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# Spanish heritage speakers vs. L2 learners: do writing skills differ after completing general content and tailor- made courses?

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# Spanish heritage language learners vs. L2 learners: What CAF reveals about written proficiency

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## ABSTRACT

**EN** Recently, great interest has emerged in identifying the learning needs of heritage language (HL) learners. In comparing HL and second language (L2) learners, research suggests that L2 learners outperform HL learners when examining writing abilities (Montrul, 2010; Potowski, 2013). However, complexity, accuracy, and fluency (CAF) have been overlooked when examining HL learners' writing proficiency, and it could provide a better picture of their writing skills in a spontaneous untimed assignment. To address this issue, 28 L2 learners and 18 HL learners completed an untimed written production task on a non-academic subject and their written proficiency was assessed through CAF measures (Norris & Ortega, 2009). Results showed HL learners significantly outperformed L2 learners on two complexity measures: accuracy and fluency. A possible explanation for these findings could be the type of task used (more spontaneous, less-controlled), which taps into a more implicit type of knowledge, favoring HL learners (Bowles, 2011).

**Key words:** HERITAGE LANGUAGE LEARNERS, WRITING, CAF.

**ES** En los últimos años ha habido un mayor esfuerzo para identificar las necesidades de los aprendientes de una lengua de herencia (LH). Los resultados de estudios comparativos indican que los aprendientes de una L2 superan a los aprendientes de una LH en pruebas de habilidades de escritura (Montrul, 2010; Potowski, 2013). Sin embargo, a la hora de analizar la producción escrita en la HL, la complejidad, la precisión y la fluidez (CAF por sus siglas en inglés) han sido ignoradas, a pesar de que podrían ofrecer una descripción más precisa de las habilidades de escritura en la HL en tareas espontáneas no cronometradas. Con el objetivo de aportar esta perspectiva, 28 aprendientes de L2 y 18 aprendientes de LH completaron una tarea de producción escrita en ámbito no académico y no cronometrada, y sus habilidades de escritura fueron evaluadas según los parámetros CAF (Norris & Ortega, 2009). Los resultados muestran que los aprendientes de HL superaron a los de L2 en dos parámetros, complejidad y fluidez. Una posible explicación de estos resultados puede estar relacionada con el tipo de tarea (más espontánea y menos controlada), que requiere un conocimiento más implícito y favorecería así a los aprendientes de HL (Bowles, 2011).

**Palabras clave:** APRENDIENTES DE UNA LENGUA DE HERENCIA, ESCRITURA, CAF.

**IT** I bisogni di apprendimento di apprendenti una lingua ereditaria (HL) sono recentemente diventati oggetto di un crescente interesse. Nelle ricerche che hanno confrontato apprendenti di una HL e di una lingua seconda (L2), il secondo tipo di apprendenti consegue risultati migliori del primo nell'abilità di scrittura (Montrul, 2010; Potowski, 2013). Tuttavia, nell'esame della capacità di scrittura nella lingua ereditaria, complessità, precisione e fluidità (CAF nell'abbreviazione inglese) sono spesso sottovalutate, mentre potrebbero fornire un quadro più accurato delle loro abilità di scrittura in compiti spontanei non a tempo. A tal fine, 28 apprendenti L2 e 18 apprendenti HL hanno svolto un compito di produzione scritta non a tempo su un argomento non accademico. Valutata la loro capacità di scrittura sulla base di misurazioni della CAF (Norris & Ortega, 2009), gli apprendenti HL hanno superato gli apprendenti L2 in due misure, precisione e scorrevolezza. Una possibile spiegazione è da ricercarsi nel tipo di compito (più spontaneo e meno controllato) che fa leva su un tipo di conoscenza più implicita favorendo gli/le apprendenti HL (Bowles, 2011).

**Parole chiave:** APPRENDENTI DI LINGUE EREDITARIE, SCRITTURA, CAF.

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## 1. Introduction

There has been great interest in the second language acquisition (SLA) literature in identifying the differences between heritage language (HL) learners and second language (L2) learners. The validity of this comparison is not only significant on theoretical grounds, which can potentially provide insight into the role of age and input in bilingual language acquisition, etc. (Montrul, 2005; 2011; 2012), but it also has very important pedagogical implications. Researchers and practitioners alike debate over whether it is more advantageous to enroll adult L2 and HL students attending post-secondary education in the same classes or in different classes that meet their specific needs (Bowles, 2011a; Lynch, 2008; Mikulski, 2010; Potowski et al., 2009). HL and L2 learners' linguistic systems have been found to differ in terms of age of acquisition, learning context, language variety, or connections to language and culture. In addition, HL learners' linguistic backgrounds differ among themselves as HL learners are strikingly notorious for their heterogeneous profiles and, often, strict comparisons are hard to make (Montrul, 2010). Valdés (1997, 2001) pointed out that HL learners' language competence can vary to a great extent based on different factors: language use, bilingual education, socioeconomic status, or native variety. However, Lynch's (2008) findings suggested that Spanish HL learners are not very different in their grammatical and lexical performances with respect to advanced L2 learners' performances, despite the fact that HL learners are exposed to the (heritage) language from birth. He stated that similarities among HL and L2 learners are related to language use (how much they use it at home, time spent listening to tv or radio in Spanish, language usage in personal relationships, at work, etc.). With these findings in mind, he suggested that mixed classes could be justified, but other studies' findings seem to contradict this idea. The present study intends to probe deeper into the issue of difference among HL and L2 learners, by presenting both HL and L2 learners with an untimed semi-guided written task in order to further elucidate any potential differences on their written performance.

In the following sections, a more detailed review of studies that have examined both HL learners' writing and HL vs. L2 learners' writing skills is offered, identifying the areas in need of further research, which will lead to the research questions that motivate the present study.

## 2. HL learners' writing

In general, the literature agrees that heritage speakers tend to have stronger oral and aural skills (i.e., speaking and listening), as these two skills are more often practiced in an informal, conversational setting (Jegerski & Ponti, 2014; Montrul, 2008, 2010, 2012). However, when it comes to comparing HL and L2 learners' writing skills, most researchers agree that L2 learners tend to outperform HL learners. Potowski (2014) stated that heritage speakers often display underdeveloped literacy skills (i.e., reading and writing) in the HL. This could be due to the fact that their exposure to the HL has occurred primarily in informal, conversational contexts, and they lack a formal classroom instruction (Carreira, 2004), unlike L2 learners, who have learned the language primarily in the classroom. Colombi and Roca (2003) pointed out that "one of the most important yet difficult aspects of Spanish language development for heritage speakers is academic writing" (p. 9).

