

Writing and reading knowledge of Spanish/English second-generation bilinguals

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Abstract Written bilingualism represents a particular type of bilingualism that is not frequently approached. The aim of this study was to investigate the writing and reading abilities of second-generation immigrants, Spanish–English bilinguals in South Florida. 58 participants (36 females, 22 males; 18–39 years of age) were selected. Both parents were native Spanish speakers and the home language was Spanish; 37 were born in the United States and 21 were born in a Latin American country, but arrived to the US before the age of 10. Equivalent reading and writing tests were administered both in Spanish and English. Performance was significantly higher in English than in Spanish in the following tests: reading aloud (speed and errors), writing sentences, spontaneous writing number of words, and spontaneous writing errors (spelling and grammatical). When comparing those participants born in the US and abroad, no significant differences were found in Spanish, but in English; participants born in the US did better in reading aloud (errors), and spontaneous writing errors (spelling and grammatical). It was concluded that reading and writing abilities are in general higher in English than in Spanish in this group of bilinguals, which is correlated with the language used in the school they attended. This study emphasize the importance to analyze not only oral but also written bilingualism. Toward the future, it would be particularly important to study written bilingualism in other types of bilingualism.

Keywords Spanish/English bilingualism · Written bilingualism · Immigrants second-generation · Unbalanced bilingualism

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Introduction

There are many different forms of bilingualism that can be distinguished, including simultaneous–successive, social–elective; balanced–unbalanced; early–late; and others (Ardila, 2007); one of the major types of bilingualisms, however, is that of second-generation immigrants. This is also the most frequent type of bilingualism observed in US in general and in South Florida in particular. Immigrants usually maintain their native language at home where children have a chance to become bilingual, whereas the language of the host country is used in working and social activities. In the particular case of South Florida the home language is Spanish (L1) and the school, social, and working language is English (L2), although different variables can affect the relative use of Spanish and English. For second-generation of immigrants initially—during childhood—the dominant language is Spanish, but when attending school in English, English becomes the dominant language.

The fact that bilingual individuals have to coordinate two linguistic systems implies both advantages and disadvantages (Ardila, 2012). Some of the advantages are an increase in mental flexibility; a greater development of cognitive functions related to attention and inhibition; the use of a larger number of cognitive strategies for the solution of problems; an increase in the so-called metalinguistic consciousness; and a better ability to communicate (e.g., Bialystok & Barac, 2012; Bialystok & Viswanathan, 2009; Hilchey & Klein, 2011). On the other hand, some of the disadvantages of bilingualism are an apparent delay in language acquisition; interference between the two phonological, lexical, and grammatical systems; and a possible decrease in vocabulary in both languages (e.g., Rosselli et al., 2002). Advantages and disadvantages may be associated with age of acquisition of L2, the specific type of bilingualism, and very specially, with the mastery of both languages (Cummins & Swain, 2014).

The ability to read and write in L1 and L2 represents a most important skill in second-generation bilingual immigrants. Reading and writing is usually acquired at school, and sporadically at home; and hence, they are well trained to read in L2 (English) and poorly (or not trained) to read in L1 (Spanish). Of course, a significant factor that is influencing immigrant's opportunities to participate with the host society is second language literacy development (Soto Huerta & Pérez, 2015). Simply speaking, reading in English is well learned and crucial to live in the United States of America, whereas reading in Spanish is weak and represents a marginal ability.

Noteworthy, learning to read in Spanish—with a transparent orthography—is notoriously easier and faster than learning to read in English—with an opaque orthography—(Coltheart, 1981; Cuetos, 2002). When comparing Spanish speaking children with children of more irregular writing systems (such as English or French) during the initial years, Spanish speaking children are faster in reading words (Caravolas, Lervåg, Mousikou, Efrim, Litavský, Onochie-Quintanilla & Seidlová-Málková, 2012; Caravolas, Lervåg, Defior, Seidlová Málková & Hulme, 2013; Serrano, Genard, Sucena, Defior, Alegria, Mousty & Seymour, 2011). In general, it is assumed that 1 year training is sufficient to learn the basic reading rules in

Spanish (Seymour, Aro & Erskine, 2003), whereas in an irregular orthography such as English, the time required to acquire a basic reading (e.g., to read the newspaper) is notoriously longer. However, differences between Spanish and English refer to mechanical reading, not reading comprehension; for instance reading pseudowords (Aro & Wimmer, 2003; Goswami, Ziegler, Dalton, & Schneider, 2003). Because of the regularity of the Spanish writing system, and also because these children are frequently exposed to written Spanish (in books, newspapers, family letters, etc.) usually they have a basic reading ability; quite often it is also observed that parents teach their children to read in Spanish (AA, personal observation).

