

## **The New Immigrants' Generation in Portuguese Classes: disproportionate relationships and group-specific issues in academic development**

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*Running head: The Other Side of Portuguese Diaspora: Receiving and Testing in our Schools.*

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**Abstract:**-The present study examines nationality group effect on language proficiency considering six groups of Portuguese immigrant students (M=13 years old; SD= 2,7): Western Europe, Eastern Europe, Portuguese-speaking African countries, Latin America, Asia and China. This research aims to verify whether students from different nationalities evidence similar difficulty levels in tests on language skills. Results of MANOVA showed that nationality groups differed in a significant manner, in particular, two groups – South Asia (Meridional) and Latin America. The Asian group evidenced more difficulty in vocabulary and verbal reasoning when compared to other nationality groups. Higher scores were attained by the Latin American group whose language of testing had common features with the home language and therefore showed more overlapping. The influence of the co-variable "Languages spoken at home" on the results was also confirmed, which suggests that nationality is a less strong predictor compared to the number of languages spoken at home.

**Keywords:**Nationality; Asian-Portuguese Students; Latin-American; Portuguese as a Second Language; Educational Achievement.

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### **I. INTRODUCTION**

Recent studies in second language (L2), specifically on academic success of immigrant populations, have focused on analysis of age effects, of being exposed to the language and on differences in the type of speakers (specificities in mother tongues). Variance in performance has been thoroughly and frequently tested in international school areas, especially in the American context, since the 1960s (Liskin-Gasparro, 1984; Bachman, 2000; Bailey & Huang, 2011; Coombe, 2013; Hinkel, 2011; Ramirez, Chen, Geva et al., 2009). According to Feyter and Winsler (2010), in the American context, the main factor that minimizes school differences among immigrant students is pre-school education. Young students in immigrant schools, especially from the Hispanic minority, are at risk of not achieving satisfactory results at academic level and in terms of adaptation (Feyter & Winsler). In the USA and in Canada, the process to regularise immigrant status, access to human rights and more resources for schooling of immigrant population is currently something similar to what occurs in Western Europe (Alba & Foner, 2014).

In the European context, and especially in countries whose official language is not English, studies are still lacking to establish nationality types and their skills specificities and, above all, school difficulties in European host countries (Crosnoe & Turley, 2011; Dustmann & Frattini, 2011; Dustmann, Frattini & Lanzara, 2012). What we do know is that in European host countries, academic difficulties are linked to predictors such as lack of L2 proficiency by students and parents, the quality of the school and relation with classmates in the host countries (Dustmann, Frattini & Lanzara, 2012). The socioeconomic factor can be generalised though the results of our longitudinal study have made evident specificities in terms of the influence of the socioeconomic variable (especially related to parents who are unskilled workers) in cognitive and linguistic performance of

immigrant populations. This is more evident in Asian populations who are speakers of Mandarin (Figueiredo, Alves Martins & Silva, 2014).

Portugal has always received many immigrants and currently the wave of immigration is high. Ours is also a country that has always welcomed people from many nationalities, especially people from the Portuguese-speaking African countries, from Eastern Europe and from Asia, and these populations include many schoolchildren. Depending on their nationality and cultural background, these children respond differently to school integration. These issues are more prominent in the Lisbon Metropolitan Area (Hortas, 2008). Children from Eastern Europe and from Asian countries evidence very different levels of school achievements due to factors such as cognitive mapping (connected to the mother tongue, Abu-Rabia & Shakkour, 2014; Barac & Bialystok, 2012; Braunstein, Ischebeck, Brunner et al., 2012; Kan & Kohnert, 2008) and parent stimulation that influence school habits and literacy developed at home (Becker, 2009; Guendelman, 2009; Hoff, 2003; Mistry, Biesanz, Chien et al., 2008; Poza, Manek & Guadalupe, 2014).

According to the study by Glennen (2015), children from Eastern Europe, when compared to children from other nationalities and similar age, score higher in L2 vocabulary but show weaknesses in grammar and recall. These weaknesses in different linguistic areas directly influence difficulties in understanding instructions in subjects such as Mathematics (Haag, Heppt, Stanat et al., 2013). In another study (Scott, Roberts & Krakow, 2007), on Chinese children, the factor exposure was deemed very important but the robustness and resilience towards L2 acquisition was evident. Literature confirms that different nationalities, such as children from China and from Eastern Europe, from non-English-speaking countries, develop different acquisition patterns of ESL, as shown in the performances in language tasks applied in representative samples (Hwa-Froelich & Matsuo, 2010). We believe the same is true for other L2, as is the case of Portuguese.

Considering cognitive performance and academic achievements and nationality, international studies have showed that the imbalance in skills and cognitive background allow us to predict behaviour and socio-psychological predispositions of minorities within the classroom (Artiles, Rueda, Salazar et al., 2005; Cartledge & Kourea, 2008; Durkin, 2008; Peri, 2005). Jonsson and Rudolphi (2011) developed a recent study on effects in the educational careers of young immigrants immersed in Swedish schools. The research concluded that non-European students have more disadvantages in academic performance, which could lead to school dropout. Another second-immigrant generation with European origin has different behaviour and choices. In another study, parents' involvement in the children's school performance was crucial for immigrant students' attitudes towards figures related to Second Language learning and to general cultural socialization (Poza, Manek & Guadalupe, 2014).