These shortcomings on literacy skills are not only pointed out by scholars and practitioners, but also deeply recognized by HL learners themselves. When asked about which language skills they considered more important, Spanish HL learners emphasis on their Spanish literacy skills was decidedly more pronounced than speaking or listening abilities (Hedgcock & Lefkowitz, 2011). When asked about which skill they needed to improve the most, HL students identified writing, whereas L2 learners identified speaking as the skill that required further improvement (Hedgcock & Lefkowitz, 2011).

Therefore, it is not surprising that many researchers are interested in examining HL learners' writing performance and development. In Martínez (2007), 13 Spanish HL students completed two writing assignments: a free writing assignment and a formal writing assignment on the variation between overt and null subject pronouns. Martínez based his study on the context of two different writing tendencies observed in the literature: one where writing follows the traditions of the L1/dominant language, and another where learners break with those traditions and reveal a strong influence of their HL on their writing. Results showed that HL learners tended to use subject pronouns more often in free speech than in formal writing. The author suggested that the role of transfer is multidimensional, drawing from HL learners' multiple literacies, and depending on the context students use different resources from both languages to express their ideas in Spanish writing.

Nichols and Colón (2000) also found interesting results with regard to the role that English plays on the HL (Spanish) in enhancing writing development in the HL over time. The researchers observed the development of a group of 50 high school students over a period of four years by analyzing videotaped class presentations as well as writing samples produced over the course of the said period of time. Overall, the fact that students were allowed to use both languages during class time maintained Spanish as the main language employed in the classroom. The analyses of the writing samples revealed that HL learners gained more confidence and consistency in their writing over time, and were able to produce final drafts of higher quality in terms of content and organization.

These studies lend support to the influence that HL learners' dominant language might have on enhancing their writing skills in the HL. Other studies have recently sought to understand whether participants' cognitive processes might offer an additional explanation for their writing performance. One of the studies that examined the cognitive processes of Spanish HL learners by using think-aloud protocols was Schwartz (2003). She conducted a case study with three participants who first reported in a questionnaire the perception of the four skills in the HL language. After that, participants completed a descriptive writing task during which they employed think-alouds. Finally, participants were individually interviewed by the researcher. The analysis of the verbal protocols revealed, first, that participants mainly thought aloud in English, but they also tried to find the right words in Spanish, as if they were drawing upon their L1/HL internal system, and second, that participants' thinking aloud affected their writing process, at times disrupting it.

Another way to examine writing abilities is by exploring the notions of *complexity*, *accuracy,* and *fluency* (CAF). Researchers and practitioners have employed these measures in order to appropriately operationalize the constructs of L2 performance and L2 proficiency, which are believed to be multidimensional in nature (Housen & Kuiken, 2009). CAF provides other advantages as it provides us with a quantitative approach (using ratios, frequencies, and formulas) to assess L2 written and oral proficiency as well as to measure progress in language learning. While assessments with CAF have been used extensively in the L2 literature, its employment in the HL literature to date is rather scarce. Addressing different variables, such as CAF, rather than just one or a few specific target forms, could provide us with a more complete overall picture of HL learners' writing skills, and how these compare to L2 learners'.

A few studies have addressed CAF in HL learners. Schwartz (2005) examined the writing performances and strategies of two different types of HL learners, differing in their level of academic skills in Spanish. She also assessed six different linguistic measures: number of words, number of T-units, number of clauses divided by the number of T-units, number of errors divided by the number of T-units, and the number of error-free T-units. Again, think-aloud protocols were used to account for the strategies employed by participants. No noticeable differences appeared at any of the linguistic measures, although it is important to note that there were only 5 participants, and no statistical analyses were run. With regard to the strategies employed, those with very low academic skills in Spanish relied more on translation than those with higher academic skills. The author concluded that many factors seem to affect HL learners' writing skills, and that assumptions should not be made about their writing proficiency based on their oral proficiency or on their participation in previous academic courses.

Mikulski and Elola's (2011) findings had similar implications. They sought to explore the writing behaviors of Spanish HL learners in English and Spanish. More specifically, they examined planning time, execution time, monitoring time, accuracy, and fluency in twelve Spanish HL learners enrolled at an intermediate-level Spanish class. The learners wrote two short essay-like questions in Spanish and two in English after watching a short film. Results indicated that in their dominant language, English, students showed more fluency and accuracy and spent less time planning between sentences. In Spanish, on the other hand, participants spent significantly more time planning between sentences. The authors suggested that instructors should be aware of the pedagogical implications of these findings: instructors (1) should take advantage of students' previous experience writing in English (i.e., the role of transfer), and (2) should adapt their curricula so that students move from informal to more academic assignments in order to become gradually familiar with the writing process in formal Spanish.

Yanguas and Lado (2012) used CAF in order to investigate whether thinking-aloud in English or in Spanish affected performance positively or negatively while carrying out a semi-controlled writing task, where participants had to create their own story based on three different comic strips. Participants were 37 college students whose HL was Spanish. The measures assessed were fluency, accuracy, and lexical complexity. The researchers found that thinking aloud while writing in the HL benefited fluency and accuracy

(i.e., positive reactivity) when their performance was compared to participants' silent writing. The authors argued that think-alouds should be used with caution when trying to gain insight into learners' cognitive processes.

In sum, the general picture that emerges from the previous studies is that HL learners' writing process in the HL can be more complicated and heterogeneous than at first expected, as they rely on their stronger writing skills in English and seem to use different learning strategies because their academic skills in Spanish vary. HL learners also appear to take advantage of the strong oral skills in the HL as well when they immerse themselves in a writing exercise, and, as Martínez (2007) discussed, HL learners appear to perform better in writing tasks that are free rather than more academic. While these studies provide us with a better idea of how HL learners behave when facing a writing assignment, further assumptions regarding whether they are at an advantage (or disadvantage) when compared to their L2 peers remain to be investigated. The next section will review how these two groups of learners compare to each other.