Ardila and Cuetos (2016) refer to five peculiarities of Spanish orthography, especially if compared with English: (1) Spanish orthography is transparent, primarily in reading (Cuetos, 1993); (2) Spanish is considered as a “syllable-timed” language (Berg, 1991) whereas English is regarded as a “stress-timed” language (Dauer, 1983); they suggest that this difference may be associated with an increased syllabic awareness in Spanish, potentially resulting in a tendency to read in a syllabic way; (3) Spanish the syllabic structure is very simple and over: 50 % of the syllables are CV (Guerra, 1983); (4) Words on average are shorter in English than in Spanish (Smith, 2012); (5) There is greater number of inflectional categories—and affixes to mark them found in Spanish words (Rubba, 2006). That simply means that morphology is more complex in Spanish than in English.

Written bilingualism represents a particular type of bilingualism not frequently approached. Written materials in a language, whether in children’s literature or mass media, can extend input even in the absence of many language speakers (Pearson, 2007). Reading is an important consolidator of older children’s language skills and contributes to both greater proficiency and retention of a language. Cobo-Lewis, Eilers, Pearson and Umbel (2002) reported a group of bilingual children who learned to read in both English and Spanish. After conducting a correlational analysis of their linguistic abilities in both languages, results demonstrated very good performance on all tasks administered for their study. Essentially, learning both languages simultaneously did not inhibit performance in one language or the other. According to Pearson (2007), there are certain bilingual programs that hesitate to introduce reading in two languages for fear of confusing the child, but research has shown otherwise in which reading skills transfer from one language to another. Research in general has demonstrated that simultaneously learning two languages at school usually results in an apparent delay in language development, but such as delay is no longer observed after some few years of school (Hoff & Shatz, 2009; Oller & Eilers, 2002).

Nonetheless, when there is a poor knowledge of the spoken language, learning to read can be harder and slower. It has been documented that poor, minority, urban, and non-English children and immigrant children have more difficulty in learning to read in English than the average student (Gauvain, Savage & McCollum, 2000). In the National Assessment of Educational Progress (2003), results showed that Latino students reading attainment in the fourth and eighth grades was below the national mean, and the gap was larger in the eighth grade.

Studies have found that first-generation immigrants often learn functional second language oral skills that allow them to meet the most basic abilities and to maneuver the informal job markets; however, developing skills in second-language literacy is a difficult task (Soto Huerta & Pérez, 2015). Glenn and de Jong (1996) and Carbonaro (2006) examined second-language literacy across various nations and analyzed the educational systems and the models that have been established to educate immigrant children.

Immigrants' children usually acquire full literacy in L2 simply because they generally attend school in L2. According to Duursma, Romero-Contreras, Szuber, Proctor and Snow (2007), the bilingual population is unique in the way of needing exposure to language and literacy experiences in both their languages, if they are to achieve high levels of bilingualism and bi-literacy. Research has shown that becoming proficient in English does not require parental use of English at the home, but for Spanish, it required proficiency support in both school and at home (Duursma et al., 2007).

A most important question at this point, is what predicts reading abilities in L1 and L2. A study was conducted to look closely at the association between neuropsychological test performance and reading abilities in Spanish (Rosselli, Matute, & Ardila, 2006); many factors were taken into consideration, such as age, gender, and type of schooling. A variety of cognitive abilities were thoroughly assessed; essentially, it was concluded that reading speed correlates with attention while comprehension is directly linked with verbal memory.

Several studies have examined the language and literacy skills of second-generation immigrant bilingual children. Lesaux and Geva (2006) determined that a number of variables including parental education, home literacy and demographics affect the second-language reading comprehension of language—minority students. Overall, the more home literacy experiences and opportunities children have, the more likely they are to do well in literacy outcomes (Goldberg, Paradis & Crago, 2008). Research has demonstrated that literacy-related activities, and degree of linguistic complexity that a children are exposed to at home from an early age have an ongoing impact on later academic achievement (August & Shanahan, 2006; Carroll, 2013). Yi (2008) examined the voluntary writing exercises of two adolescent Korean/English bilinguals with advanced proficiencies in both languages. Multiple data sources were used to conduct this study, which consisted of interviews, a literacy activity checklist, field notes and literacy artifacts. It was found that these two Korean adolescents moved fluidly between their two languages and cultures. In addition, their use of Korean in writing helped them socialize with their peers group, pursue personal interests, and maintain ties with Korea on a daily basis. Simpson (2004) examined 20 writing samples in English and Spanish selected from first grade children portfolio at a Spanish/English bilingual school in Ecuador. These written samples were based on the physical structure and the topical structure of those writings. The characteristics of the paragraph included the number of words, errors, error types, sentences and connectors. The structured analysis examined each topical structure by the repetition of keys words and phrases provided by the children. The results indicated that these children used similar amount of topical repetition in the two languages.

