Assessment effectiveness for second language learners: predictors, reliability and discriminant profiles

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Abstract

The main concerns that enhance the empirical studies in assessment of second language learners is to identify the prevalence of second language deficits, the validity of a new test, and to determine specificities and predictors of speakers' profiles, among other variables (age, home language formal instruction, exposure to second language, first years of schooling, nationality, parent's profiles). Hypotheses: different language speakers will perform differently in specific tasks in portuguese language, so age, home language, and first language instruction would be main predictors? Strong discriminant achievements could be identified in percentiles 25 and 75? In this post-doctoral research the main goal is to assess new immigrant students from several Portuguese schools to determine cognitive and linguistic profiles. Through new diagnostic test in second language area will be analyzed distinct verbal behaviors and determined cut-offs. Additionally will be evaluated the difficulty and reliability of each task. Method: the instrument was developed with 15 tasks based on international assessment sources such Alberta, TOEFL, DELNA and WMLSR. There is no knowledge of other validated tools to test portuguese immigrant students. Approximately 110 individuals were assessed, with ages between 7 and 17 years old, speakers of romance, indo-aryan, afro-asiatic, slavic, and mandarin languages, and at this phase we are conducting inferential tests (SPSS) to measure profiles and reliability coefficients. The collection of sample is still ongoing. Findings: in one hand, this paper reports preliminary data gathered from a large-scale district study that is examining language proficiency and cognitive performance of immigrants in Portuguese schools. Different language speakers and age groups, with different amounts of instruction in home

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language, from basic and high schools, will be analyzed regarding lowest and highest performances in picture-naming (1) and semantic relations tasks (2), particularly focusing the vocabulary decoding skills. Findings demonstrate reliable tasks and different student's profiles, being crucial over proficiency levels identification. In the other hand, prior findings in this area will be expected to be confirmed such as the influence of age and mother tongue. Part of our hypotheses will be rejected considering the youngest learner's low scores and the creoles language speakers with deficits in specific vocabulary domain. Particular assumptions of literature in this area will be discussed regarding divergent data observed and new insights. Older learners, with instruction in first language, speakers of slavic, mandarin and romance languages presented more positive results and expected greater cognitive profile in second language specific traits. But, other variables should be considered with further examination and with the conclusion of the empirical study. Also implications of results and test feasibility will be discussed for general educational policies and assessment in second language field.

1. Introduction

The scientific discussion in the field of learning and acquisition of second language (SL) is still full of contradictions and incomplete frameworks to explain affective and motivational processes involved in new languages learning, as well predictive variables for well-succeeded SL acquisition. However scientific evidence gives us directions to be emancipative and develop coherent studies that are focusing specific factors and scenarios to understand the cognitive and linguistic profiles of second language learners. It is scarce the research in the Portuguese context, both relating to generally acquiring a second language and, on the other hand, to the specific cognition related to acquiring a SL. The investigation works on Portuguese as a non-maternal language are still few. The observation of the relationship between learning and having ability into second language on the one hand, and verbal behavior on the other is mostly present having English as a study object, followed by Spanish, French and Chinese languages. But Portuguese language is each more a second language as also a foreign language involved in learning instruction settings, worldwide. Specifically concerning the assessment in SL, there is little consensus in European research in this field regarding standardization of norms and benchmarks to develop tests and scoring. Firstly we need to understand what is being done in international scientific community to achieve advanced position and positive contribute of our research purpose. The great milestone is to provide tools and scientific knowledge to promote the academic success of linguistic minorities, but also new understandings for educational professionals and research community. In the present study the main objective is to develop a meticulous assessment of new immigrant students from several Portuguese schools, identified as second language learners and submitted to specific criteria of selection, to determine their cognitive and linguistic profiles, as well samples of speech errors and strategies patterns. Cognition is frequently here considered being aware of the correlations between language and cognitive processing. The main variables that will be here discussed are age, home language and first language instruction, and their influence in individual's performance in similar situations of evaluation. Further, we understand that the composition of this new diagnostic test, based on 15 tasks adapted mainly from international sources of assessment tools (example of Alberta instruments for SL students) worldwide recognized in SL area, will be able to classify distinct verbal behaviors and to present profiles of learners with predictions based on specific variables impact that are in current testing phase. Discriminant performances and reliability of tasks are other concerns of this study, mostly by considering that those tasks were adapted for Portuguese original study. Preliminary data from the analysis of two tasks in vocabulary domain (picture-naming by writing, and identification of synonymous and opposite meaning of several words of high frequency in Portuguese lexicon) suggests that older learners, with confirmed instruction in their first language, and slavic, mandarin, romance speakers present more positive cognitive profile for Portuguese second language. But, other variables should be considered with further examination and with the conclusion

of the empirical study (ongoing) because in several cases no statistical differences were observed using SPSS (version 21) tests.

