance between L1 and L2, like between Portuguese and English (Cyrino 2010; Mira and Paredes 2005; Farukh and Vulchanova 2014; Shum et al. 2014) or between French and English, where the corrective feedback is the principal variable for high outcomes in the L2 (Lyster 2004). The same is expected in Chinese students learning alphabetic languages. The formulaic method, the structural basis of the form-focused method, examines how the subject acquires parts of words (Wray 2000) and how the form precedes meaning in the cognitive maturation of L2 knowledge in early stages.

Despite the importance of linguistic distance and of the competition model to understand the cognitive strategies and learning processes of differentiated language groups (students), there is still little evidence that European Portuguese learning as a L2 is crucial as a contribution for teacher training and for L2 immigrant students' learning, specifically L2 writing (MacWhinney 2005). This study aims to examine the following: First, how age differences determine the writing performance of learners of Portuguese as a L2; second, related to the linguistic distance principle as a competitive (cognitive) strategy, how home language formal teaching may influence the results for the same writing task.

2. Materials and Methods

2.1. Hypotheses

Hypothesis 1. *Age determines difficulties and skills levels in writing competence in a non-English L2 (Portuguese as a second language).*

Hypothesis 2. *Formal teaching in the home language influences second language writing.*

2.2. Experimental Sample

A total of 99 Portuguese second language learners with immigration experience were selected (the majority arrived in Portugal from 2010 onwards), with a mean age of 12 years (SD = 2.7), 45 males and 54 females, attending schools in the metropolitan area of Lisbon (grades 3 to 12). Most of the participants arrived in the last term of the year before the last study session: 2010–2014. The other two groups had been residing in Portugal longer (between 2001 and 2009). As for L1 instruction alongside Portuguese as L2, only the Chinese group attended the Chinese School weekly to learn Mandarin simultaneously alongside the main tuition (in L2). Concerning the home languages, participants

were grouped by language family criteria: Mandarin, Romance languages, Slavic languages, creole languages, Indo-Aryan languages and Afro-Asiatic languages. The students were evaluated by the schools and selected based on the results of their proficiency levels: students who were placed between A1 and B1 were chosen for this empirical study. The percentages of sociodemographic characteristics are presented in Table 1.

Table 1. Sociodemographic analysis.

Variable		%	SD	Mean
Gender	Male	45.9		
	Female	52.0		
Age groups	7–9 years old	9.3		
	10–12 years old	43.5	2.73	12.43
	13–15 years old	32.4		
	16–18 years old	14.8		
Nationality	China	23.1		
	Latin America	5.6		
	Eastern Europe	28.7		
	Africa	17.6		
	Western Europe	11.1		
	Asia	13.0		
Speakers' groups	Mandarin Language	31.6		
	Romance Languages	30.6		
	Slavic Languages	14.3		
	Creole Ls (Africa)	11.2		
	Indo-Aryan Languages	10.2		
Length of Residence	2001–2005	13.3		
	2006–2009	18.4		
	2010–2014	53.1		
Parallel L1 Training	No	79.6		
	Yes	16.3		
Proficiency	A1	8.2		
	A2	9.2		
	B1	1.0		

Notes: SD: Standard Deviation; L1: First language.

2.3. Materials

Students were asked to write a composition essay with specific previous instructions—three pictures and cues for the orientation of the text writing in European Portuguese. The essay test had two goals: characterization of writing features (on the texts written by L2 learners) and proficiency evaluation. Specific aspects were assessed: type of vocabulary used, semantic variability, sociolinguistic awareness, discursive competence and strategy use. These evaluation aspects and the proficiency levels used were taken from the original Alberta writing test (Alberta Repository 2012). The reliability of the Portuguese version of this writing test regarding the six aspects presented below displayed a Cronbach's alpha of 0.95.

The Writing Test Structure

The sequence of pictures as the visual stimuli for the writing task had three drawing examples in the following order: (1) a girl eating an ice cream; (2) a girl with in her hands on her face with a sad and surprised expression; (3) a girl seated and crying with the ice cream dropped on the street.

We selected this writing task, previously tested by the Alberta Language Tests Centre (Salmon and Ettrich 2012), to assess writing proficiency of school-aged children, after conducting a literature review on the available second language assessment tests, such as those from TOEFL or

ILTA. We concluded that the tasks were not completely appropriate for the younger ages (and for young students with immigrant experience).