The current study concentrates on investigating the reading and writing knowledge of Spanish/English second-generation bilinguals in South Florida. It was hypothesized that reading and writing ability would be higher in the language with the group of bilinguals that were enrolled in school and received a formal education.

Methods

Participants

A sample of 58 Spanish/English bilinguals were selected for the purposes of this study. Participants selected either moved to the United States before the age of 10 from a Latin American country or were born in Miami from native Spanish-speaking parents. If the participants were born in Miami, the dominant home language must have been Spanish and they attended school where they spoke predominantly English. That is, all the participants were early bilinguals. But in a further analysis, the sample was divided in two subgroups: “US-born” and “Foreign-Born”. The first subgroup corresponds to “simultaneous early bilinguals”, whereas the second can be considered as “sequential early bilinguals”.

The participants attended one 60-min session where their bilingualism in both reading and writing was evaluated. Prior to the administration of the assessment, a Bilingualism Questionnaire was provided (see “[Appendix](#)”) to obtain more information on the bilingual profile and characteristics of the participant. Participants with neurological, psychological and/or history of medical illness were excluded for the purposes of this study.

The ratio of female to male participants was 36,22 and the ages ranged from 18 to 39 (mean = 26.7; SD = 5.61). The level of education varied as follows: 13 earned a high school diploma, 10 have an associate degree, 32 have earned a bachelor degree, 2 have obtained a masters degree, and only 1 received their PhD. Most of the participants were born in the United States (37), while the remaining participants (21) were born in a Latin American country; 7 were born in Cuba, 1 from Nicaragua, 3 from Guatemala, 1 in Costa Rica, 1 from Chile, 3 from Venezuela, 1 from Colombia, 2 from Ecuador, 1 in Puerto Rico, and 1 from Mexico. For the participants born abroad, the mean age of arrival was 5.1 (SD = 2.8). For all the subjects, parents were native Spanish speakers. Second language (English L2) was learned before the age of 10 (mean = 4.6; SD = 1.3); however, home language (L1) during childhood was Spanish. Language during primary school was English in 79.3 % of the cases; whereas language during middle school was English in 87.9 % of cases. Table 1 presents the general characteristics of the sample.

In all the subjects, both Spanish and English were used in their everyday life (Spanish 33 %, English 67 %). In the home environment, it was reported that the participants speak Spanish 18.9 % of the time, English 10.3 % of the time, and a combination of both English and Spanish 70.6 % of the time.

Table 1 General characteristics of the sample

Age: Mean = 26.7; SD = 5.61; Range = 18–39
Gender (ratio F/M) = 36/22
Level of education: HS = 13; Associate = 10; Bachelor = 32; Masters = 2; PhD = 1
Place of birth: US = 37; Latin America = 21 (7 were born in Cuba, 1 from Nicaragua, 3 from Guatemala, 1 in Costa Rica, 1 from Chile, 3 from Venezuela, 1 from Colombia, 2 from Ecuador, 1 in Puerto Rico, and 1 from Mexico)
Age of arrival to US (when born in Latin America) Mean = 5.1 SD = 2.8
Age of learning L2 (English): Mean = 4.6 SD = 1.3
English at school: Primary: 79.3 %; Middle = 87.9 %
Average use of L1 and L2 daily: Spanish = 33 %; English = 67 %
Language at home: Spanish = 18.9 %; English: 10.3 %; Both = 70.6 %

Instruments

The following reading and writing instruments were individually administered both in Spanish and English.

Reading understanding

Participant reads two short stories (about 100–120 words) in Spanish and two stories in English. After reading each one of the stories, five questions were orally presented in the corresponding language. Total score for each language was 10 points. The reading tests were:

- Practical Spanish Readings—(Family, Familia, Work, Trabajo, Introducing Yourself, Presentándose) (taken from Practical Spanish, 2009).
- Ed Helper Spanish/English Short Story—(taken from Howler Monkeys, Monos Aulladores) (Ed Helper).