1.1. Trends of investigation in second language

In general, the study of second language acquisition follows two approaches: the investigation of the impact of affective and the cognitive factors. In the first framework, authors examine how SL learners, regarding cultural and language characteristics, are driven and by which motivations, attitudes, learning styles, among other affective variables. In the second, authors study cognition processes and which mental structures are involved in the new language acquisition constrained *a priori* by first language proficiency and by other variables such age and exposure. Mainly since 80s the investigation was delivered to examine how second language learners are affected in their performance and in cognitive development (in second language) considering variables such cognitive maturation, as also previous linguistic knowledge (Best, 1999; Bialystok, 2006; Johnson & Newport, 1991; Lenneberg, 1967). Recently the neurofunctional imaging studies advanced more insights relating to the semantic organization and how first language triggers the decoding in second language situations. The age factor is other effect widely studied in second language learning field, expecting youngest learners to be better performers in learning when compared to adult's individuals in the same learning context (Ritchie & Bhatia, 1996). This is in discussion in the very recent years of science and new boundaries were settled. Other influences are being studied related to home languages and perception of different second language decoding, analyzing and perceiving in similar situations. The diagnostic assessment has this principle: observe different individuals in similar tasks, analyzing minds and cognition during tasks solving. Decoding in second language involves cognitive demands that are not explained solely by the universals linguistics theory (Chomsky, 1965) considering that different mother tongues could develop strategies that lead to ambiguity or positive transference between languages (Boroditsky, 2001). Proficiency involves more than mastery of general grammar, is determined by strategies of clarification, knowledge of structures and questioning of foreign linguistic traits. All these processing events produce great interest, in last years, in neuropsychological domain (event-related brain potentials) with application to Education area. Detection of grammar violations and vocabulary selections are of upmost importance to identify cognitive and linguistic profiles of second language learners. In this preliminary study we present specific verbal behaviors related only to vocabulary (identification based on images and semantic relations between random words of high frequency in Portuguese language system). Biases in such tasks performance could suggest deficits and sensitivity that should be considered to determine accurately profiles (not levels, as common procedure) of foreign speakers. Time record was not considered in this study based on the recent insight of Newman, Tremblay, Nichols et al. (2012) who observed that delay in processing in second language is not explained only by limited proficiency or late learning (individuals exposed in more advanced age to new language learning). We believe that, besides age, the most predictor is the home language and its cognitive processing strategy, meaning that there are speakers, due to their phonologic and orthographic system, who can learn new different language based in association strategies (Boroditsky, 2001) and not by direct transference between linguistic systems and respective rules of grapheme-phoneme correspondence.

1.2. Home language as predictor in encoding and decoding processing

Conversion rules are not solely related to decoding, particularly in vocabulary acquisition. Portuguese idiom itself has a complex structure that difficult acquisition by speakers of opaque languages (in reverse, Portuguese native speakers are more sensitive to acquisition of opaque languages) but could be easier for other type of speakers such Chinese

(Boroditsky, 2001). Focusing the Chinese samples (mandarin speakers), O'Seaghdha, Chen & Chen (2010) in a recent experiment accounted which patterns and strategies mandarin speakers use to comprehend units in several levels of syllable and phoneme. Indo-european languages (where English is included) share common phonological structures like the segments that are misunderstood by speakers of other types of languages like Chinese (sino-tibetan language family), while syllables are units more perceived by Chinese individuals considering the proximity to the properties of the mandarin writing system. These differences between speakers and their neural structures related to the processing of units of different phonological systems are also examined in our study considering the representative group of Chinese population that we gathered in Lisbon schools. Some results will be presented here concerning the performance and strategies of retrieving knowledge in Portuguese second language by Chinese students, comparing to behaviors of other language speakers. Regarding to this, we find new important theory for the understanding of encoding and decoding strategies by different speakers, based on the universal (not so universal) principles of linguistic organization of all active languages:

differences between Chinese and Indo-European languages are more deep-seated than has been previously recognized, and we argue that these differences require more than minor adjustments to existing theories. We outline a response to this challenge that focuses on the starting point of phonological retrieval. We propose that the first selectable phonological units below the level of the word, which we call proximate units, vary across languages and are pivotal in situations such as advance planning and partial preparation that involve continued coordination of phonological ingredients with their lexical origins. Proximate units also constrain the phonological codes that are assembled to guide the articulation of stretches of speech. Thus our approach highlights the critical juncture between words and phonology, but also addresses the sequelae of proximate unit retrieval. (O'Seaghdha, Chen & Chen, 2010, p.1).