In a similar European context, in Portugal, non-European immigrant students present different results in academic performance. The greatest concern is school dropout in primary school - the main at-risk groups are those of Pakistani and Indian origin (groups from South Asia: speakers of Indo-Aryan languages). In terms of failure, these groups also have the highest rate, especially in middle school (Pires, 2009). The school dropout rate does not necessarily evidence low grades but rather cultural values and socioeconomic difficulties which these groups have experienced in Portugal (Pires, 2009).

Other two factors explain the differences in terms of academic success in the host country: the education system in their countries (Cape Verde, India and Pakistan) is underdeveloped; the caste system does not allow for wide access to higher education and that has consequences in students from those countries completing compulsory education in Portugal. The difference in skills and academic and cognitive background among the minorities adds to the learning difficulties these experience and to the implemented educational policies (Festa, Loftus, Cullen et al., 2014; Flores & Drake, 2014).

As far as immigrants from Asia are concerned, we must consider two types: those from Southern Asia and those from China (Figueiredo, Alves Martins & Silva, 2014; S; Lew, 2006; Pires, 2009). These types evidence differences in academic results and cognitive and social predispositions. In the early stages of exposure to L2 in the host country, students from Southern Asia, most of whom speak Indo-Aryan languages, struggle the most in task resolution and evidence less skills in L2 when compared to students who are Mandarin speakers (Figueiredo, Alves Martins & Silva, 2014). This does not apply to the Portuguese and European context only (Pires, 2009), but to other host countries and continents (Dronkers & Velden, 2013; Lew, 2006). Education in the home countries of these students is an important predictor but the main difference seems to lie in parents investing more or less in their children's academic performance and meeting school objectives (Bohon, Johnson & Gorman, 2006; Hao & Bonstead-Bruns, 1998; Lew, 2006).

According to the study by Hao and Bonstead-Bruns (1998) and that by Lew (2006), the conflict between the educational background and resources of immigrant parents and children allow for parents' greater awareness of the children's need to invest in school and in their academic development. On the other hand, both studies showed that Chinese parents, compared to the other immigrant families studied, were more devoted to ensuring the academic development of their children. Interestingly, in our study, most Chinese parents hold unskilled jobs and this might be an important variable explaining how immigrant Portuguese children from families with unskilled jobs showed higher performance in verbal reasoning and in vocabulary tasks. Another

study (Bankston & Zhou, 2006) analyzed Asian immigrants and confirmed that, despite the lower levels of self-esteem when compared to other nationalities such as immigrant black children, they obtained the highest grade-point classifications. The same study confirmed that immigrant parent's socioeconomic status rather than self-esteem could explain Asian students' higher grades.

This research focuses on analyzing the performance difficulties in L2 by different groups of immigrants in Portugal which can illustrate other similar European school scenarios, addressing specifically the Asian students differences and needs. Considering the limitations of the literature regarding European contexts as far as profiles of competences and difficulties faced by school minorities, this study analyzes and compares the performance of different groups and analyzes predictors to answer the following question: how do national school groups behave in a battery of tests on Portuguese as second language? We will focus on tasks on vocabulary and verbal reasoning (semantic relations, morphological extraction and lexical correspondence).

## II. METHODOLOGY

Study hypothesis: national school groups perform differently on the same tasks on Portuguese as second language. And, particularly, Asian students behave differently on the same language tasks according to their country of origin (China and South Asia).

We will also discuss the several dimensions of the tool and will analyze only specific language tasks administered. The selection criterion was the univariate variance analyses (ANOVAs), which identified the tasks in which the performance of national groups was most different. According to the results, we will focus on tasks on vocabulary (lexical correspondence) and verbal reasoning (semantic relations, morphological extraction).

### *Participants*

The study focuses on 108 immigrant students aged between 7 and 18 years old ( $M= 13$ ;  $SD= 2,7$ ). 46 (43%) male and 59 (55%) female, divided into six national groups: 25 (23%) from China, 6 (6%) from Latin American countries (such as Argentina and Colombia), 31 (29%) from Eastern Europe (such as Ukraine and Russia), 19 (18%) from African Countries (such as Angola and Mozambique), 12 (11%) from Western Europe (such as Germany), 14 (13%) from other Asian countries (other than China such as Bangladesh, Philippines, and Indian countries etc).

ANOVA tests were carried out to compare results according to the participants' nationalities and in relation to several variables: school year (grades), mother tongue, L2 exposure or L2 learning onset; socioeconomic status (parents' jobs) and proficiency level. The results were:  $F(5,101) = 2.600$ ,  $p = .30$  for the school year;  $F(5,99) = 72.381$ ,  $p = .000$  for the type of mother tongue;  $F(5,84) = 5.015$ ,  $p = .000$  for the L2 learning/exposition onset (since arrival date in Portugal to the assessment date);  $F(5,50) = 1.503$ ,  $p = .206$  for socioeconomic status; and  $F(4,18) = 3.130$ ,  $p = .040$  for proficiency level indicated by the school. No significant difference was found among the different socioeconomic groups.