Reading aloud

Two paragraphs with similar length and level of difficulty were used. Reading accuracy (errors—that is, paralexias, additions and omissions) and speed (in s) were recorded for reading the first 300 words of the paragraph. Four scores were used: (1) paralexias (word reading errors), (2) word additions, (3) word omissions, and (4) speed in seconds. The following paragraphs were used:

- The Short Happy Life of Francis Macomber (Hemingway, 1938); English.
- Relato de un Náufrago (García-Márquez, 1970); Spanish.

Writing dictation and spontaneous writing subtests

Three subtests were used. The first and the second were taken from the Bilingual Aphasia Test (BAT)-American Spanish Version (Paradis & Ardila, 2008) and the Bilingual Aphasia Test (BAT)-English Version (Paradis, Hummel, & Libben, 1989); the third one simply consisted in writing about his/her work during 5 min.

- Writing word: To write five words by dictation (fat, glue, stick, chin, tramp in English; *queso, teja, roca, pata, mesa* in Spanish). One point is given for each word correctly written.
- Writing sentences: Five progressively longer sentences (between 3 and 10 words) are read to the subject. One point is given for each sentence correctly written.
- Spontaneous writing: Writing about his/her work. Four scores were used: (1) number of words, (2) number of sentences, (3) spelling errors, and (4) grammatical errors.

Procedure

Participants selected for the study were primarily students from Florida International University. Testing was conducted throughout the university campus, mostly in the Department of Communication Sciences and Disorders or at a location agreed upon by both the examiner and participant. The selected participants first began the evaluation process by completing a consent form. Then, the examiner completed the Bilingual Questionnaire by asking the participant a series of questions to determine their individual bilingual profile. Once this was completed, testing began. Half of the participants began the testing in Spanish while the others began in English. The order of testing was randomly decided.

Results

The mean scores (*M*) and standard deviation (*SD*) values were calculated for each test administered in Spanish (L1) and English (L2), along with a *t*-value and *p* value comparing participant's performance in L1 to performance on the same test administered in L2. Table 2 presents the general results. Performance was significantly higher in English than in Spanish in the following measures: Reading Aloud Errors and Speed, Writing Sentences, Spontaneous Writing number of words, and Errors (Spelling and Grammatical). Paralexias were almost five times more frequent in Spanish than in English. The number of words in the Spontaneous writing test was about 20 % higher in English than in Spanish, and the number of sentences was about 10 % higher in English. Spelling errors about five times more frequent in Spanish than in English and grammatical error about three times. No significant differences were found in Reading Comprehension. Reading speed was significantly faster in English than in Spanish: 138 words/min in English and 85

Table 2 General results in the different tests

	English		Spanish		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Reading understanding	8.77	1.71	9.05	1.59	0.896	0.371
Reading aloud: accuracy						
Errors	2.10	3.04	10.17	11.27	5.260	<0.001
Additions	0.65	1.16	0.94	1.64	1.106	0.270
Omissions	0.37	0.74	0.67	1.36	1.432	0.154
Speed (s)	130.88	21.81	210.46	78.08	7.475	<0.001
Writing words	4.87	0.42	4.79	0.78	0.733	0.464
Writing sentences	4.82	0.42	4.20	1.29	3.469	0.007
Spontaneous writing						
Number of words	62.84	18.22	51.77	18.38	3.256	0.001
Number of sentences	5.12	1.46	4.72	1.77	1.312	0.191
Errors						
Spelling	0.50	0.90	2.34	3.12	4.317	<0.001
Grammatical	0.44	0.82	1.12	1.64	2.786	0.006

words/min in Spanish; variability (*SD*) was notoriously higher in Spanish than in English.

An additional analysis was conducted to compare linguistic performance both in Spanish and English of participants who were born in the U.S. versus those who were born elsewhere. The rationale for this comparison was the assumption that those participants who were born and initially grew up in a completely Spanish-speaking environment may have a more solid knowledge of Spanish language. Table 3 presents the results for English. Statistically significant differences at a .05 level were found in two test scores: Reading Aloud (Errors and Speed), and Writing Errors (Spelling). No statistically significant differences were found in the other measures. Thus, reading was faster and more accurate in those participants born in US. Spelling ability was also higher, but no differences in grammatical errors were found in the Spontaneous writing subtest.

Table 4 presents the results for Spanish. Statistically significant differences were not found in any of the subtests, even though as a general tendency a better performance was observed in those participants born in Latin America.