To apprehend the encoding processes and the cross-linguistic differences enhances our understanding about the speech errors of different minorities in schools, as well helps to determine profiles that predict specific language samples and discourses expected from specific language speakers groups. First language turns to be a crucial factor to elucidate about differences in learning second languages. Additionally, different languages are equivalent to different ways of thinking and structuring the conceptual world. According to Majid, Bowerman, Kita et al. (2004), diversity of speakers corresponds certainly to cognitive diversity which implies serious influence in the restructuring of frames of reference. Coding everyday appears to be an effort task for second language learners and also for bilinguals considering the amount of stimuli computation. Focusing the variable age, frames of reference could be easier assimilated in early years even in dual mode (two idioms). There are no universal semantic categories (Majid, Bowerman, Kita et al., 2004) because concepts and specific frames vary with languages and their reference structures. Language and cognition emerge highly related in new categorizations and new learning of idioms, so the main research hypothesis of Majid et al. is confirmed: language can restructure cognition in fact.

1.3. Assessment in second language scenario

The main goal currently, for second language research, is the assessment of performance of heterogeneous groups of speakers and languages to infer about processing strategies. New insights and frameworks positioned research authors struggling with testing procedures mainly in European contexts since there is no knowledge of specific diagnostic testing (only benchmarks for guidance) for European countries concerning the school population with migratory experience.

Certain countries and their educational systems seems to be more prepared to support second language learners (English language learners) with reliable benchmarks and tested models such as found in Alberta Education, Teachers of English to Speakers of Other Languages (TESOL), Test of English as a Foreign Language (TOEFL), Diagnostic English Language Needs Assessment (DELNA), Woodcock-Munoz Language Survey Revised (WMLSR), among other sources. Based on their specific standards and landmarks we adapted some traits of testing to our study (developing and validating a diagnostic test). In portuguese scenario we do not find validated measures, in the extent of diagnostic comprehensive approach, to apply and to ensure results that lead us to identify reliable results and discriminant profiles. The main interest to design experimental or descriptive studies in language assessment, in SL specific scenario, is to emphasize the need of evaluation of linguistic predisposition and of the amount of language knowledge of students to educational professionals and researchers can preview coding processes and behaviors of their pupils. In this line of thought, learning could be controlled in more successful way, trough validated new measures, and several constraints of inclusion could be diminished and motivation for language learning would be maximized. Teachers should be encouraged to complete assessments in order to measure language proficiency (in Portugal according to European Framework, 2001, but not only restricted to those benchmarks) and identify student's profiles. In the other hand, students will be safely considered in school environment through accurate evaluation instrument and they could feel more self-controlled in specific cognitive transferences that they should be informed to be aware to use those strategies from their heritage language.

What would be the main universal criteria of such assessment test for SL learners? Object of study identified, structure of the test, delimitation of specific samples, and scoring rational. What is being tested is the cognitive academic language proficiency trough a comprehensive tests battery, involving several tasks addressing different linguistic domains (vocabulary, reading, writing …) for different speakers and nationalities placed in proficiency levels (identified by the schools of origin) between A1 and B1 (European Commission, 2001), arrived in Portugal in the very recent years. A pilot study was conducted in 2013 before the application in schools of Lisbon district. The test will be analyzed regarding if it is feasible and adequate, including to provide school staff with the training they need to apply the instrument and measure the results. The score will be based on scoring method from Woodcock-Munoz Language Survey – Revised Normative Update (2005). The quantity of variability of performances will be examined in what extent that defines the different profiles of speakers. Second language learner is the target, excluding the second language user.