These variables evaluate rigorously the results on each language task of all groups of immigrant students that can be used as evidence of disproportionate rhythms of learning and performance scores to formulate a *school policy*. This *school policy* should take into account the disproportion of scores in tests to understand a pedagogical methodology differentiated by each nationality group. Furthermore, there are a great heterogeneity of grades in our data set, covering from 3<sup>rd</sup> class to all High School grades, according to the school system of Portugal and other European countries.

All students are selected from public schools of all district of Lisbon, to ensure homogeneity addressing Public vs Private schools. Our goal is to analyze students immigrated in Portugal and immersed in Public Schools. Additionally, subjects were classified by schools according to proficiency levels defined by the Common European Framework of Reference for Languages (Council of Europe, 2001) and our sample includes only the first three groups: A1 (beginner level), A2 (elementary level) and B1 (threshold level). The Common European Framework of Reference for Languages is the only authorized framework, in all European countries, that examines (based on oriented strategies and guidelines) the language proficiency (by scale) of foreigners and immigrated population in schools and out of school. There are very few international data sets on students' achievement concerning specifically immigrant children. In Europe, the Common European Framework of Reference for Languages is similar to the previous international assessment framework with origin in the US (American Council on the Teaching of Foreign Languages, 1996).

American schools, differently from European schools, in the context of evaluation on a foreign or a second language, make use of the American Council on the Teaching of Foreign Languages and have their own curriculum without the influence of coordination or agencies centers, for all foreign languages and not just considering the Portuguese. Motivation to learn Portuguese differs between non-governmental organizations and American schools of New York given that these organizations have aimed to maintain Portuguese language and culture as an inheritance. In the context of American schools was observed that unclear educational practices and incorrect from the scientific point of view are still kept: it is understood that English language learners do not differ in terms of cognitive processing of other types of learners of a foreign language (Harper & Jong,

2004; May, 2011). The cognitive processing difference among language learners is the main argument on the basis of our results that explain how Asian and other nationalities differ in the same tasks, in Portuguese language.

*Instruments*

**Exploratory Factor Analysis:** A fifteen-task test was applied to assess skills in Portuguese by L2 learners; the tasks focused, for example, on verbal reasoning, vocabulary, writing, recalling words and retelling. The tasks were developed and adapted based on recent tests available in international repositories in the field of performance assessment in a foreign or second language. The tasks were submitted to an exploratory factor analysis to assess participants' answers and the factor structure of the test. Those items with a factor loading of .40 or higher were used to define each factor. The Kaiser–Meyer–Olkin test showed that the sample size was adequate (.80) and the Bartlett test showed there was a good correlation index among the variables. As such, our acceptability rate allows us to test our hypothesis ( $p = .000$ ). Upon excluding three tasks, 5 factors were found: “rime”, “onset” and “words transference”. The commonality rates of these tasks were under .50 and the loading was low (under .40). Four eigenvalues were higher than 1, which explain 65% of total variance (Table 1). Nineteen items were selected.

Upon varimax rotation of all components, ten items loaded on the first factor, which was named “verbal reasoning, vocabulary and writing”. Examples of items in this factor include: picture naming task and verbal analogies. Three items loaded in the second factor, which was named “recall (words and contents)”. Examples of items in this factor include: recall after text reading and recall after listening to text. Two items loaded in the third factor, which was named “oral comprehension”. Examples of items in this factor include: comprehension after listening to text. Two items loaded in the fourth factor, which was named “phonological manipulation”. Examples of items in this factor include: phonemic reconstruction and syllable division. Two items loaded in the fifth factor, which was named “unfamiliar sounds”. Examples of items in this factor include: accent awareness in L2 and pseudo-word awareness.

We analyzed all items for each factor and the first factor had the highest (.81) Cronbach's alpha (acceptability level above .60); this factor includes the highest number of items. ANOVA was used for all tasks identified in this factor so as to establish performance differences among the national groups. Differences were found among the national groups in three specific tasks described in this section.

Table 1. Extracted factors, factor loadings and explained variance

	<i>Factor I</i>	<i>Factor II</i>	<i>Factor III</i>	<i>Factor IV</i>	<i>Factor V</i>
	verbal reasoning, writing and vocabulary	recall	oral comprehension	phonological manipulation	unfamiliar sounds
<i>Measures</i>					
Naming task	.546				
<b>Semantic associations</b>	<b>.761</b>				
<b>Verbal analogy</b>	<b>.477</b>				
<b>Extraction</b>	<b>.729</b>				
Vocabulary match	.748				
Writing	.688				
Cognates	.758				
Metaphor language	.724				
Syllable awareness				.648	
Writing comprehension	.776				
Reading recall		.516			
Accent detection					.802
Non-words					.664
Conversion nonwords	.447				
Blending				.693	
Retelling		.840			
Words recall		.804			
Oral comprehension				.711	
<i>Comprehensibility</i>				.679	
% of explained variance	.36	.8,7	.8	.7	<b>.65</b>

**Measures**

*Semantic Associations – task 1*

The 6-item semantic association test was adapted from Woodcock-Munoz Language Survey-Revised (WMLS-R, 2005). The Portuguese adapted task evidenced high reliability with internal correlation consistency of .86. This test, within the area of vocabulary, aims to assess students ability to identify semantic relations among randomly placed words; students are asked to complete the six items by providing synonyms and antonyms of each word in Portuguese. The task was thus assessed: 2 points for each correct answer (Total score:

12 points). Example: Word: "rico (rich) \_\_\_\_ (synonymous) \_\_\_\_ (antonymous)". (fill in the missing word by identifying the correct synonymous or antonymous of the presented word).