Based on the tested criteria of the Alberta Test (specifically the writing task), we used the same aspects to evaluate the full text levels of second language learners. The aspects used as scoring parameters were: type of vocabulary (subject-specific and utility words), grammar domain (verbs and tenses, plurals, adverbs; morphemes' features and subject–verb formula), syntax properties (simple and complex sentences), strategy (spelling informed on production and prosody), socio-linguistic (domain over language and detailed lexicon for feelings and emotional states) and discourse (use of time and sequence markers) (Salmon and Ettrich 2012). All these aspects were allocated a three-level scale: 1 (no proficiency level), 2 (basic level), 3 (proficient level). The full criteria, with complete proficiency, corresponds to a total of 18 points (six components * three points for highest proficiency).

2.4. Procedure

As a first procedure, schools in the metropolitan area of Lisbon were contacted in order to select a sample of immigrant school population that met the following criteria: 7–17 years old, attending state schools, heterogeneity of nationalities and home languages, immigrants, and previously evaluated with proficiency between A1 and B1—Common Framework for Languages (European Commission 2001) for the target language. After the sample selection and scheduling procedures with each school to conduct the empirical study sessions, the main researcher supervised each group session (students were grouped in classrooms for the study but the test was done individually). Students answered individually and in writing during the 2013–2015 period. Participants were informed about the test and encouraged to build a narrative based on the sequence of pictures. This task was part of one battery of tests administered in the same study session.

3. Results and Discussion

Hypothesis 1. *Age determines difficulties in the writing competence of non-English L2 learners (Portuguese as second language).*

Chi-square tests were used in order to examine how different age groups behaved in the creative writing task and to identify whether age group (school-aged: 7–9, prepubescent: 10–12, adolescents: 13–15 and mature: 16–17) is associated with non-proficient, basic or proficient level in writing. Statistical significant differences were found between age groups in the writing test: $\chi(9, N = 108) = 19.38$, $p = 0.022$. The Fisher's exact test was 0.029. The older groups (mainly the adolescents) stood in the more proficient levels according to the means displayed (Table 2); the youngest group (7–9) was positioned in the basic level. No relationship between age groups and languages spoken was considered in this study.

Table 2. Analysis of performance considering age groups.

Age Groups (Years)		Vocabulary	Grammar	Syntax	Strategy	Sociolinguistics	Discourse
	Mean	1.20	1.30	1.30	1.00	1.30	1.30
7–9	N	10	10	10	10	10	10
	SD	0.422	0.483	0.483	0.471	0.483	0.675
	Mean	1.57	1.40	1.57	1.38	1.48	1.31
10–12	N	42	42	42	42	42	42
	SD	0.770	0.828	0.859	0.764	0.804	0.780
	Mean	1.45	1.42	1.58	1.42	1.52	1.45
13–15	N	31	31	31	31	31	31
	SD	0.810	0.923	0.807	0.886	0.962	0.995
	Mean	1.67	1.58	1.75	1.50	1.75	1.58
16–18	N	12	12	12	12	12	12
	SD	1.303	1.311	1.055	1.168	1.288	1.240
	Mean	1.51	1.42	1.57	1.37	1.51	1.39
Total	N	95	95	95	95	95	95
	SD	0.836	0.894	0.834	0.839	0.898	0.903

For the rationale of Hypothesis 1, evidence shows that in second language (learning) settings, older speakers have more problems in several language structures (phonologic, semantic and syntactic levels) when compared to younger learners concerning decoding and processing (Bialystok et al. 2006; Birdsong and Vanhove 2016; Newport 2016). From a different perspective, those structures are differently encoded according to age (Cox and Sanz 2015; Ellis 2015; Li et al. 2014; Tamburelli et al. 2015). On the one hand, the results confirmed that the age variable might explain writing performance differences. On the other hand, the youngest groups (mainly school-aged) did not perform better compared to older peers.