2. Method

2.1. Sample

106 Portuguese second language learners (with migratory experience, arrived in Portugal mostly since 2010), with mean age of 13 years old, 57 males and 46 females, in grades from 3 until 12 (basic and high school levels). Almost students were born outside Portugal (only 10 were born in Portugal but have emigrated before schooling) and first school instruction was mainly in their native countries. All the students came from lower to middle socioeconomic backgrounds (we have identified all the current jobs of parents/tutors). Only Chinese students receive first language instruction in Portugal, offered as an addition to the regular school curriculum. There are no disabled individuals and they are right-handed (laterality was also identified). All students are from schools in the same geographical area: Lisbon district. This sample is heterogeneous, intentionally, regarding nationality and home languages. 23 nationalities were observed and 28 different languages. 32% are mandarin speakers, the most representative home language in this group of study. Using the categorization by language families we found 33 speakers of mandarin, 32 speakers of romance languages, 14 speakers of slavic languages, 11 speakers of creoles, 10 speakers of indo-aryan languages, 2 speakers of afro-asiatic languages. 14

students arrived in the interval 2001-2005, 21 in the interval 2006- 2009, 55 in the interval 2010 - 2014. 61% arrived in the more recent interval. Only few schools informed about the proficiency level of each student based on the evaluation according to the European Common Framework for Languages (European Commission, 2001). 25 of 106 were informed: 8 are identified as A1 level, 11 as A2, 4 at B1 and 6 in B2. 82% receive no instruction in their home language, 18% are receiving instruction in home language.

2.2. Instrument

15 tests constructed in a Diagnostic Test (battery) that is in validation process, in the research context of post-doctoral project. The collection of data is scheduled during 2014, in Portuguese schools, began in May 2013. Reading, writing and comprehension skills are the main target of this diagnostic test. Oral production is not evaluated. This assessment study was constructed on the following selected levels: verbal analogy, phonetics perception, foreign accent, story recall, cognates, morphological manipulation, transference. The questions format are short and open-ended, also with scale format. All answered by writing. Here we report preliminary data regarding only 2 specific tests, related to vocabulary domain: identification of 40 images (printed images) and identification of semantic relations between words (writing prompts). Both tasks showed to be reliable with cronbach's alpha of .94 and .86, respectively. These vocabulary tests are adapted based on two sources: Diagnostic Test for Portuguese as non-native language (DGE, 2009) and "Woodcock-Munoz Language Survey-Revised (WMLS-R, 2005). The purpose of these adapted tests is same of the original tasks: to examine vocabulary knowledge and effect size, considering also vocabulary frequency and difficulty. The scoring is based on an evaluation of the resulting speech sample (e.g., for each item, 1 point for 1 synonymous correctly identified or 2 points for complete answer: synonymous and opposite meaning. Total score: 12 points). After the total score for each participant, groups are compared according to specific independent variables (such age and home language).

2.3. Procedure

Students were tested individually in Portuguese and lasts approximately 60 minutes. Examinees are given several booklets to visualize and answer. The tests battery were administered since May 2013 in schools, after the authorization of schools and the selection of immigrant population that responded to the main criteria (7-17 years old, immigrants or with no schooling experience in Portugal before emigration, with proficiency between A1 and B1 levels considering Portuguese language, diversity of languages spoken, public schools). All prompts were disposed on paper and on a computer screen one at a time, to listen and register the sounds and texts. The answers format varies according to each task and few exercises presented likert scales. The specific tasks addressed in results section presented a short question format. Participants received no feedback after the experimental trial. Schools will receive information of this study at the end of the empirical investigation. School practitioners and researchers will be introduced to the guidelines of the total rating and respective written rationales to handle a number of scoring challenges (incomplete answers to a task, different correct options for questions scenarios…). All data are treated with the SPSS program (version 21).

3. Results

In the present study we have conducted our results treatment and discussion in order to answer to two main hypotheses:

Different language speakers will perform differently in specific tasks. Age, language and first language instruction would be main predictors?

Strong discriminant achievements will be identified in percentiles 25 and 75?

Around these two main questions we examine the preliminary data and explore their implications concerning the confirmation or rejection of hypotheses settled for this research report study. These data provide a brief overview of cognitive and linguistic (we are dealing with cognitive academic language proficiency) profiles of different groups of minorities. Further analyzes will be explaining and computing all the profiles that we intend to determine in the post-doctoral project. We present summarized information about the performance in two specific tasks previously identified.