#### *Morphological Extraction – task 2*

The morphological extraction test includes four items and was adapted from the Morphological Extraction Test by August, Kenyon, Malabonga et al. (2001). This study presents a Cronbach alpha of .53. The objective of the test is to assess students' ability to make changes and extractions from a derived word in a specific sentence. In the case of L2 students, we aim to verify, in terms of vocabulary and verbal reasoning, interference from first language to host language in the process of morphological change. Change is analyzed regarding conversion of morphemes in new words in the main language. The task was thus assessed: 2 points for each correct extraction, 1 point for each partially correct answer (total score: 8 points). Example: Word: Friendship / Sentence: "My schoolmates are my \_\_\_\_\_."

#### *Vocabulary Match – task 3*

The test aims to assess participants' lexical skills by asking them to select, in each of the five groups, the correct option out of the three given; each group is more complex than the previous one. The vocabulary was chosen according to complexity rate and frequency level in CORLEX (2000). CORLEX indicates frequency and difficulty level of vocabulary in European Portuguese. For the tasks, we opted for words with low to average difficulty. The test presents a Cronbach alpha of .85. Several distractors (words with similar form but different meaning) were placed in the options. Scoring is 0 to 3, 3 meaning more than nine correct answers in a total of 15 items. Example: Choose a synonym for the word "compreender" (understand). Correct answer: 'entender' .

In terms of psychometric properties of the above mentioned tests, only that on morphological extraction evidenced limited internal consistency (.53). The original test in English presents a high Cronbach coefficient (.93).

#### **Procedure**

Data collection took place in 2013 and 2014 in primary and secondary state schools in the district of Lisbon. We contacted teaching facilities in the district of Lisbon to propose the study and disseminate the research objectives. Communicating with the schools allowed us to identify 108 immigrant students, 23 of whom were informed of their proficiency by the school. Upon informed consent and authorization and selection of demographics of school population, the four tasks were applied and assessed (scored) in accordance with the information of the original tasks. Participants were selected based on the following criteria: 7-18 years old, immigrants or children of immigrants both with or without school experience in Portugal before emigration, proficiency in Portuguese between A1 and B1 levels, public schools.

Tests were applied both in paper and in computer formats (sound files for phoneme and text decoding). Information regarding the classification of proficiency levels were provided by the schools after informed consent and once the school year had started (when assessment is carried out). Students completed the battery of tests (15 tasks) in 60 minutes in a classroom. Data collection was made in one group session by specific groups of students in the schools involved. Participants were divided into groups so that test application would be more effective and they were carried out under the supervision of the researcher. Data was treated using SPSS, version 21.

### **III. RESULTS**

**Univariate analysis of variance.** We aim to assess significant differences among six national groups in terms of performance in specific tasks on verbal reasoning and vocabulary. Differences among national groups were expected, especially considering subjects from countries further away and with less developed educational systems and less similar to European systems (Abreu, Puglisi, Cruz-Santos et al., 2013). We expect those differences in language skills allow us to organize the groups in regards to difficulties experienced and that learners more at risk in terms of learning can be identified (Abreu, Puglisi, Cruz-Santos et al., 2013).

After the exploratory factor analysis was conducted, we compared the performance of the six national groups in the three selected tasks integrated in factor I. ANOVAs were used and the independent variable applied was nationality and the dependent variables were the performances in the three tasks. Table 2 evidences the averages and the standard deviations in the three tasks by the students in the three groups. The six groups present different performance averages according to the tasks applied.

Through the univariate ANOVAs we examined the effect size on the groups mean differences, using nationality, L1 type, and languages spoken at home as independent variables. For task 1 (semantic associations), the groups differed significantly (considering only the results for effect size,  $\eta^2$ ) in the results obtained only considering the nationality variable ( $\eta^2 = .130$ ). For task 2 (extraction) and task 3 (vocabulary) there was no substantial effect size ( $\eta^2 = .121$  and  $.101$ , respectively). The  $\eta^2$  value showed to be substantial only for the nationality variable (differences according to the type of home language), considering the benchmarks of Cohen for statistical value of  $\eta^2$  (Cohen, 1988).

In the task on semantic associations (task 1), the Latin American group has the highest number of correct answers, followed by the (Western and Eastern) European groups. The group who performed the poorest

was the Asian (from countries in the Indian subcontinent). Information on means and standard deviations are shown in Table 2. ANOVA results evidenced significant differences among the groups:  $F(5.98)=2.757;p=.023$ . Post-hoc analysis showed statistically significant differences between the groups from Latin America and those from Asia (speakers of Indo-Aryan languages).