Discussion

This study analyzed the writing and reading knowledge of 58 English–Spanish second-generation bilinguals in South Florida. The sample of participants selected moved to the United States before the age of 10 from a Latin American country or were born in Miami from native Spanish-speaking parents. In addition, the dominant home language must have been Spanish and they needed to attend

Table 3 Comparison of the tests scores between those subjects born in US and in a foreign country (English)

	US-born		Foreign-born		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Reading understanding	8.72	1.88	8.85	1.42	0.269	0.788
Reading aloud: accuracy						
Errors	1.43	1.92	3.28	4.18	2.308	0.024
Additions	0.51	1.16	0.90	1.13	1.236	0.221
Omissions	0.27	0.73	0.57	0.74	1.495	0.140
Speed (s)	126.5	23.09	139.38	14.40	2.319	0.024
Writing words	4.81	0.51	5	0	1.665	0.101
Writing sentences	4.83	0.37	4.80	0.51	0.242	0.809
Spontaneous writing						
Number of words	62.59	14.25	63.28	24.10	0.137	0.891
Number of sentences	5.10	1.28	5.14	1.76	0.086	0.931
Errors						
Spelling	0.32	0.70	0.80	1.12	2.018	0.048
Grammatical	0.45	0.90	0.42	0.67	0.136	0.891

Table 4 Comparison of the tests scores between those subjects born in US and in a foreign country (Spanish)

	US-born		Foreign-born		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Reading understanding	8.81	1.88	9.47	0.74	1.546	0.127
Reading aloud: accuracy						
Errors	12.86	1.92	8.38	7.69	0.910	0.366
Additions	1.08	1.16	0.71	0.78	0.812	0.420
Omissions	0.70	0.73	0.61	1.07	0.221	0.825
Speed (s)	219.61	90.03	194.33	48.53	1.189	0.239
Writing words	4.70	0.51	4.95	0.21	1.161	0.250
Writing sentences	4.05	0.37	4.47	0.92	1.198	0.235
Spontaneous writing						
Number of words	50.94	14.25	53.23	24.97	0.453	0.652
Number of sentences	4.78	1.29	4.62	2.43	0.337	0.737
Errors						
Spelling	2.83	3.52	1.47	2.06	1.616	0.111
Grammatical	1.24	1.63	0.90	1.67	0.750	0.456

school where they spoke predominantly English. The participants were tested in English and Spanish to determine their proficiency in writing and reading for each language.

Overall, the results revealed that participants performed better in English than in Spanish in the following measures: Reading Aloud Errors, Writing Sentences, Spontaneous Writing number of words, and Errors (Spelling and Grammatical). Participants who were born in the US were only found to perform significantly better in English; no significant differences were found in Spanish test performance; but these conclusions are only valid for reading aloud and not for reading comprehension; in the Reading understanding subtest no significant differences were found; reading understanding was equivalent in all the groups. It is important to emphasize in relation to writing that two different types of writing tests were administered: dictation and spontaneous writing. Spontaneous writing in Spanish turned out to be particularly difficult, whereas dictation appeared as a relatively easier task; noteworthy, this group of participants rarely use writing in Spanish in the everyday life. It is evident that although an individual's dominant home language is Spanish, if they received education predominantly in English, we can assume that they may have better writing and reading skills in English.

Our results can be compared to Duursma et al. (2007). It was found that becoming or staying proficient in English did not require parental use of English in the home, but for Spanish it required proficiency support in both school and at home. Our participants received the majority of their education in English and did not have the support required to be just as proficient in Spanish reading and writing. Even though the dominant language at home was Spanish, this was not enough.

Soto Huerta and Pérez (2015) found that immigrants often learn functional second language skills that allow them to meet the most basic abilities. Many people may only use their home language (Spanish) for conversations within the family and this makes it difficult to develop literacy skills in Spanish. According to Goldberg et al. (2008), children should have home literacy experiences to perform better on literacy outcomes in their home language.

This study did have some important limitations. Our participant sample was fairly small and we only looked at Spanish–English bilinguals. Due to time constraints and convenience of sampling, most of our participants were bilingual students from Florida International University. Also, all of the participants reside in Miami. Ideally, the population sampled would have included second-generation bilinguals from all around South Florida. Since all of our data is based on individuals in Miami, it would be difficult to generalize these results to other parts of the United States.