3.1. Age effects in identification of vocabulary and of semantic relationships

Considering the naming task (40 images to be recognized) firstly we examined which words have presented more difficulty in portuguese vocabulary decoding, trough frequency analyzes. Terms such "sapato" ('shoe'), "baloiço" ('swing'), "camisola" ('sweater'), "giz" ('chalk'), "tesoura" ('scissors') revealed to be the more difficult, with more failures in identification. Based on this short index of vocabulary we forward present specific data examples. Considering the dialectal variation in Portuguese language (as in other languages) with names for some of the 40 images printed we evaluated as corrected answers the variety of names when it occurs (e.g., for words like 'swing', in Portuguese there are two dialects 'balancé' and 'baloiço'). Correct answers on this task were assigned one point and incorrect responses are scored with 0. For words like "sapato" ('shoe'), results showed that the youngest learners (7-9 years old) presented more incorrect answers (70%, see figure n.º 1), as well the same general tendency in the identification of the 40 images (familiar lexicon); children with more than 10 years old responded more appropriately. We observed that with few (and fast) age advance individuals showed better performance (13-15 years old: 74% correct answers; 16- 18: 80% correct answers). For words such "balancé" (´swing´), the situation was reversed because even being a less regular word, youngest children identified more accurately (the assumption to explain this result might be related to the familiar image of 'swing' considering concepts and placeholders in infancy). In the other hand, all groups of age presented great number of misfitting cases when identifying words such "camisola" (see figure n.º 1), "giz" e "tesoura". However, there is no significant evidence of age influence, in general, in this naming task.

Table 1: Age effects and identification of words based on image stimuli

"Sapato" – 'shoe'

Age groups			Frequency	Percent	Valid Percent	Cumulative Percent
7-9	Valid	incorrect	7	70,0	70,0	70,0
		correct	3	30,0	30,0	100,0
		Total	10	100,0	100,0	
10-12	Valid	incorrect	10	21,3	22,2	22,2
		correct	35	74,5	77,8	100,0
		Total	45	95,7	100,0	
	Missing	System	2	4,3		
	Total		47	100,0		
13-15	Valid	incorrect	8	24,2	25,8	25,8
		correct	23	69,7	74,2	100,0
		Total	31	93,9	100,0	
	Missing	System	2	6,1		
	Total		33	100,0		
16-18 anos	Valid	incorrect	3	18,8	20,0	20,0
		correct	12	75,0	80,0	100,0
		Total	15	93,8	100,0	
	Missing	System	1	6,3		
	Total		16	100,0		

"Camisola" (portuguese)– 'sweater' (english)

Age groups			Frequency	Percent	Valid Percent	Cumulative Percent
7-9	Valid	incorrect	5	50,0	50,0	50,0
		correct	5	50,0	50,0	100,0
		Total	10	100,0	100,0	
10-12	Valid	incorrect	18	38,3	40,0	40,0
		correct	27	57,4	60,0	100,0
		Total	45	95,7	100,0	
	Missing	System	2	4,3		
	Total		47	100,0		
13-15	Valid	incorrect	14	42,4	45,2	45,2
		correct	17	51,5	54,8	100,0
		Total	31	93,9	100,0	
	Missing	System	2	6,1		
	Total		33	100,0		
16-18	Valid	incorrect	8	50,0	53,3	53,3
		correct	7	43,8	46,7	100,0
		Total	15	93,8	100,0	
	Missing	System	1	6,3		
	Total		16	100,0		

In the second task: identification of semantic relations, we examined that specific items were more difficult to decode - synonyms and opposites for vocabulary such as "brilhante" ('shines'), "rico" ('rich') and "feliz" ('happy'); more easier to understand was "bonito" ('beautiful') - and the following data are related to those items and criteria. Correct responses on each item of this task were assigned two points and incorrect responses received a score of 0. Youngest learners presented the lowest performance, even the age difference is not very significant considering all the items with more difficulty evidence (item 4 – "shines"- showed maximum of 31% of completed correct answers, for all sample. See figure n.º 2). By using chi-squared tests and computing all items of this task, there are no statistical differences between age subjects, in the other hand, for the computed naming task (1) the chi-squared showed significant difference (p=.003) being the older second language learners the well-succeeded.