## 3. L2 vs. HL writing

In recent studies, it has been argued that the differences in writing between L2 and HL learners might be related to the type of knowledge that the two groups possess. Montrul (2010) and Potowski (2014), among others, have claimed that L2 learners outperformed HL learners in writing tasks that required high levels of explicit metalinguistic awareness. Potowski, Jegerski, and Morgan-Short (2009) have made similar claims, suggesting that both HL and L2 learners could benefit from being exposed to different types of instruction (traditional output-based vs. processing instruction), as both L2 and HL learners showed significant improvement in interpretation and production tasks. The authors argued that HL learners can benefit from focused grammar instruction as well as L2 learners, provided they receive sufficient practice. Bowles (2011) also investigated L2 and HL speakers who were both enrolled in Intermediate Spanish language classes. She found that L2 learners, who learned Spanish mostly in an academic context, scored higher in explicit knowledge tasks whereas heritage speakers, who learned Spanish in a naturalistic context, scored higher in implicit knowledge tasks. She concluded that HL learners have less explicit knowledge than L2 learners, due to the environment in which they learned Spanish.

Montrul et al. (2008) probed deeper into HL and L2 learners' use of gender agreement, and their results showed that HL learners had an advantage in oral tasks but were less accurate in written recognition and comprehension tasks than L2 speakers. The authors stated that "accuracy scores of the written tasks could be taken to reflect ability with metalinguistic, explicit knowledge (typically acquired later)" (p. 514). These findings seem to corroborate those reported earlier (Bowles, 2011; Montrul, 2010; Potowski, 2014). Along these same lines, Montrul (2011), examined whether morphological variability differed significantly when comparing L2 and HL adult learners. Her findings showed that the incorrect use of affixes for nominal and verbal inflections are as common for L2 learners as for HL learners, but, again, for heritage speakers morphological errors are more frequent in written than in oral tasks. However, it is important to keep in mind that some of the tasks employed in the last two studies did not require HL learners to produce their own writing, which is the ultimate goal of the present study.

Even though the results found in these studies are relatively conclusive, and provide us with greater insight into the knowledge that L2 and HL learners carry with them, the whole picture is less clear when it comes to mapping the writing abilities of these two groups. The claim that L2 learners outperform HL learners in writing skills has been assessed in studies whose main research questions were not measuring writing proficiency as a whole, but rather the interpretation/production of specific grammar forms. In addition, the tasks employed in these studies have been relatively short written and oral experimental tasks, which are very useful to tap into the knowledge of a grammatical target form that is challenging for HL learners (often a morphosyntactic form such as TAM [tense, mood, and aspect] or the Spanish direct/indirect object marker "a"), as well as untimed grammaticality judgment tasks (GJT), written narrative tests, etc. However, they fall short when it comes to measuring written proficiency in a more holistic, less controlled way. It is also noteworthy that it has not yet been tested whether these findings will extrapolate to the HL population when assessing heritage/L2 written performance and/or proficiency. The only study that made participants produce writing samples of this kind was Escalante (2002). She analyzed rhetorical and linguistic skills on written material in English and Spanish from a pool made by heritage speakers, bilingual (L1 English) speakers, and bilingual (L1 Spanish) speakers. She found that heritage speaker writing has unique characteristics which are different from the other groups. In addition, contrary to what the previous studies' findings suggested, Escalante found that the Spanish writing samples from HLs were closer to Spanish native

speakers than those of L2 Spanish learners with regards to verbs, type of sentences, T-units, and length of sentences.

## 4. The present study

The present study intends to present both HL and L2 learners with an untimed semi-guided written task in order to contribute to a better understanding of the differences between these two groups regarding complexity, accuracy, and fluency. CAF is a triad that has been addressed in the literature to measure progress in language learning and language proficiency, as there is evidence that CAF is related to interlanguage knowledge (Housen & Kuiken, 2009). In addition, Ortega (2003) suggested that syntactic complexity is an objective measure of progress from oral-based proficiency to advanced literacy. To our knowledge, no study has compared written proficiency between HL and L2 learners by analyzing CAF. To date, only Schwartz (2003, 2005), Mikulski and Elola (2011), and Yanguas and Lado (2012) have analyzed fluency and accuracy in HL learners on a writing task, but they did not test those measures with an L2 group, which prevents us from making any strong comparison between these two groups of learners. Keeping this in mind, the present study seeks to contribute to the HL writing development literature by addressing some particular issues that have been omitted in previous research, namely, the difference in written proficiency, as measured by CAF, between L2 and HL learners of a similar level of self-assessed proficiency. While previous studies would suggest an advantage for L2 learners in a writing context, it remains to be seen whether this advantage holds when the writing task is untimed and semi-guided, rather than controlled. In order to fill these gaps found in the literature, the following research questions were formulated:

1) Do advanced HL and L2 learners differ in writing proficiency as measured by *complexity* when exposed to an untimed semi-guided writing task?
2) Do advanced HL and L2 learners differ in writing proficiency as measured by *accuracy* when exposed to an untimed semi-guided writing task?
3) Do advanced HL and L2 learners differ in writing proficiency as measured by *fluency* when exposed to an untimed semi-guided writing task?

## 5. Methodology and design
### 5.1 Participants

At the time of the data collection, all participants were enrolled in Spanish language classes at a private research university on the east coast of the United States. From an initial pool of 48 participants that volunteered to participate in the study, 46 were included for subsequent analyses. Two participants were excluded from further analyses, as English was their L2 and Spanish their L3, which could cause a potential confound in the interpretation of results. Of the 46 remaining participants, twenty-eight were L2 learners (n=28) and eighteen were HL learners (n=18). All participants completed a linguistic background questionnaire through which we gathered information concerning language use, language of instruction in primary and secondary education, self-rated proficiency, and classes taken in Spanish as the language of instruction in their post-secondary institution. All participants reported that English was their language of instruction from primary to secondary school. Four HL learners claimed they had attended a bilingual preschool, and two reported having completed two years in a bilingual primary school. In order to ensure similar levels of proficiency, at the time of the study, all participants were taking either advanced language classes in Spanish or advanced content courses in Spanish (e.g., business Spanish).

The L2 learners group consisted of native speakers of English who used this language exclusively at home as children and who began learning Spanish as a second language around puberty (more specifically, from the ages of 12 to 16). The average age for this group was 19.3 (range: 18–21). All of these L2 learners learned Spanish in an instructional setting, with basically no naturalistic exposure to the language, and none of them had ever traveled to a Spanish-speaking country for more than two weeks. The average number of Spanish classes taken in college was 1.79 (range 1-3 classes).