The linguistic distance principle (Chiswick and Miller 2005) should be taken into account to fully understand age influence in the writing task. After a chi-square analysis to ascertain how the age groups were distributed according to home languages, statistical differences were observed in that distribution: $\chi(18, N = 106) = 32.128$, $p = 0.021$. The youngest group had a high number of Mandarin, Romance and Slavic speakers (approximately 40% in all cases), as opposed to the oldest group (16–17), which spoke a wide variety of home languages (from several language origins) but prominently creole and Indo-Aryan (Urdu, for example) languages (Table 3). The linguistic distance is expected to make decoding quite difficult, which leads to the assumption that speakers of Romance languages are predicted to be the best performers in Portuguese. In this sense, Indo-Aryan speakers, as a distant language group, were less proficient in verbal reasoning tasks in Portuguese (Figueiredo et al. 2015). However, we found some inconsistency, since the Indo-Aryan speakers were mostly mature learners, as opposed to Romance languages' speakers, who were mostly younger (7–9) and had higher proficiency indexes (compared to other language groups).

Besides the quantitative analysis, we analysed qualitative evidence by examining specific items to be answered in the writing test (see Table 3) depending on age and L1, regarding lexical choices, grammar correctness, syntax errors, discourse patterns, strategies' use, sociolinguistics and discourse. Examples from the students' writing samples demonstrated that limited proficiency compromised richness in terms of vocabulary, syntax and sociolinguistics. L1 groups as well as distinct age groups did differ in structures such as lexicon errors: Mandarin and Romance language speakers showed more verbal tense errors when compared to Slavic speakers, who struggled more with misspelling (oral interference), and generated errors such as "crer" and "centado" instead of the correct words 'querer' (want) and 'sentado' (seated). Mandarin speakers did more editing compared to other language groups, as they corrected their own texts during the writing task. Also, in the analysed samples, the same group used some connectors, as opposed to the Romance language speakers. In general, the least proficient individuals used poor (only utility words) or very simple (descriptive and utility

words) vocabulary. By vocabulary richness we mean variety of words and avoidance of redundancy (sameness). When employed by L2 learners, descriptions enhanced the lexicon variety. None of the samples showed complexity with regard to vocabulary.

Table 3. Analysis of errors considering the six aspects of the writing task.

Language Groups	Vocabulary	Grammar	Syntax	Strategy	Sociolinguistics	Discourse
Mandarin	Poor lexicon (utility words only)	Frequent errors for verbal tense (i.e., "caio" instead 'caiu')	Simple and correct syntax	Edit actions concerning conjunctions in the text produced	Not observed	Simple and correct
Romance (Romanian, ex.)	Simple vocabulary (utility and descriptive words)	Frequent errors for verbal tense	Poor syntax	Oral interference (misspelling)	Less evidence of creativity and basic sociolinguistics	Poor discourse connectors
Slavic (Russian, ex.)	Simple vocabulary	Errors mainly in lexicon with visual and sound similarities (i.e., "crer" instead of 'querer'; "centado" instead of 'sentado')	Incomplete	Misspelling for verbs	Not observed	Not observed
Creoles (Guinea, ex.)	Poor vocabulary	Errors in verbal tense, connectors *	Some cohesion revealed by introducing connectors; simple sentences	Poor spelling	Describing different feelings	Sequence organized with connectors *
Indo-Aryan (Nepali, ex.)	Poor vocabulary	Errors in prepositions	Not observed	Misspelling in grammatical words	Not observed	Not observed
Afro-asiatic (Arabic)	Poor vocabulary	Simple but correct grammar	Poor syntax	Poor spelling (oral interference)	Inability	Poor relations of ideas sequence

* Connectors refer to conjunctions in sentences that produce complex sentences, differentiated from simple sentences.

As a result of the limited vocabulary and poor syntax, the sociolinguistic and discourse structures were compromised. Creole speakers (from African countries) showed more cohesion in some samples (use of connectors) and simple but correct syntax, despite the poor vocabulary and misspelled prepositions. The misspelled words and the lack of accents in the majority of words resulted from oral interference. Indeed, creole speakers had accents in all types of words (nouns and verbs). On the one hand, they had the highest contact with the Portuguese language and were more aware of the syntactic structure. Still, they had the highest rate of misspelling and the same verbal tense errors as the other language groups. Similarity between languages is not always a facilitating aspect. The oral interference that explains misspelling and the negative strategies of the learners, such as code-switching, were severe for Romance language speakers (mostly from Eastern European countries and Latin America): "geladu" and "gelago" instead of 'gelado' (ice cream), "comer-lo" instead of 'comer' (eat), "y" instead of 'e' (and), "jorar" instead of 'chorar' (cry). These samples showed transfer cues between the L1 and L2, mostly phonological errors.