Table 2: Age effects and identification of semantic relations

Synonymous and opposite meaning for "brilhante" (portuguese) – 'shines' (english)

Age groups			Frequency	Percent	Valid Percent	Cumulative Percent
7-9	Valid	incorrect	7	70,0	70,0	70,0
		partially correct	2	20,0	20,0	90,0
		correct	1	10,0	10,0	100,0
		Total	10	100,0	100,0	
10-12	Valid	incorrect	28	59,6	60,9	60,9
		partially correct	12	25,5	26,1	87,0
		correct	6	12,8	13,0	100,0
		Total	46	97,9	100,0	
	Missing	System	1	2,1		
	Total		47	100,0		
13-15	Valid	incorrect	18	54,5	54,5	54,5
		partially correct	8	24,2	24,2	78,8
		correct	7	21,2	21,2	100,0
		Total	33	100,0	100,0	
16-18	Valid	incorrect	6	37,5	37,5	37,5
		partially correct	5	31,3	31,3	68,8
		correct	5	31,3	31,3	100,0
		Total	16	100,0	100,0	

Chi-Square Test for picture-naming task (40 items computed)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	123,713[a]	84	**,003**
Likelihood Ratio	101,308	84	,096
Linear-by-Linear Association	,293	1	,588
N of Valid Cases	100		

a. 115 cells (99,1%) have expected count less than 5. The minimum expected count is ,10.

3.2. *Home language effects in identification of vocabulary and of semantic relationships*

Observing the same words previously identified for age variable, the mandarin speakers, creoles speakers (African individuals), indo-aryan and afro-asiatic were the students with more problem to solve the naming task in specific words such 'sweater'. But, with no great distance between speakers groups, was verified no complete answers for other words of high difficulty (such 'chalk'). Summarizing the results, mandarin speakers presented, parallel to romance language speakers, positive performance in specific words of low frequency in Portuguese idiom. In the second test, indo-aryan speakers presented mostly uncompleted answers even in the understanding of synonymous and opposites of the easiest word ('beautiful'). In low and high frequency words, indo-aryan showed more limitations (see figure n.º 3). Mandarin, romance and slavic language speakers were better positioned, even the slavic showed 71% of incorrect answers in one specific item which was not reported in the figure n.º 3.

Table 3: Home language effects and identification of semantic relations

Item 1: "bonito" (portuguese) – 'beautiful' (english')

Family language groups			Frequency	Percent	Valid Percent	Cumulative Percent
Mandarin speakers	Valid	incorrect	6	18,2	18,8	18,8
		partially correct	6	18,2	18,8	37,5
		Correto	20	60,6	62,5	100,0
		Total	32	97,0	100,0	
	Missing	System	1	3,0		
	Total		33	100,0		
Romance language speakers	Valid	incorrect	6	18,8	18,8	18,8
		partially correct	7	21,9	21,9	40,6
		correct	19	59,4	59,4	100,0
		Total	32	100,0	100,0	
Slavic languages speakers	Valid	incorrect	2	14,3	14,3	14,3
		partially correct	1	7,1	7,1	21,4
		Correto	11	78,6	78,6	100,0
		Total	14	100,0	100,0	

Creoles (afric) speakers	Valid	incorrect	3	27,3	27,3	27,3
		partially correct	1	9,1	9,1	36,4
		correct	7	63,6	63,6	100,0
		Total	11	100,0	100,0	
Indo-aryan languages speakers	Valid	incorrect	3	30,0	30,0	30,0
		partially correct	5	50,0	50,0	80,0
		correct	2	20,0	20,0	100,0
		Total	10	100,0	100,0	
Afro-asiatic languages speakers	Valid	correct	2	100,0	100,0	100,0

3.3. First language instruction effects in identification of vocabulary and of semantic relationships

In both tasks, the individuals with formal instruction in their first language showed more knowledge of vocabulary in second language (36% of the group with no instruction do not solve correctly item "rich" while 11% of the group with instruction respond appropriately to the same item). Specific words such 'sweater' were difficult for both groups, but naming task was overall more completed by the instructed learners in first language (they are almost Chinese students). However, the chi-squared tests showed no statistical differences between different language speakers for both tasks. Identical ratings were observed. The same scenario, by using chi-squared, of no significant variability was verified between groups when weighted the variable 'instruction in first language'.

3.4. Discriminant achievements and variability of language behaviors

Based on percentile analysis, we examined how discriminant would be the immigrant school children and adolescents according to the specific variables: age, home language type, and instruction in first language. We summarized the results by estimating 2 positions with the percentiles (P) 25 (low-performers) and 75 (high performers). Considering the previous identified tasks the P25 could suggest deficits in cognitive and linguistic profiles of specific groups of Portuguese second language learners. In general, for both tests, the better achievements were observed for the group aged between 10 and 15 years old (see figure n.º 4); the mandarin, romance and slavic speakers are the well positioned, being the creoles and indo-aryan speakers the lowest performers; the individuals with instruction in home language showed more consistent answers than the group of no instruction in first language (see figure n.º 4). Values loaded in both percentiles will be considered as cutoffs (insufficient and satisfactory levels) of performance for each task.