The HL learners' group consisted of 13 second-generation heritage speakers who were born and schooled in the United States, and five who arrived in the United States at the ages of 6-11[1]. All of them were exposed to English before the age of five (i.e., in preschool). Table 1 summarizes the patterns of language use

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[1] They are also known as "generation 1.5" (Silva-Corvalán, 2014).

for these HL speakers, in both Spanish and English during childhood and at the time of testing. Most of the heritage speakers spoke Spanish (72%) or both (22%) during childhood (ages 1–5), but by the time they reached college, the majority was using predominantly English (50%) or both (45%). The largest amount of Spanish spoken during childhood and at the time of testing was with parents only, whereas English or the use of both languages (code-switching) was mainly employed with siblings and friends. The average number of Spanish classes taken in college (both language and content courses) was 1.81 (range 1-3 classes). The age of onset in English ranged from 2-5 years old, whereas their age on onset in Spanish was at birth.

Table 1
*Estimated frequency of Spanish and English language use by heritage speakers (n = 18)*

| Context | Spanish | English | Both |
|---|---|---|---|
| Ages 1-5 | 72% | 6% | 22% |
| Ages 6-12 | 11% | 27% | 61% |
| Ages 13-18 | 6% | 39% | 56% |
| At time of testing | 5% | 50% | 45% |

Table 2 summarizes the heritage speakers' self-assessed proficiency in English and Spanish. All heritage speakers continued to use Spanish during their lifetime, but 56% rated their Spanish proficiency as native-like, whereas 34% rated it as advanced and the remaining 11% as intermediate. By contrast, 95% rated their English proficiency as native-like and the remaining 5% as advanced. Forty-five percent of the heritage speakers listed Spanish as their native language, 16% listed English, and the remaining 39% listed both languages. When asked about their dominant language, 67% of the heritage speakers listed English, 22% listed both languages, and the remaining 11% listed Spanish.

Table 2
*Self-perceived proficiency ratings of heritage speakers (n = 18)*

| Language | None | Basic | Intermediate | Advanced | Nativelike |
|---|---|---|---|---|---|
| Spanish | | | | | |
| Listening | - | 6% | 6% | 6% | 83% |
| Speaking | - | 5% | 11% | 22% | 61% |
| Reading | - | - | 22% | 33% | 45% |
| Writing | - | 5% | 33% | 28% | 33% |
| Overall | - | - | 11% | 34% | 56% |
| English | | | | | |
| Listening | - | - | - | 5% | 95% |
| Speaking | - | - | - | - | 100% |
| Reading | - | - | - | - | 100% |
| Writing | - | - | - | 5% | 95% |
| Overall | - | - | - | 5% | 95% |

### 5.2 Procedure

At the end of the academic semester, one of the researchers visited two Spanish language and content classes and explained to participants that they were going to perform an assignment in a language laboratory. The assignment consisted of one untimed writing exercise for all participants. They all completed a spontaneous task (see Appendix A) related to a current topic (cellphone use in young adults and their perceptions of this usage). The topic of the task was chosen taking into account its relevance for participants in the present study (university students) and was considered to be an ideal task to elicit a variety of grammatical aspects, such as different tenses. Nowadays, a vast majority of university students have a smartphone and most of their social lives revolve around their phones as an essential component in their

lives. Therefore, this was considered an appropriate topic that would encourage participants to think about the positive and negative consequences of using smartphones (and to express their thoughts in writing).

Participants used Microsoft Word on the laboratory computers to complete the task. The researcher made sure the Word self-corrector and spelling checker options were off, so that Microsoft Word did not automatically correct their morphosyntactic errors as well, and walked around while the task was being completed to ensure participants were not using any online dictionary or similar software. Participants were urged to employ approximately 5-15 minutes to prepare an outline, and 35-40 minutes to write an essay about the given topic. They were also instructed to write about 300-350 words. Upon completion of the task, the document was saved on the computers, and participants proceeded to complete an online background questionnaire. After that, they were thanked for their participation in the study and left the language laboratory. The total duration of the session was approximately 50-60 minutes.

### 5.3 CAF analysis

Participants' writing performance was analyzed based on three different measures: complexity, accuracy, and fluency. Norris and Ortega (2009) defined complexity as a "multifaceted" construct and recommended an approach to its measurement based on several criteria. The criteria employed in the present study to measure complexity were therefore the following:

1) Overall complexity (mean length of T-unit);
2) Complexity by subordination (mean number of clauses per T-unit), and
3) Complexity by phrasal elaboration (mean length of clause by word).

Norris and Ortega (2009) pointed out that the complexity measured by subordination could be considered an index of complexification at intermediate levels, while phrasal elaboration could be considered an index for more advanced levels. According to Norris and Ortega (2009), L2 Spanish learners will first be able to produce subordinate clauses, and as they move up to a more advanced learning stage, they will then be able to further elaborate their clauses without employing subordination. Therefore, all three of these measures were used in order to have a clearer picture of this construct.

Accuracy was measured as error-free clauses (percentage of clauses with no morpho-syntactic errors), following Housen and Kuiken (2009). Orthographic/spelling errors were not considered. Although there are different ways to measure accuracy, the authors of the present study thought error-free clauses would be a good way to give an initial whole picture of L2/HL differences. Initially, the authors also considered employing the percentage of correct verb forms in terms of aspect, tense, mood, number, and person. However, we soon discovered that the results of these two accuracy measures (i.e., number of error-free clauses and percentage of correct verb forms) were highly correlated for all participants, and, therefore, as one measure subsumed the other, only one—error-free clauses—was considered for inclusion in the statistical analyses.

Finally, fluency was measured by accounting for participants' productivity, that is, the total number of words produced in the essay, given the same allocation of writing time for all participants. This way of looking into fluency in writing is an alternative to counting syllables per minute. Most studies that have measured the total number of words have found striking differences between "better" writing, usually longer, and "weaker" writing, typically shorter (Jarvis, Grant, Bikowski, & Ferris, 2003).

### 5.4 Coding

Each of the researchers coded half of the written tasks following the criteria detailed above. Given the qualitative nature of the data, both researchers discussed any discrepancies prior to coding that could arise in the coding to ensure that coding criteria were consistent throughout all essays for the three measures examined. In addition, each researcher coded about 20% of the data coded by the other researcher to calculate inter-rater reliability (IRR). The resulting IRR was very high: 97%. Once the coding was finalized, results were added to an Excel spreadsheet, and then exported to SPSS 22 for further analyses.