Mandarin speakers showed no interference or code-switching, as expected, with regard to their L1 and distance from the orthography structures, although an example of interference might be detected in "chiao" instead of 'chão' (floor). The Mandarin sound system was an interference only for the 'i'. At syntax level, in general L2 learners from the different language groups showed awareness of the subject–verb–object (SVO) structure. Complex sentences were not frequently observed. The discourse organization depended on the syntax variability by using connectors and cohesion relations between sentences and ideas. This was not seen in the majority of L2 learners. The Slavic speakers showed only specific errors for nouns (not recognized in the Portuguese language) that might have their origin

in their home languages. Additionally, Slavic speakers revealed well-organized texts, though simple lexicon and low code-switching. See Table 4.

Hypothesis 2. *Formal teaching in the home language influences second language writing.*

Table 4. Analysis of performance considering language groups.

Language Groups		Vocabulary	Grammar	Syntax	Strategy	Sociolinguistics	Discourse
Mandarin speakers	Mean	1.36	1.12	1.64	1.40	1.32	1.24
	N	25	25	25	25	25	25
	SD	0.638	0.726	0.952	0.764	0.802	0.926
Romance speakers	Mean	1.58	1.52	1.68	1.52	1.68	1.58
	N	31	31	31	31	31	31
	SD	0.958	0.926	0.871	0.890	0.945	0.958
Slavic speakers	Mean	1.62	1.54	1.54	1.08	1.46	1.46
	N	13	13	13	13	13	13
	SD	0.650	0.660	0.660	0.760	0.660	0.776
Creole speakers	Mean	1.90	1.90	1.70	1.60	1.90	1.50
	N	10	10	10	10	10	10
	SD	0.994	1.197	0.675	0.966	1.197	0.850
Indo-Aryan speakers	Mean	1.30	1.10	1.10	1.10	1.20	1.00
	N	10	10	10	10	10	10
	SD	1.059	0.994	0.876	0.994	1.033	1.054
Afro-Asiatic speakers	Mean	1.50	2.00	1.50	1.50	1.50	1.50
	N	2	2	2	2	2	2
	SD	0.707	1.414	0.707	0.707	0.707	0.707

Chi-square tests were conducted to determine whether L1 instruction (group 2) or absence of L1 formal training (group 1) had any impact on L2 writing. Results demonstrated that L1 parallel training has no predictive influence on L2 writing ($p > 0.05$). Then, a one-way univariate analysis of variance was carried out specifically examining the achievement of both groups in each item of the writing task. In general, we found that the group who received L1 instruction performed better in all the items than the group who did not receive L1 instruction. Significant differences were observed specifically in the syntax item ($F(6,961) = 1$ $p = 0.010$), with the L1 instruction group performing better (near proficiency level) than the group of students who did not receive parallel instruction in their home language. The linguistic distance factor—the home language type—was controlled in order to examine if L1 instruction would improve the p value. After controlling for the L1/linguistic distance (co-variable), L1 formal training (main variable) showed no significant improvement to explain differences between groups during the writing task. See Table 5.

Table 5. Analysis of performance considering L1 parallel instruction.

Instruction in L1		Vocabulary	Grammar	Syntax	Strategy	Sociolinguistics	Discourse
No	Mean	1.48	1.41	1.49	1.29	1.47	1.33
	N	79	79	79	79	79	79
	SD	0.860	0.941	0.799	0.850	0.903	0.902
Yes	Mean	1.60	1.60	2.20	1.80	1.80	1.90
	N	10	10	10	10	10	10
	SD	0.699	0.699	0.789	0.789	0.789	0.876

Considering the inter-rater reliability analysis for this scale based on subjective scoring (Alberta Repository 2012), a Cohen's Kappa test was carried out. Given that this is an analytic scoring (the most recommended for foreign language and second language evaluation scales) and that only

one rater was assigned for the scoring (native researcher in L2 research and post-doctoral researcher in Psychology and Education), we decided to estimate the items–scale agreement. For this test we assumed that each item was scored within the same four evaluations (from 'non-proficient' to 'proficient'). For the lexical evaluation (item 1), the inter-rater reliability was Kappa = 0.704 ($p < 0.001$), substantial agreement; for the grammar evaluation (item 2): Kappa = 0.474 ($p < 0.001$), moderate agreement; for the syntax evaluation (item 3): Kappa = 0.536 ($p < 0.001$), moderate agreement; for the strategy evaluation (item 4): Kappa = 0.484 ($p < 0.001$), moderate agreement; for the sociolinguistic evaluation (item 5): Kappa = 0.645 ($p < 0.001$), substantial agreement; and for the discourse evaluation (item 6): Kappa = 0.699 ($p < 0.001$), substantial agreement. For all items moderate to substantial agreement was concluded.