Table 4: Discriminant behaviour in both tasks (by percentiles distribution)
according to age and instruction variables

Age groups			Naming task (computed)	Semantic relations task (computed)
7-9	N	Valid	10	10
		Missing	0	0
	Mean		28,1000	4,2000
	Std. Deviation		6,40226	3,11983
	Percentiles	25	24,2500	2,0000
		75	35,0000	6,2500

10-12	N	Valid	44	46
		Missing	3	1
	Mean		32,4318	5,6522
	Std. Deviation		7,93109	3,72509
	Percentiles	25	30,0000	2,0000
		75	37,0000	9,0000
13-15	N	Valid	31	33
		Missing	2	0
	Mean		30,9032	6,3636
	Std. Deviation		7,31826	3,04978
	Percentiles	25	29,0000	4,0000
		75	37,0000	9,0000
16-18	N	Valid	15	16
		Missing	1	0
	Mean		28,8667	6,1250
	Std. Deviation		10,04182	3,82753
	Percentiles	25	22,0000	2,2500
		75	37,0000	9,7500

Instruction in first language			Naming task Computed	Semantic relations Task computed
With no instruction	N	Valid	79	82
		Missing	4	1
	Mean		30,1266	5,4390
	Std. Deviation		8,11198	3,47867
	Percentiles	25	27,0000	2,7500
		75	36,0000	9,0000
With intruction	N	Valid	17	18
		Missing	1	0
	Mean		35,8824	7,8889
	Std. Deviation		2,59524	2,29805
	Percentiles	25	34,0000	5,7500
		75	38,5000	10,0000

4.   Discussion

Hypothesis 1: Different language speakers will perform differently in specific tasks. Age, language and first language instruction would be main predictors?

The vast majority of our sample showed same levels of difficulty for specific words at this task. Differences were observed between age groups, concluding lower performance of youngest Portuguese second language learners. Between 7 and 9 years old students presented less decoding success for standardized expected words in Portuguese language. We should notice that children until 15 years old revealed great advance in their responses. The same consistency, regarding the older age groups, in words identification was perceived also for the second task analyzed - semantic relations along six items - however the chi-squared tests concluded a random distribution for the semantic relations task (task 2). Only in naming task (task 1) differences between ages were statistical significant. Youngest students could be suggested as second language learners with more limited proficiency and at risk in school learning. Generally, cognitive strategies and categorization might be seriously affected in early ages of first schooling, in second language context, which was not until now considered in previous scientific research. Older learners here are not suggesting adult learner's behaviors in SL, neither late learners. Ages studied are addressing children and adolescents (until 18 years old). Further analyzes from this empirical study will be published when the data collection will be finished and more results could confirm the hypothesis, as well considering the variability of other variables involved in the understanding of deficits in academic proficiency (connected to language proficiency). Amount of variation should be carefully examined in this study project with the advance of the experiments. For now we could confirm partially the age influence in differentiated performance in specific task, but there are no extreme scoring tendencies to be argued. Some randomness is in fact observed and would be strongly correlated to high difficulty detected mainly in identification of semantic relations across several words as stimuli. Additionally, difficulty patterns were identified once were observed which words are more challenging to decode by all learners (like 'chalk', 'sweater'; 'shines'). These aspects will be subject of deep research in our future analysis. Considering other variables such home languages, the mandarin, romance languages (such Spanish), and slavic languages speakers showed high performances, while indo-aryan speakers presented limited verbal behavior in this vocabulary specific level. In all words (even not reported here) speakers of languages such Hindi, Urdu, Nepali, Punjabi had more difficulty to answer appropriately. These data are conceived as preliminary and could suggest beneficial indicators and ultimately to produce valid information to improve school practices in second language area, using psychology and education domains because cognition is correlated to linguistic profiles given. Indo-aryan speakers are expected to be cognitively different from mandarin speakers and this could have explanation based on cognitive strategies and cultural assumptions that biases/enhances the view and predisposition for new romance language acquisition. Future guidelines for new evaluation efforts should be aware of cognitive distinctions that underlie linguistic performances such like those presented. Concerning the third variable, first language instruction, as we expected, according to previous scientific evidence (Padilla & Gonzalez, 2001; Pfeifer & Zámisová, 2006 cited by Padilla & Gonzalez; Azuara & Reyes, 2011) in this matter, can be an advantage for second language learning task. Only Chinese students confirm to receive continuous formal instruction in their home language (Mandarin), and this could be explaining their better performance in both tasks. Home language and tuition are certainly two factors that should be explored in this area, even age variable showed to be statistical more significant.