The following are two writing samples from a heritage learner and a L2 learner respectively, which display how the data were coded:

L2 learner Sample[2]
<[Hemos perdido mucho con el (la) ~~llegado~~ (llegada) de (la) tecnología. ]> <[En el pasado, las personas hablaban cuando cenaban, ]> <[pero ahora, todos usan sus smartphones ]> <[y no conocen (a) sus familias. ]> <[Por el otro lado, necesitamos (de la) tecnología ] [porque usamos *smartphones* para cada actividad en el día. ]> <[Si no ~~tengamos~~ (tuviéramos) *smartphones*,] [nuestras vidas cambiarían. ]> < [Por ejemplo, sería más difícil para buscar información en el momento] [si no ~~tengamos~~ (tuviéramos) smartphones. ]> <[Por ejemplo yo no sabría ] [nunca qué hora ~~sea~~ (es). ]> <[Está claro ][que no podemos vivir sin los smartphones. ]>

- 9 T-Units
- 13 Clauses
- 38% (5/13) error-free clauses
- 91 words

Heritage learner Sample
<[La llegada de los teléfonos inteligentes ha traído más comunicación entre la gente y con más facilidad.] ><[También hay desventajas con el progreso de la tecnología] ><[y hay estudios ][que enseñan ][que el setenta y cinco por ciento de personas con un Smartphone escriben menos a mano.] ><[También hay datos ][que demuestran] [que los jóvenes usan sus smartphones con más frecuencia para (tomar) notas.] ><[Un smartphone debe conectar a personas] ><[pero al mismo tiempo, quita un aspecto personal de (al) comunicarse con alguien.]><[La presencia de la tecnología ha cambiado ][como vivimos.] ><[Con (los) teléfonos móviles, puedes hablar con parientes en otras (otros) lugares del mundo] ><[pero también no tienes que ir a la casa de tu amiga ][si quieres hablar.]>

- 9 T-Units
- 16 Clauses
- 19% (3/16) of error-free clauses
- 114 words

## 6. Results

In this section[3], results for the research questions proposed at the end of section 4 of this manuscript will be reported. All statistical analyses were performed using SPSS 22. The alpha level was set at 0.05 throughout all analyses. Effect sizes ($\eta^2$) and observed power are reported following Larson-Hall (2010) and Cohen's (1988) guidelines of .01 (small), .06 (medium), and .14 (large) for effect sizes; and of .20 (small), .50 (medium), and .80 (large) for power.

### 6.1 Response to research question 1

*Do advanced HL and L2 learners differ in writing proficiency as measured by complexity when exposed to an untimed semi-guided writing task?*
RQ1 addressed three different measures within complexity:

1) mean length of T-unit,
2) subordination (mean number of clauses per T-unit), and
3) phrasal elaboration (mean length of clause).

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[2] Clauses are separated by brackets ([ ]) and t-units by angle brackets (< >)
[3] As suggested by one of the reviewers, the same analyses presented in this section were run excluding the 5 HL learners who were categorized as generation 1.5 to account for any potential difference between groups when having a more homogeneous HL sample. Results did not differ from those presented in this section. A second analysis excluding participants who were not enrolled in upper-level courses was suggested to obtain a more homogeneous sample for the interpretation of results. However, this eliminated 26 participants, leaving a final sample of 21 subjects (12 L2 and 9 HL), and rendering very low effect sizes and power.

Three separate one-way ANOVAs were conducted for each of these measures, with conditions (HL and L2) as independent variables, and the aforementioned measures as dependent variables.

The first one-way ANOVA, addressing mean length of T-unit, revealed a significant effect for condition, $F$ (1, 44) = 14.428, $p$ = .00, $\eta^2$ = .28, observed power = .96, (see Table 3 for descriptive statistics). The box plot in Figure 1 shows how the HL group significantly outperformed the L2 group in mean length of T-unit. Also, the distribution of scores between the 25% and the 75% quartiles[4] appears to be more homogeneous for the HL group.

Table 3
*Descriptive statistics for somplexity (mean length of T-unit)*

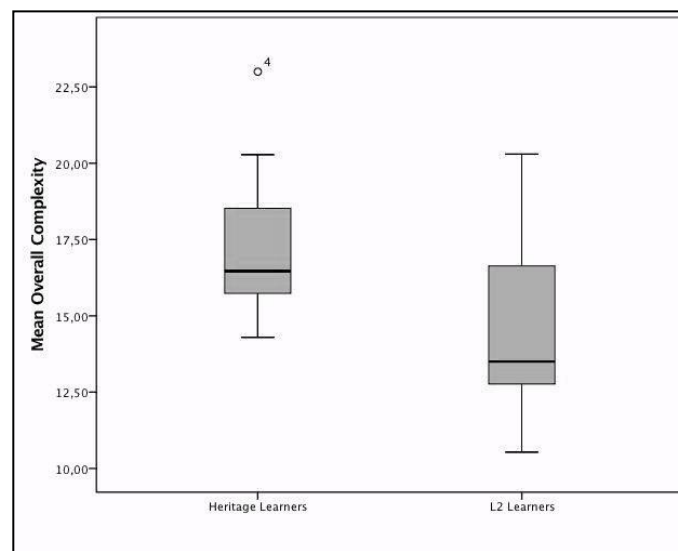| Group | N | M | SD |
|-------|-----|-------|------|
| HL | 18 | 17.31 | 2.16 |
| L2 | 28 | 14.50 | 2.61 |
| Total | 46 | 15.60 | 2.79 |



*Figure 1* Overall complexity results by mean length of T-unit

The second one-way ANOVA, addressing subordination, also revealed a significant effect for condition, $F$ (1, 44) = 11.042, $p$ = .002, $\eta^2$ = .20, observed power = .90, (see Table 4 for descriptive statistics). A closer examination of the box plot (Figure 2) shows how the HL group produced a significantly higher number of clauses per T-unit than their L2 counterparts. In line with the previous analysis (mean length of T-unit), the number of clauses per T-unit produced seems to be more homogeneous among HL learners than L2 learners when considering the 25-75% quartiles.