Future research should include a larger and more diverse participant sample. This would allow generalization to other language backgrounds and areas in the U.S. Testing can also be completed in different languages to see if this would yield different results. In addition, questions about home literacy experiences during childhood could be included in the questionnaire to further analyze if these individuals would have more proficiency in their Spanish literacy skills when compared to individuals that were not encouraged to use literacy in their dominant home language; noteworthy, our results show in general a higher variability both in reading and writing tests in Spanish than in English, indicating different levels of literacy in Spanish.

It has to be taken into consideration that reading and writing represent different abilities. Differences are evident not only from the sensory and perceptual point of view, but also in terms of cognitive processing (Ellis, Young, & Flude, 1993). Reading is a visual-perceptual ability depending on the left occipital and parietal-occipital brain areas (Coslett, 2011), whereas writing is a motor-spatial abilities requiring the involvement of left frontal and right hemisphere areas (Ullrich & Roeltgen, 2011). Disturbances in reading and writing in cases of brain pathology some time are associated, but also some times are dissociated (Benson & Ardila, 1996; Hamilton & Coslett, 2007). Furthermore, acquired and developmental disturbances in reading and writing can have different clinical manifestation in different orthographic systems (Karanth, 2003; Paulesu et al., 2001). By the same token, learning to read and learning to write are different (Juel, 1988; Vacca et al., 2014) and their mastery can be dissociated. These differences between reading and writing can represent a potential source of variation in the current results.

Finally, current results not only advance the understanding of written bilingualism, but also may have significant educational consequences. Oral and written bilingualism may be dissociated and a specific individual can have a high proficiency in one of them, and a low ability in the other; for instance, many people in different countries learn to read in a foreign language although they cannot even maintain a simple conversation in the second language. Many immigrants to the United States of America learn to speak in English but they cannot even read the newspaper. From the educational point of view, the discrepancy between oral and written bilingualism can impact the learning ability of the student; for instance, some Hispanic students coming from Latin America can rapidly learn basic spoken English, but their ability to read English and hence, successfully using textbooks, can be limited; this situation results in an evident decrease in academic performance.

As a general conclusion it can be suggested that understanding written bilingualism may be as important as understanding oral bilingualism.

Appendix: Bilingualism questionnaire

Bilingualism Questionnaire

Number: _____ Date _____

1. Age (in years): _____

2. Sex (circle one): Male/Female

3. Education (degree obtained): _____

4. Country of origin _____

5. Age of arrival to USA _____

6. Please specify the age at which you started to learn your second language (English) _____

7. Where are your parents/caregivers from?

Mother: _____

Father: _____

8. What languages do your parents/caregivers speak?

Mother: _____

Father: _____

9. What language is spoken at home?

10. What language/s do you use when speaking to your siblings? (If not applicable for any reason, write N/A) _____

11. Write down the name of the language in which you received instruction in school, for each schooling level:

Primary/Elementary School _____

Secondary/Middle School _____

High School _____

College/University _____

12. Estimate, in terms of percentages, how often you use Spanish and English per day (in all daily activities combined):

Spanish language _____%

English language _____%

Other languages _____% (specify: _____)

13. How well do you consider that you speak/read Spanish and English? (write the corresponding number)

Excellent						Almost nothing
7	6	5	4	3	2	1

Spanish speaking						
Spanish reading						
English speaking						
English reading						

Thank you for your participation!

References

- Ardila, A. (2007). Bilingualism in the contemporary world. In A. Ardila & E. Ramos (Eds.), *Speech and language disorders in bilinguals* (pp. 1–20). New York: Nova Science Publishers.
- Ardila, A. (2012). Ventajas y desventajas del bilingüismo [Advantages and disadvantages of bilingualism]. *Forma y Función*, 25, 99–114.
- Ardila, A., & Cuetos, F. (2016). Applicability of dual-route reading models to Spanish. *Psicothema*, 28(1), 71–75.