In the task on vocabulary, the group who performed the best was the one from Latin America, followed by that from Western Europe; the group that has less correct answers is that from Asia, similarly to what occurs in the other tasks. Information on means and standard deviations are shown in Table 2. ANOVA results evidenced significant differences among the groups:  $F(5.97)=2.382;p=.012$ . A post-hoc (Tukey) test revealed significant differences among the Asian groups and the groups from Latin America and Western Europe ( $p<.05$ ); no significant differences existed among the other national groups.

Table 2. Descriptive statistics for semantic associations, morphological extraction and vocabulary match, in Portuguese as a L2, according to six groups of nationalities

Nationality	Semantic associations		Morphological extraction		Vocabulary match	
	Mean	SD	Mean	SD	Mean	SD
Chinese	5.75	3.64	2.68	2.09	10.25	4.29
Latin American	9.50	2.43	5.17	2.99	13.83	1.17
East European	6.25	3.28	4.07	2.21	11.03	3.55
African*	5.17	3.42	3.56	1.89	11.56	3.13
Western	6.64	3.41	3.91	2.12	12.55	2.29
European	3.93	2.92	2.54	2.29	8.15	4.16
Asia						

\*Lusophone countries (Portuguese-speaking countries)

**Analysis of covariance.** we used series of analyses of covariance to assess the impact of the subjects' mother tongues and of the language spoken at home (between the subjects and their families) in the performance by each group of subjects. These variables in the sample may influence the differences in the results. After having controlled the variable "Mother tongue", the national group obtained the same significant values (Pillai's Trace: .020). On the other hand, by controlling the variable "Language spoken at home", the values for "nationality" were no longer significant, as it had occurred in previous tests. Only Roy's largest root kept significant  $p (.008)$  while all other tests are statistically irrelevant ( $p>.05$ ).

Based on these results, we conducted another ANOVA test, "Language spoken at home" being the independent variable. The results were very different. In the task on semantic associations (task 1), the group that speaks Mandarin at home, with the parents, performs better than the other monolingual speakers. However, speakers of Indo-Aryan languages (from Asian countries) perform the poorest in all tasks. Considering the subjects that speak more than one language at home (one of which Portuguese as L2), they have the highest number of correct answers. For this task:  $F(6.94)=2.442;p=.031$ . Information on means and standard deviations are shown in Table 3. There were significant differences between the Indo-Aryan groups and the multilingual group (those who speak several languages at home).

In the task on semantic associations, no statistically significant differences were found though there were differences among the groups ( $F(6.91)=2.569;p=.024$ ), especially between speakers of more than one language at home and the remaining subjects (monolingual).

ANOVA results evidenced significant differences among the groups:  $F(6.94)=3.263;p=.006$ . Information on means and standard deviations are shown in Table 3. Post-hoc Tukey analysis showed significant differences ( $p<.05$ ) between the Indo-Aryan group and the speakers of Mandarin, Creole and 'multilingual' speakers.

Table 3. Descriptive statistics for semantic associations, morphological extraction and vocabulary match, in Portuguese as a L2, according to seven groups of languages speakers (languages spoken at home) (N=108)

Languages at home	Semantic associations		Morphological extraction		Vocabulary match	
	Mean	SD	Mean	SD	Mean	SD
Mandarin	6.55	3.49	3.07	2.11	11.22	3.87
Romance Languages	5.60	3.64	4.08	2.50	11.48	3.39
Slavic Languages	4.75	2.49	2.83	.98	9.75	3.012
Creoles*	5.00	3.43	3.22	1.86	11.89	3.14
Indo-Aryan Languages	2.63	2.45	1.71	2.21	6.25	3.69
More than 1 language					12.05	
Portuguese and Creoles	7.09	3.45	4.43	2.11	12.33	3.28

8.33      2.08      5.67      .58      11.03      2.52

**Analysis of correlations.** We also analyzed the partial correlation between the applied tasks a their factor (I: verbal reasoning, writing and vocabulary) verbal reasoning, controlling the variable nationality. All tasks show high coefficients among themselves (r's ranging from .614 and .640), the coefficients between the tasks and the factor also being positive and proportionate (r's ranging from .765 and .801). Therefore, the better the performance in one task, the better the other tasks will be performed; there is also positive proportional consistency between the items and their factor.