Table 4
*Descriptive statistics for complexity (subordination)*

| Group | N | M | SD |
|-------|-----|------|-----|
| HL | 18 | 2.03 | .29 |
| L2 | 28 | 1.73 | .30 |
| Total | 46 | 1.84 | .33 |

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[4] In a box plot, the upper and lower quartiles refer to the percentage of scores that fall below that specific quartile (75% and 25% respectively). They help us better understand the distributional characteristics of a group of scores.
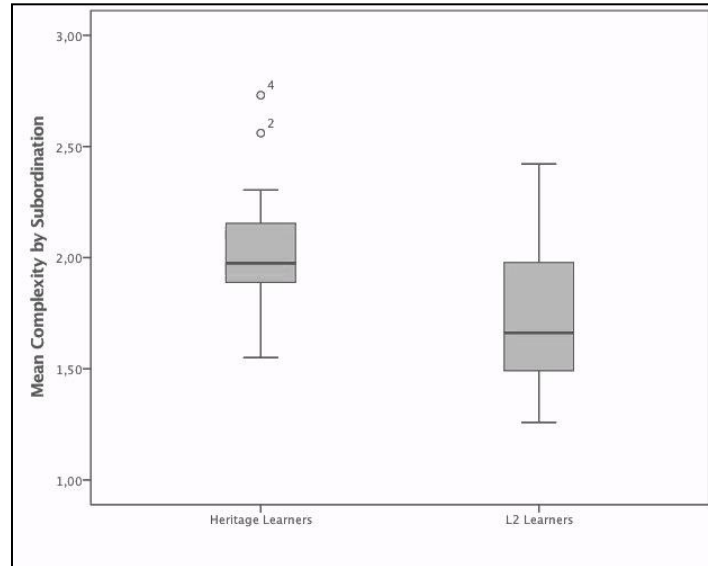
*Figure 2* Complexity results by subordination

The third one-way ANOVA, addressing phrasal elaboration, yielded no significant difference in the mean length of clause produced by either group, $F (1, 44) = .332$, $p = .57$, $\eta^2 = .007$, observed power = .087 (see Table 5 for descriptive statistics). The box plot (Figure 3) reveals how both groups (HL and L2) performed equally well when observing the median and the distribution of scores in the 25% and 75% quartiles.

Table 5
*Descriptive statistics for complexity (phrasal elaboration*)

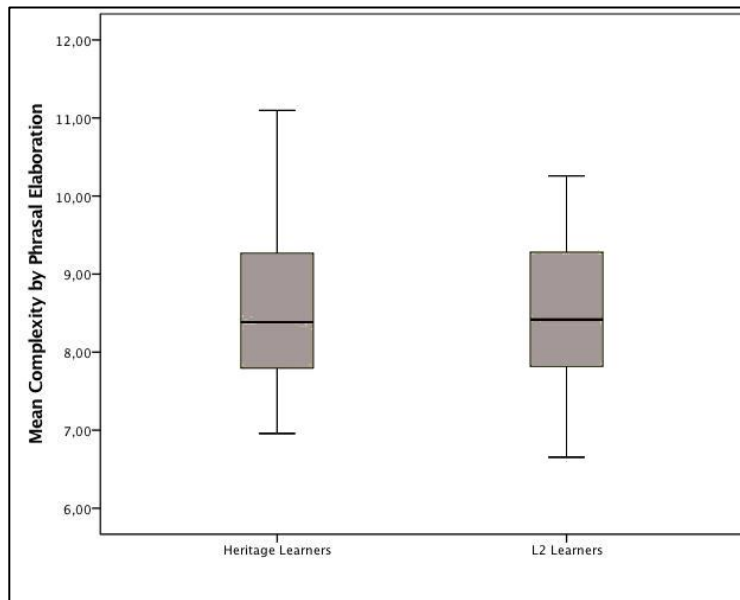| Group | N | M | SD |
|-------|-----|------|------|
| HL | 18 | 8.62 | 1.10 |
| L2 | 28 | 8.44 | .94 |
| Total | 46 | 8.51 | 1.00 |



*Figure 3* Complexity results by phrasal elaboration

### 6.2 Response to research question 2

*Do advanced HL and L2 learners differ in writing proficiency as measured by accuracy when exposed to an untimed semi-guided writing task?*

In order to respond to RQ2, a one-way ANOVA was conducted with condition (HL and L2 groups) as independent variables, and error-free clauses as the dependent variable. The analysis revealed a significant effect when the production of error-free clauses by both groups was compared, $F$ (1, 44) = 14.345, $p$ = .00, $\eta^2$ = .25, observed power = .96 (see Table 6 for descriptive statistics). The HL group appeared to significantly outperform the L2 group in the production of error-free clauses, as shown in Figure 4. The 25-75% quartiles yielded a more even distribution for the HL group, with a roughly similar number of participants above and below the median.

Table 6
*Descriptive statistics for accuracy (error-free clauses)*

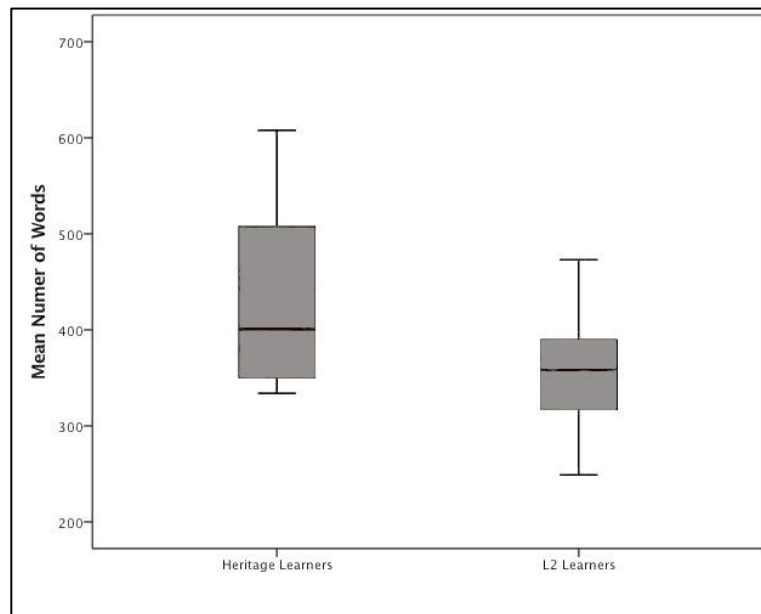| Group | N | M | SD |
|-------|-----|-------|-------|
| HL | 18 | 68.04 | 19.60 |
| L2 | 28 | 49.66 | 13.35 |
| Total | 46 | 56.85 | 18.28 |



*Figure 4* Accuracy results by error-free clauses

### 6.3 Response to research question 3

*Do advanced HL and L2 learners differ in writing proficiency as measured by fluency when exposed to an untimed semi-guided writing task?*

A one-way ANOVA was performed with condition (HL and L2 groups) as independent variables, and total number of words as the dependent variable, in order to examine whether the number of words produced by each group significantly differed from each other. The analysis yielded a significant difference, with the HL group outperforming their L2 counterparts, $F$ (1, 44) = 9.815, $p$ = .003, $\eta^2$ = .18, observed power = .86 (see Table 7 for descriptive statistics). The box plot (Figure 5) reveals a higher median in the production of words by the HL group, and it also shows a more even distribution of word production for this group when looking at the 25-75% quartiles, while the L2 group production seems to be more homogeneous when observing these same quartiles.