- Aro, M., & Wimmer, H. (2003). Learning to read: English in comparison to six more regular orthographies. *Applied Psycholinguistics*, 24, 621–635.
- August, D., & Shanahan, T. (Eds.). (2006). *Developing literacy in second-language learners: A report of the national literacy panel on language-minority children and youth*. Mahwah, NJ: Lawrence Erlbaum Associates Inc.
- Benson, D. F., & Ardila, A. (1996). *Aphasia: A clinical perspective*. New York: Oxford University Press.
- Berg, T. (1991). Phonological processing in a syllable-timed language with pre-final stress: Evidence from Spanish speech. *Language and Cognitive Processes*, 6, 265–301.
- Bialystok, E., & Barac, R. (2012). Emerging bilingualism: Dissociating advantages for metalinguistic awareness and executive control. *Cognition*, 122, 67–73.
- Bialystok, E., & Viswanathan, M. (2009). Components of executive control with advantages for bilingual children in two cultures. *Cognition*, 112(3), 494–500.
- Caravolas, M., Lervåg, A., Defior, S., Seidlová Málková, G., & Hulme, C. (2013). Different patterns, but equivalent predictors, of growth in reading in consistent and inconsistent orthographies. *Psychological Science*, 24, 1398e1407.
- Caravolas, M., Lervåg, A., Mousikou, P., Efrim, C., Litavský, M., Onochie-Quintanilla, E., et al. (2012). Common patterns of prediction of literacy development in different alphabetic orthographies. *Psychological Science*, 23, 678–686.
- Carbonaro, W. (2006). Cross-national differences in the skills-earnings relationship: The role of labor market institutions. *Social Forces*, 84(3), 1819–1842.
- Carroll, C. J. (2013). *The effects of parental literacy involvement and child reading interest on the development of emergent literacy skills*. University of Wisconsin Milwaukee: Theses and Dissertations.
- Cobo-Lewis, A. B., Eilers, R. E., Pearson, B. Z., & Umbel, V. C. (2002). Interdependence of Spanish and English knowledge in language and literacy among bilingual children. In D. K. Oller & R. E. Eilers (Eds.), *Language and literacy in bilingual children* (pp. 118–134). Clevedon: Multilingual Matters.
- Coltheart, M. (1981). Disorders of reading and their implications for models of normal reading. *Visible Language*, 5(3), 245–286.
- Coslett, H. B. (2011). Acquired dyslexia. In M. K. M. Heilman & E. Valenstein (Eds.), *Clinical neuropsychology* (pp. 108–125). New York: Oxford University Press.
- Cuetos, F. (1993). Writing processes in a shallow orthography. *Reading and Writing: An Interdisciplinary Journal*, 5, 17–28.
- Cuetos, F. (2002). Sistemas de lectura en ortografías transparentes: evolución de la dyslexia profunda en español [Reading systems in shallow orthographies: Evolution of deep dyslexia in Spanish]. *Cognitiva*, 14, 133–149.
- Cummins, J., & Swain, M. (2014). *Bilingualism in education: Aspects of theory, research and practice*. Abingdon: Routledge.
- Dauer, R. M. (1983). Stress-timing and syllable-timing reanalyzed. *Journal of Phonetics*, 11(1), 51–62.
- Duursma, E., Romero-Contreras, S., Szuber, A., Proctor, P., & Snow, C. (2007). The role of home literacy and language environment on bilinguals' English and Spanish vocabulary development. *Applied Psycholinguistics*, 28, 171–190.
- Ellis, A. W., Young, A. W., & Flude, B. M. (1993). Neglect and visual language. In I. H. Robertson & J. C. Marshall (Eds.), *Unilateral neglect: Clinical and experimental studies* (pp. 233–255). Hove: Lawrence Erlbaum Associates.
- García-Marquez, G. (1970). *Relato de un naufrago [Story of a castaway]*. New York: Alfred A. Knopf Inc.
- Gauvain, M., Savage, S., & McCollum, D. (2000). Reading at home and at school in the primary grades: Cultural and social influences. *Early Education and Development*, 11, 447–463.
- Glenn, C. L., & de Jong, E. J. (1996). *Educating immigrant children: Schools and language minorities in twelve nations*. New York, NY: Garland Publishing Inc.
- Goldberg, H., Paradis, J., & Crago, M. (2008). Lexical acquisition over time in minority first language children learning English as a second language. *Applied Psycholinguistics*, 29, 1–25.
- Goswami, U., Ziegler, J. C., Dalton, L., & Schneider, W. (2003). Nonword reading across orthographies: How flexible is the choice of reading units? *Applied Psycholinguistics*, 24(02), 235–247.
- Guerra, R. (1983). Estudio estadístico de la sílaba en español. In M. Esgueva & M. Cantarero (Eds.), *Estudios de fonética I. [Studies of phonetics I]* (pp. 9–112). Madrid: Consejo Superior de Investigaciones Científicas.