Table 4. Partial correlations (controlling for nationality) between factor I structure and tasks of semantic associations, morphological extraction and vocabulary match using Pearson' correlation coefficients (N=108)

Dependent Variables	Predictors					
	Morphological extraction	Vocabulary match	Mother tongue	Languages spoken*	Nationality	Proficiency levels
Semantic associations		R .461 p. 000		R .697 p .019		
Morphological extraction		R.348 p. 000		R.749 p. 008		p. 024
Vocabulary Match		R.421 p. 000				R.614 p. 042

**Linear (multiple) regression analysis.** Several linear regressive analyses were carried out to assess the predictive value of the co-variable "languages spoken at home", considering the previous results with MANCOVA. We included the dependent variable "semantic associations" and the independent variable under analysis (languages spoken at home) though in a wide set of independent variables, such as "nationality", "mother tongue", "languages spoken at home", "socioeconomic status", "proficiency levels" (as assessed by the school) and "education in the mother tongue". Initially, the model, which only considered the variables "nationality", "mother tongue" and "languages spoken at home", did not evidence predictors for the difference in performance in the three tasks. We therefore decided to include more independent variables, which we controlled in our expanded study. Thus, for the task on semantic associations, the model evidenced a significant predicting value ( $\chi^2=6.97$ ;  $p = .019$ ) but only for the variable "languages spoken at home" (see Table 5). The model represents about 70% of variance explained by the variable "languages spoken at home", while the other variables, even that of "nationality", do not show predictive value in this test that explains differences in the performance by the groups.

For the task on morphological extraction, the model evidenced significant values ( $\chi^2=7.49$ ;  $p = .008$ ). However, we realized that, besides the variable "languages spoken at home" ( $p = .008$ ), the variable "proficiency levels" also evidenced a predicting value ( $p = .024$ ).

Moreover, the model evidenced significant values for the task on vocabulary ( $\chi^2=6.14$ ;  $p = .042$ ), but the variable "languages spoken at home" did not evidence predicting relevance in the model. "Proficiency levels" was the only predictor in terms of explaining differences in the performance of groups in the task on vocabulary.

Finally, we aim to investigate the behaviour among the dependent variables. As evidenced in the results on the partial correlation analysis, the linear regression test showed predicting power regarding the dependent variables: Semantic associations ( $\chi^2=4.61$ ;  $p = .000$ ), Morphological extraction ( $\chi^2=3.48$ ;  $p = .000$ ), Vocabulary ( $\chi^2=4.21$ ;  $p = .000$ ). Standard regression coefficients were always significant ( $p < .05$ ), and performance in the task on semantic associations influences variance in performance of task on morphological extraction and on vocabulary. And vice versa (pearson values were between .000 and 015). The relation is demonstrably linear among the dependent variables.

Table 5. Linear (Multiple) Regression Analysis

Dependent Variables	Predictors					
	Morphological extraction	Vocabulary match	Mother tongue	Languages spoken*	Nationality	Proficiency levels
Semantic associations		R .461 <i>p.</i> 000		R .697 <i>p.</i> .019		
Morphological extraction		R.348 <i>p.</i> 000		R.749 <i>p.</i> 008		<i>p.</i> 024
Vocabulary Match		R.421 <i>p.</i> 000				R.614 <i>p.</i> 042

\*at home

#### IV. DISCUSSION

This study aimed at differentiating national school groups by applying a battery of tests on Portuguese as a second language (L2). The tasks selected were on vocabulary (1) and verbal reasoning (2). We concluded that there was, in fact, a difference in performance level among the national groups. Best results depended on the tasks but the poorest performances were, as expected, of subjects from less developed educational systems, less similar to the Western European systems. Based on this, we identified students from Asian countries (especially those from South and Southeast Asia) and from African countries (despite having Portuguese as the official language) as those most at-risk.

Considering the results separating the different national groups and considering the covariance and linear regression tests, which revealed the importance of another variable - that of "languages spoken at home" - in the performance of the tasks, we aimed to understand why there is more significant difference in some tests and which are the most at-risk groups in non-English speaking European countries. Moreover, based on the analysis of the full test, which includes the three selected tasks, we conclude that the components of an L2 assessment test suggest multidimensionality.

Firstly, exploratory factor analysis showed that L2 assessment considers important different constructs: verbal reasoning, vocabulary and writing (1), text and word recall (2); listening and reading comprehension in L2 (3); phonological awareness (4); and understanding of unfamiliar sounds/words (5) (Table 1). This multidimensionality in tests applied to L2, regardless of the target language, is consistent with previous studies by Kuriakose (2011), Pasquarella, Grant and Gottardo (2012), Sawaki, Stricker and Orange (2009) and Sireci and Faulkner-Bond (2015), which advocate the existence of multiple factors in (non-academic) performance assessment in L2. The authors nevertheless consider that, in the context of L2, unlike what occurs in L1 tests, the factors identified in an exploratory analysis may include more tasks which share features within the same factor.

Secondly, in this study we focused on evidences that revealed differences (ANOVAs) among the national groups only in regards to factor I (verbal reasoning, writing and vocabulary), considering this was the factor with the highest Cronbach's alpha. The partial correlation test (Table 3) allowed consolidation of the principle of high consistency between the items and the factor, and among the items (the evidences), even with the variable nationality controlled in the statistic analysis.

Therefore, and in regards to all the evidences that showed differences among the groups, semantic associations, morphological extraction and vocabulary, our hypothesis is not fully confirmed because the subjects from Latin America were those that performed best, followed by the subjects from Eastern Europe. These were the expected results (Table 2). However, in the case of the subjects from Latin America (mostly from Colombia and Cuba), they came from distant countries with weak educational systems.