Table 7
*Descriptive statistics for fluency (Total number of words)*

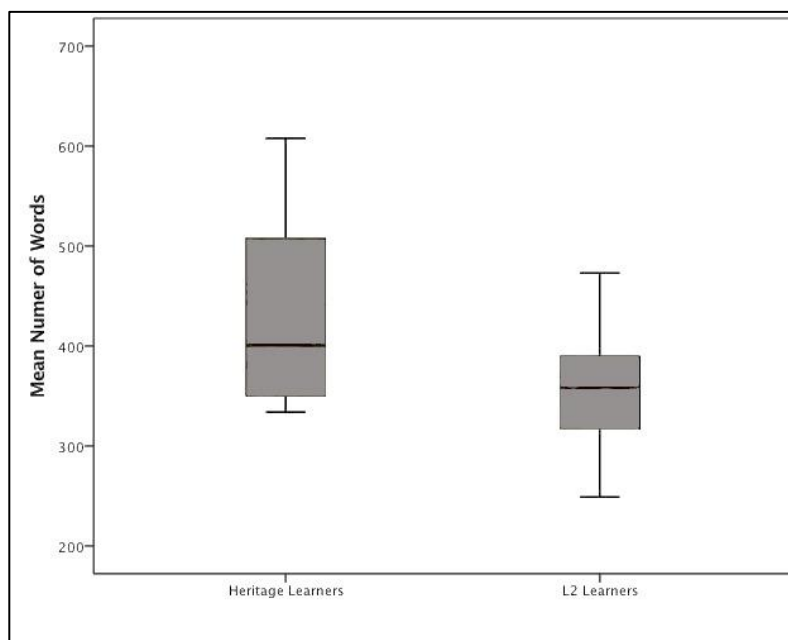| Group | N | M | SD |
|-------|-----|--------|-------|
| HL | 18 | 427 | 90.12 |
| L2 | 28 | 360.14 | 54.93 |
| Total | 46 | 386.30 | 77.25 |



*Figure 5* Fluency results by number of words.

## 7. Discussion

Contrary to some of the findings in the literature published to date, the current study suggests that Spanish HL learners outperformed L2 learners of Spanish in written production when exposed to an untimed semi-guided written task. Analyses of complexity showed that Spanish HL learners significantly outperformed L2 learners in two of the three measures employed: mean length of T-unit and subordination. It has been claimed in previous studies that one of the sturdiest tools that HL learners have at their disposal to develop their writing skills are their strong oral skills, and that drawing from these would put HL learners at an advantage over L2 learners. However, as Chevalier (2004) pointed out, syntactically, conversational and informal speech are very different from writing, as they are characterized by the use of coordination rather than subordination, and they often display "a loose stringing together of phrases without connectives" (Chafe, 1982, p. 37) in which ideas are grouped into intonational units that do not express more than one idea at a time. Contrary to what the findings of Chevalier and others would predict, in the present study, HL learners were able to produce a great amount of subordinate clauses (an average of 2.03 clauses per t-unit), in contrast to the average of 1.73 produced by L2 learners. Therefore, strong oral skills would be unlikely to predict the complexity by subordination that HL learners' writing displayed in this study.

One of the possible explanations for these results could lie in the population targeted in this study. These HL learners were advanced students attending post-secondary education and taking advanced classes in Spanish. They had taken an average of 1.81 classes in Spanish in a post-secondary institution; therefore, all of them have been exposed to academic Spanish and have completed written homework and assignments prior to participating in this study. This could suggest, as Montrul (2010) stated, that if HLs have "time to develop the underdeveloped skills through instruction, they should be able to catch up with educated native speakers if that is what their linguistic goal is" (p. 18). Also, while it could be hypothesized that HL learners outperformed L2 learners because they might have dedicated more time to achieve native-like proficiency

through instruction, another possible explanation lies in HL learners' early exposure to Spanish, which could give them an initial advantage over L2 learners. In addition, the fact that these HL learners are taking Spanish language and content courses at the college level might reflect a desire to improve their Spanish skills by achieving biliteracy. That said, any assumption regarding L2 development throughout time should be interpreted with caution, as this is not a developmental study and data were collected at one point in time, with no pre-post design.

Another possible explanation for these somewhat unexpected results could lie in the intersection between the knowledge that HL and L2 learners possess and the type of task employed in this study. As has been discussed previously in the literature, L2 learners who have learned Spanish in the classroom setting tend to outperform HL learners on written tasks that require high levels of metalinguistic awareness. As stated before, HL learners are better at oral tasks that minimize metalinguistic knowledge (Bowles, 2011; Montrul, 2010). High levels of metalinguistic awareness and explicit knowledge might not have been relevant for the type of assignment employed in this study: a non-academic, semi-guided and rather spontaneous written assignment in which both L2 and HL learners had to write about a topic quite familiar to 18-21 year-old college students. Therefore, the type of task might have played a role in the findings obtained, and it could be possible that this more spontaneous type of task could have tapped into more implicit knowledge, for which HL learners have been empirically shown to have an advantage over their L2 counterparts. HL learners might have also felt less intimidated to talk about a familiar subject, which could have led to a more syntactically complex, accurate, and lengthy piece of writing. It is also important to remember that with regard to accuracy, only morphosyntactic errors were taken into consideration, and not spelling or orthographical errors. The inclusion of these aspects could show a more detailed picture of a learner's writing proficiency. Additionally, previous research has shown that HLs write differently when dealing with free or with academic writing. Martinez (2007) showed that in free writing, HL learners use overt-pronouns (not very common in Spanish) less often than in academic writing. In that study the author attributed this difference to the effects of transfer, and in the case of this task, HL learners relied more on the native-like knowledge of Spanish rather than on the rhetorical traditions of the dominant language.

Even so, while the type of knowledge used by L2 and HL learners in long written assignments (rather than in oral tasks) remains an empirical question to be addressed, it would be safe to assume that an untimed composition would pose an advantage for L2 learners, especially with regards to accuracy. HL learners are notorious for deviations from standard registers in Spanish. Specifically, HL learners tend to have many deviations from Spanish formal registers when it comes to the use of the subjunctive, clitics, or tense, aspect, and mood (TAM). On the other hand, L2 learners would have been expected to have an advantage in this area, as their metalinguistic knowledge might have helped them avoid this type of mistakes. Given the present findings, it could be argued that L2 learners were not committing much attention to accuracy, as the assignment was not part of the curriculum of the class they were taking. However, as Skehan (2009) pointed out, a trade-off hypothesis would predict that attention to one area would cause lower performance in another. This could have predicted that if HLs and L2 learners had a similar written proficiency, HL learners would have outperformed their L2 peers in some areas, while the opposite would have happened in other aspects of language. For example, L2 learners' lack of attention to accuracy would have resulted in longer texts. However, results in this study show otherwise, as HL learners produced longer texts and still outperformed L2 learners in most of the measures, contradicting Skehan's hypothesis.