- Hamilton, A. C., & Coslett, H. B. (2007). Impairment in writing, but not reading, morphologically complex words. *Neuropsychologia*, *45*, 1586–1590.
- Hemingway, E. (1938). The short, happy life of Francis Macomber. In P. Smith (Ed.), *The fifth column and the first forty-nine stories*. New York, NY: Charles Scribner's Sons.
- Hilchey, M. D., & Klein, R. M. (2011). Are there bilingual advantages on nonlinguistic interference tasks? Implications for the plasticity of executive control processes. *Psychonomic Bulletin & Review*, *18*(4), 625–658.
- Hoff, E., & Shatz, M. (2009). *Blackwell handbook of language development*. Hoboken, NJ: Wiley.
- Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. *Journal of Educational Psychology*, *80*(4), 437.
- Karant, P. (2003). *Cross-linguistic study of acquired reading disorders: Implications for reading models, disorders, acquisition, and teaching*. New York: Springer.
- Lesaux, N. K., & Geva, E. (2006). Synthesis: Development of literacy in language minority students. In D. L. August & T. Shanahan (Eds.), *Developing literacy in a second language: Report of the national literacy panel* (pp. 53–74). Mahwah, NJ: Lawrence Erlbaum Associates.
- National Assessment of Educational Progress. (2003). *The Nation's report card reading Highlights 2003*. Retrieved October 10, 2015, from <http://nces.ed.gov/nationsreportcard/pdf/main2003/2004452.pdf>.
- Oller, D. K., & Eilers, R. E. (Eds.). (2002). *Language and literacy in bilingual children* (Vol. 2). Clevedon: Multilingual Matters press.
- Paradis, M., & Ardila, A. (2008). *The bilingual aphasia test (American Spanish version)*. Hillsdale, NJ: Lawrence Erlbaum Associates Inc.
- Paradis, M., Hummel, K., & Libben, G. (1989). *The bilingual aphasia test*. Hillsdale, NJ: Lawrence Erlbaum Associates Inc.
- Paulesu, E., Démonet, J. F., Fazio, F., McCrory, E., Chanoine, V., Brunswick, N., et al. (2001). Dyslexia: Cultural diversity and biological unity. *Science*, *291*(5511), 2165–2167.
- Pearson, B. Z. (2007). Social factor in childhood bilingualism in the United States. *Applied Psycholinguistics*, *28*, 399–410.
- Practical Spanish. (2009). Retrieved July 7, 2015, from <http://www.learnpracticalspanishonline.com/beginner/beginner-readings.html>.
- Rosselli, M., Ardila, A., Santisi, M. N., Arecco, M. R., Salvatierra, J., Conde, A., et al. (2002). Stroop Effect in Spanish–English bilinguals. *Journal of the International Neuropsychological Society*, *8*, 819–827.
- Rosselli, M., Matute, E., & Ardila, A. (2006). Neuropsychological predictors of reading ability in Spanish. *Revista de Neurologia*, *42*, 202–210.
- Rubba, J. (2006). *An overview of the English morphological system*. English Department (Linguistics) California Polytechnic State University, San Luis Obispo. <http://cla.calpoly.edu/~jrubby/morph/morph.over.html> Accessed May 15, 2015.
- Serrano, F., Genard, N., Sucena, A., Defior, S., Alegria, J., Mousty, P., et al. (2011). Variations in reading and spelling acquisition in Portuguese, French and Spanish: A cross-linguistic comparison. *Journal of Portuguese Linguistics*, *10*, 183–204.
- Seymour, P. H. K., Aro, M., & Erskine, J. M. (2003). Foundation literacy acquisition in European orthographies. *British Journal of Psychology*, *94*, 143–174.
- Simpson, J. M. (2004). A look at early childhood writing in English and Spanish in a bilingual school in Ecuador. *International Journal of Bilingual Education and Bilingualism*, *7*, 432–448.
- Smith, R. (2012). Distinct word length frequencies: Distributions and symbol entropies. *Glottometrics*, *23*, 7–22.
- Soto Huerta, M. E., & Pérez, B. (2015). Second-language literacy, immigration, and globalization. *International Journal of Bilingual Education and Bilingualism*, *18*, 485–500.
- Ullrich, L., & Roeltgen, D. P. (2011). In M. K. M. Heilman & E. Valenstein (Eds.), *Clinical neuropsychology* (pp. 130–151). New York: Oxford University Press.
- Vacca, J. A. L., Vacca, R. T., Gove, M. K., Burkey, L. C., Lenhart, L. A., & McKeon, C. A. (2014). *Reading & learning to read*. New York: Pearson Higher Ed.
- Yi, Y. (2008). Voluntary in heritage language: A study of biliterate Korean-heritage adolescents in the U.S. *Heritage Language Journal*, *6*(2), 72–93.