On the other hand, and as expected, the Asian (non-Chinese) group performed the poorest. The significant differences were, in the tasks on semantic associations and vocabulary, between the Asian groups and the ones from Latin America and from Eastern Europe. These results are consistent with those obtained in previous studies (Crowther, Trofimovich, Saito et al. 2014; McCarthy, Evans & Mahon, 2013) which analyzed the difficulties experienced in English as a second language by speakers of Indo-Aryan languages such as Urdu, Bengali and Punjabi (from Asian countries other than China).

In the context of Portuguese, we understand these difficulties are also felt by this specific group, which has the lowest scores in all the tasks. We believe the reason does not lie in the second language but rather in the specificities of the structure of Indo-Aryan languages (which are not Indo-European) and in the fact that the educational systems in the home countries are not as developed as the European or the American. On the other hand, our results clash with the usual profile of the Hispanic minority by several authors who claim that speakers of Spanish have a low learning success rate in the USA (Feyter & Winsler, 2010; Shifrer, Muller & Callahan, 2011).



In the Portuguese context, the Hispanic group perform the best, in particular in these tasks. The disadvantaged socioeconomic status that is usually associated to this minority is also true in Portugal but the closeness of the two languages, Portuguese and Spanish, may be the main predictor of advantage and minimize the variable of the low socioeconomic status (associated to low level of education) that is usually seen as the main predictor for the group's learning difficulties (Hoff, 2003).

Specifically in regards to the task on semantic associations (verbal reasoning), the level of vocabulary acquired determines the ability to identify synonyms and antonyms of words in L2 (Schmitt, 2008). The closeness of the languages, Portuguese and Spanish, may allow the Hispanic group to more easily acquire and decode words when compared to the Asian group (Kieffer & Lesaux, 2012). L2 learners who do not learn multiple meanings (and a grade of synonymy and of antonymy) will not perform accurately and identify semantic relations (Fernandes, 2009).

Interestingly, Chinese students have a very poor performance, similar to that of the Asian group (speakers of Indo-Aryan languages) in the task on morphological extraction (Table 2), which is unexpected considering the skills Mandarin speakers evidence in manipulating minor segments (not minimum units such as phonemes) and in decomposition strategies (Zhang, 2015; Zhang & Koda, 2008; Zhang, Lin, Wei et al., 2013). On the other hand, our results are similar to those in the study by Zhang (2015), which outlines the difficulty of Mandarin and Urdu language speakers in derivation decoding/construction.

Indo-Aryan language speakers showed lower achievement in general tasks and, when compared to the difficulty index calculated for all participants (Figueiredo, Alves Martins & Silva, 2015). Lexical schemata for these language groups are differently stored according to the specificities of the home language (Cyrino, 2010; Faruck & Vulchanova, 2014; Taboada, 2012). An unfamiliar language like Portuguese will display limitations in morphemes, mainly decoding derived words, even when Portuguese is considered to have consistent orthography that assumes facilitated SL learning (Lervag & Aukrust, 2009).

In another study (Ramirez, Chen, Geva et al., 2009), cross-transference was shown to achieve more salient outcomes when the home language is a Romance language such as Spanish and students are embedded in English learning. Morphological awareness functions strongly from Spanish into English and not vice versa particularly with regard to the type of 'narrow' orthography of the home language. On the other hand, very unfamiliar (as well as opaque, from a morphological perspective) languages, such as Indo-Aryan or Afro-Asian languages, will be predictors of low performance in correlated tasks such as vocabulary and morphological modification tasks in shallow systems, such as Portuguese, Spanish or Italian, which share a similar foundation to Greek and Latin (Ramirez, Chen, Geva et al.).

In summary, the consistency of the Portuguese system would be the first factor that we estimate as blocking Mandarin decoding in vocabulary and morphological extraction tests due to grapheme-morpheme conventions in Portuguese, which are unfamiliar to young morphosyllabary learners. The skill to recognize morphemes is viewed by these authors, as well as by others such as Kieffer and Lesaux (2012) as a predictor in vocabulary acquisition and reading skills in Romance and Germanic languages. In this task, on morphological extraction or change (root extraction, August et al.) another verbal reasoning is at stake, one which implies average to high mastering of vocabulary (August, Kenyon, Malabonga et al., 2001), which is linked to the spelling and phonological effect. The subjects' mother tongue is here a variable (Ramirez, Chen, Geva et al., 2009).