4. Conclusions

In sum, Hypothesis 1 was partially confirmed and Hypothesis 2 was not fully confirmed. The older individuals and the learners who received L1 training had more correct answers in the L2 writing test in Portuguese, but it was only statistically significant regarding age. These data are partially consistent with the interdependence model (Cummins 2013) and the rationale of MacWhinney's competition model (MacWhinney 2005, MacWhinney 2005). Not all items of the writing task showed significant differences between the groups with regard to the parallel instruction, but there are greater differences considering the age variable. The evidence presented in this study is not consistent with previous literature that ascertained the advantage of home language instruction to reinforce writing skills at a bilingual level (Fontoura and Siegel 1995).

This study confirms MacWhinney and Bate's competition model (MacWhinney and Bates 1989; MacWhinney 2005) in the analysis of second language learners and their processing strategies until grade 12. Linguistic strategies and rules are not feasible for all languages and L2 settings. Frameworks and rules for the learning of English are not adequate for Portuguese and other romance languages. This study displayed results that clearly identify one group of Asian students—speakers of Indo-Aryan languages—as students at risk in language learning. This has implications on teachers' decisions regarding the measures to adopt to support young secondary language learners. The worst performers in the writing task were the speakers of Indo-Aryan languages (essentially from Indian and Asian countries). Their L2 competency was seriously poor in terms of sentence formation. In general, vocabulary and grammar components were the most difficult aspects for all second language learners. The cross-transfer strategy was also identified in the use of mother tongue words in the students' narratives. Recent models such as the Cumulative Enhancement Model support the interdependency principle concerning the influence of the first language proficiency (Berkes and Flynn 2012; Flynn et al. 2004; Mykhaylyk et al. 2015). Taking into account the advantage of learning languages (a second or a third language) with "property" and grammar similarities (Westergaard et al. 2017), it is evident that language processing is strongly tied to home language lexicon retrieval in beginners of L2 learning. The different speakers also perceive errors and sentence constraints in a distinct manner, mainly structural, attending to the linguistic proximity. The essays written by the samples of speakers were simply structured, had no complex sentences, evinced low level of sequence markers (despite the high level of time markers—conjunctions) and denoted poor command of the grammar.

Regarding the strategies aspect, several transfer episodes (and interferences) of lexicon and morphosyntax characteristics from the L1 to the L2 were identified and mostly resulted in errors. There is evidence of high competition and transfer between first and second language cues and codes (Berkes and Flynn 2012; MacWhinney 2005). That competition at first seems prejudicial for the coding process in the writing plan. Arenas of lexicon are causing interference mainly in older learners, which could also be related to another variable: less exposure to the L2 with regard to recent immigration. We have seen previously that the older learners' proficiency was similar or in fact higher when compared to their younger peers (mainly the 7–9 group). The storage should be viewed as an evolving

process that is connected to cognitive mapping. This mapping, as described in the introduction, differs significantly according to age. Maturation might be the main advantage mainly for the inhibition and control process in the first stage of L2 learning. Children appear to deal worse with control processes, which is enhanced by the declarative memory processing that children are not expected to master proficiently (Ullman 2015).

Conversely, older learners also benefit from the neuroplasticity advantage recently demonstrated to be present in older ages (Li et al. 2014). For example, older learners had the mastery to distinguish the positioning of prepositions and verbs in the target language, given their greater awareness of the resonance effect of the competition process. Generative sentences are a product of 'middle proficient' storage, but with higher awareness of cross-transfer and code-switching (Kroll and Bialystok 2013). Resonance, in the scope of the competition model, is strongly related to the strategy aspect of the writing task. Strategy involves attaining relevant information, selection of prior knowledge (home language) and the age influence. Based on the results of this study, new insights should be considered for European immigrant learners in order to adjust school practice and language development issues.

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