Hypothesis 2: Strong discriminant achievements will be identified in percentiles 25 and 75?

To answer to this question we followed the common procedure of describing the positions of participants in two main percentiles that made comparison between strong discriminant groups. The statistical significance is not explaining in this section the weighted cases in lower (percentile 25) and higher (percentile 75) performances. But as expected, and based on previous data of hypothesis 1, older participants, specifically between 10 and 15 years old, are combining more positive behaviors in both vocabulary tasks. Regarding their home languages, indo-aryan speakers but also creoles (afric countries) speakers showed in percentile 25 lower classifications. Creoles speakers are essentially from countries where Portuguese is the official language which causes serious constraints for educational scenario being creoles speakers positioned in lowest levels of achievement is these tasks. In fact, these type of heritage speakers are expected to be more proficient once the contact with Portuguese official language should enhance the academic competency in Portuguese schools but was verified the opposite which suggest problems at cognitive area (strategies adopted since birth with creoles languages could be blocking the Portuguese phonological system knowledge and mental structures adjustment could be explained over the age factor. Home language is of upmost importance to distinguish students in tuition programs inside schools). According to Dabrowska (2004) Chomsky had failed in some aspects of universal grammar theory because her recent studies showed that native individuals could not apprehend basic elements of their home language and that gap remain during life, since childhood. For creoles speakers, basic traits of their home languages could be related to difficulty in the main language (Portuguese official language) comprehension due to interference and not to interdependence theory (Bialystok, 1991; Fillmore, 1991). Cognitive assumptions will be taken into account in further analyzes with this specific group in all verbal situations of the tests battery. To confirm the prediction of positive impact of first language instruction in second language acquisition, we observed that higher classifications are attributed to students who are receiving tuition in their home language. The results are striking concerning this prediction by using percentile analysis. Our further intent is to describe and categorize errors and speech (written) traits to determine profiles for each group, based on several variables. Advances on scientific research in second language area, in romance languages field, could avoid costly situations of cognitive and motivational efforts from immigrant students. Discrepant results would help to understand the mind of these minorities in our schools, enhancing simultaneously academic success since preschool levels and to promote primary language instruction programs.

6. Conclusion

Our milestone is to avoid misconceptions about characteristics of examination tools to identify type of responses that Portuguese language learners present in second language diagnostic tests, integrating several tasks to ensure enough observations and reliable scores, as well to determine profiles that inform how to score constructed-response items. This research will be able to describe language behavior profiles and specific language errors and discrepancies that would be useful as training clues (as rubrics for each content area) to define correct language and grammar to be expected to receive positive scores in the test. We accept the fact that teachers and students are still unfamiliar with these tests and the orientation about fulfillment and scores should be supported by research results and validated material to help to apply specific evaluation to specific responses, in real school contexts. Seeing the results of this study we can interpret this paper as important preliminary data gathered from a large-scale district study that is examining language proficiency and cognitive performance of immigrants in Portuguese schools. We have here some clues for romance languages education. Further, different language speakers and age groups, with different types and amounts of instruction, from basic and high schools, will be analyzed regarding lowest and highest performances in overall tests of the battery developed. New findings demonstrate reliable tasks and different student's profiles, being crucial over proficiency levels identification.

Prior findings in this area were discussed considering the influence of age and mother tongue, once youngest learners are not the well-succeeded as well the creoles speakers (african students coming from countries with Portuguese as official language), both groups unexpectedly showed limited performance. There are distinct heritage speakers which should be acknowledged by educational professionals as indicator of at risk students, with grammatical deficits and constrained decoding skills that is not only related to general language proficiency. Insufficient learning in heritage languages could determine low scores in early years of schooling (children between 7 and 9 years old) which lead us to rethink about learning mechanisms, at cognitive level. Results from this specific work and the future analyzes with this samples and other tasks administered will report more findings that conclude about profiles and also about new trends in scientific research in this field.

Acknowledgements

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