The morphological extraction task analyzes the subjects' ability for morphological manipulation (based on phonological and spelling clues in the mother tongue) as well as detects language transference, as previously referred to (August, Kenyon, Malabonga et al., 2001). This way, phonological or spelling mistakes can occur and are quite frequent (the most frequent were simultaneously phonological and spelling mistakes). Examples of mistakes, in Portuguese, for the answers "espiritualmente", "cuidadosa", "amigos" and "felizmente": "espiritamente", "espiritual", "cuidamente", "cuidados", "cuidadinhos", "amizade", "felizemente", "feliozo", "espirito", "espiritual"). However, the phonological mistakes do not explain the spelling mistakes and vice versa. High correctness in this task evidences high phonological awareness (Wang & Lam, 2009), as well as high cognitive awareness, attentiveness to L2 and to clues (noticing hypothesis, Mota & Zimmer, 2005) in the transference process (between L1 and L2), which will determine commitment in mental processes that connect the structures of the new language and produce knowledge in L2 - production hypothesis (Mota & Zimmer, 2005). The results of covariance (Table 4) and regressive analyses (table 5) show that "mother tongue" is not a predictor but that "languages spoken at home" is. Our results suggest that more than the type of languages it is the number of languages spoken at home that may significantly influence performance in the tasks we analyzed. Students attaining highest scores are those who state they speak more than one language at home, including Portuguese as L2 and their mother tongues, or, in the African group, the fact that Creole and Portuguese are spoken at home. This result replicates those of recent studies (Barac & Bialystok, 2012), even on the European context (Maluch, Kempert, Neumann et al., 2015), which show that speaking more than one language at home, as long as one of them is the language of instruction, has positive effects.

This seems indisputable and explains how this variable (languages spoken at home) emerges as more important than nationality in regressive analyses and as co-variable in the effects of the variable

nationality in the covariance analyses in our study. In fact, a new factor also emerged from the regressive analyses - the level of skills - as predictor in the task on vocabulary. The level of skills were given by each school and were based on the Common European Framework of Reference for Languages (Council of Europe, 2001). The differences in performance in the task on vocabulary may be explained by the gap in terms of skills among the students assessed according to the European levels, which is corroborated in the study by Hulstijn and Shoonen (2012). Non-natives with a higher level of skills evidence differences mostly in terms of vocabulary in L2, which is consistent with the results obtained by Shah (2013), and especially with the results observed in the participants of this study attending primary or secondary schools (Lee & Macaro, 2013).

Teenagers attending secondary school are critical learners of vocabulary in L2 (Levitzky-Aviad & Laufer, 2013, p. 127-147). The predictor "level of skills" has the most impact in this age group. However, the assessment grids of the CEFR evidence limitations in empirical validity, though these have not been defined in the study and we do not aim to give this predictor a high level of relevance in our study (Alderson, Figueras, Kuijper et al., 2009; Weir, 2005). In truth, the CEFR has weaknesses and even incompatibilities in terms of assessing vocabulary frequency that subjects should master at a given level of skills.

According to the thorough study by Milton (2013), that incompatibility at B1 level is evident in several European countries. The range of vocabulary set for that level does not evidence the actual performance of individuals with a B1 level of skills. There is a wide gap between the vocabulary that is expected to have been acquired and the actual, functional vocabulary used. The result conflicts with the theoretical principle that mastering vocabulary (rather than fluency) is related with processing speed in L2 and with general language skills in the target language (Milton).

## V. CONCLUSION

In summary, national groups differ in performance in the three tasks but the construct is similar (factor I: verbal reasoning, writing and vocabulary). Hispanic speakers usually have more correct answers when compared to the Asian group (speakers of Indo-Aryan languages), whose performance is the poorest in all tasks. As far as the other national groups are concerned, these have different levels of performance in the three tasks. Subjects from Eastern and Western Europe have very similar scores (Table 2), especially in verbal reasoning (semantic associations and morphological extraction); the results in the vocabulary test are not so similar, though.

The gap between the educational system in developed countries, as in Europe, and underdeveloped ones, as those in Southern Asia and in Latin America, may be less of a predictor than the language factor. This provides an advantage to the Hispanic group, as they speak a Romance language, like Portuguese, and to those who speak more than a language at home. These results have important educational implications, especially from the point of view of minorities' diagnostic evaluation and the intervention according to nationality and type of speakers, focusing on tasks on verbal reasoning and vocabulary, considering that the results divided subjects in these tasks, and not others (such as picture naming, cognates or listening comprehension), within the same construct.

These measures, such as picture naming and listening comprehension, may serve as means to differentiate issues and groups of immigrants at school in other contexts, such as the American (Gollan, Weissberger, Runnqvist et al., 2012); cognate identification tests (Brenders, Hell & Dijkstra, 2011) or the metaphorical language test (Littlemore, Chen, Koester et al., 2011) may reveal differences among school populations in European contexts other than Portugal or in Asian contexts in L2 contexts (Hashemian, Reza and Nezhad, 2007), and even within the same population, such as the Hispanic (Gollan, Weissberger, Runnqvist et al., 2012; Rosselli, Ardila, Jurado et al., 2012), but it cannot be applied to all European educational systems because of the different minorities and especially the different type of speakers involved and how they react to English or to a Romance language as L2.

Depending on the L2, different tests should be studied and assessed so as to obtain more valid evidence and one that is not solely based on policy documents such as the European CEFR or the American TOEFL. This would allow for the overcoming of incompatibilities and limitations that these documents present in resolving academic failure of at-risk populations such as the Asian (from the South and the Southeast of Asia) in Portuguese schools. Acknowledgements, this work was supported by the Foundation for Science and Technology (FCT) under the Grant n.º SFRH/BPD/86618/2012; and Center of Psychology Research of Universidade Autónoma de Lisboa, Lisbon Portugal.

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