Another explanation for why HL learners might have outperformed L2 learners could be related to the fact that this particular population of heritage learners possess a higher explicit metalinguistic knowledge than HL participants in other studies, as they attend advanced content and language classes in Spanish, and they have been exposed to a certain amount of explicit grammatical instruction (although all the classes employ a communicative approach in which explicit grammatical instruction is reduced to a minimum). As HL participants in many previous studies were enrolled in classes of a lower level of proficiency, it is hard to establish a firm comparison with the findings at hand, but a higher proficiency level appears to be indicative of better overall results.

L2 learners, on the other hand, having acquired the language through formal instruction (none of them had studied abroad or learned the language through immersion), could have tried to approach the task with the same tools they approach other academic tasks. However, it should also be noted that despite the focus on more academic tasks at the most advanced levels, L2 learners have previously gone through more basic levels (i.e., beginners), where the type of tasks/activities employed is rather non-academic. Therefore,

the type of task, academic vs. non-academic, could play a role in the results observed, but it is unclear whether a more academic task would benefit L2 learners over HL learners.

To conclude, the proficiency level of HL learners, the type of knowledge elicited, and the type of task employed in the present study could have all played a role in the overall advantage that HL learners showed over their L2 peers.

## 8. Pedagogical implications

The findings of the present study have strong implications for L2 and HL teaching practitioners and program directors alike. First of all, the significantly different results obtained in all but one of the measures examined reveal that under the same type of task (untimed semi-guided writing task), HL learners performed better than their L2 counterparts. Thus, it would seem reasonable to suggest that each group might need language curricula/programs tailored to their specific needs, or at least different types of written assessments and tasks should be tailored for these students, as exposure to the same task in the present study elicited different performances. Previous research has warned about the necessity to differentiate between these two groups of learners (e.g., Acosta, 2013; Beaudrie, 2006; Chevalier, 2004) when designing language course curricula, as it is becoming gradually the norm (and not the exception) to implement HL programs alongside regular L2 programs (Bowles & Montrul, 2014; Valdés, 1997). In this study, HL learners who were at a comparable curricular stage as L2 learners, benefited from a less controlled type of task. However, as previous studies have shown (e.g., Bowles, 2011), in more controlled type of writing tasks, HL learners appear to be outperformed by their L2 peers.

One implication of these findings is that a bigger emphasis should be placed on those areas where L2 and HL learners each struggle the most. In this case, L2 learners could benefit from further practice with less controlled writing tasks of a non-academic topic. In the same way, HL learners could benefit from being engaged in extra-practice in more controlled writing tasks with a focus on grammar (Bowles, 2011; Potowski et al., 2009). Providing each group of learners with the practice necessary to improve in particular areas could potentially reduce existing differences. Finally, any pedagogical implication derived from this study should keep in mind participants' advanced proficiency level, where both groups have had several semesters of exposure to Spanish in a formal setting. This may have helped to level out prior differences in proficiency. Any curricular design adapted to HL or L2 learners' needs should be aware of the proficiency level. Finally, as Mikulski and Elola (2011) suggested, heritage courses should begin with less academic writing tasks and gradually move towards the inclusion in the course curricula of more advanced, academic tasks, once HL learners have mastered the use of other complicated structures (e.g., subjunctive, clitics) that they might need to incorporate in their writing.

## 9. Limitations and further research

One limitation of the present study is found in the pool of participants and the courses they were enrolled in. For HL learners, more than half of the sample was enrolled in upper-advanced (content) courses, while about two thirds of the L2 learners were enrolled at advanced (language) courses at the time of data collection. This difference in the number of participants enrolled in one or another level might have possibly benefited the HL population, as a higher percentage of them was enrolled in upper-advanced courses.

A second limitation is related to the way in which accuracy was measured. While it can be argued that all approaches to measuring accuracy have their drawbacks, in the present study the methodology employed did not account for the difference between a T-unit with one error or with more than one, and it did not distinguish between minor or severe errors. An additional limitation concerning the pool of participants is found in the variability within the heritage learners, as five of them were 1.5 generation (those who arrived in the United States at the ages of 6-11), and the remaining 13 were second generation HL learners. As in many other studies involving HL learners, their linguistic background is usually more heterogeneous than the L2 population. Also, although it was attempted to maintain the same level of proficiency in both HL and L2 participants by inquiring about language use, using self-perceived proficiency questionnaires, and enrolling only those attending advanced language courses, actual enrollment in these courses was determined by an oral proficiency examination for the heritage speakers, while more rigorous criteria for L2 participants were required. A proficiency examination prior to data collection would have been ideal, but was not possible to administer due to time constraints. An additional and final limitation resides in

the use of CAF to measure writing proficiency. For instance, we can take a closer look at the following writing excerpt produced by one of the HL participants:

> Sin los teléfonos celulares, tendríamos que esforzarnos más para completar cosas cotidianas de las cuales ya ni nos damos cuenta, como conseguir el teléfono de mi compadre para invitarlo a la carne asada o encontrar la dirección de un restaurante en un pueblo que no conozco.

Certainly, this is a highly syntactically complex and accurate paragraph, but it might fall short on a lexical analysis (i.e., vocabulary), like the use of "cosa" (thing) instead of a more appropriate word, and if this happened to be a more academic type of task, the use of "compadre" (buddy) would be incorrect for the expected register. Therefore, it is important to take into consideration that language learning and language use is much more complex than the measures of CAF are capable of accounting for, as these two lexical elements were not captured by these measures. It is important to note that this is not just a limitation affecting this study, but rather, any study that employs CAF measures to obtain an overall idea of an L2/HL learner's writing skills.

Further research could build from the present design and take different directions. First, a future study could consider HL learners' type of courses completed (language vs. content), the HL generation (first, 1.5, second, etc.) or other bio-data reported in the background questionnaire and analyze them in relation to the results obtained. Such an approach could offer the reader with a finer-grained analysis where he or she could actually see how CAF findings break down when these background characteristics are added to the equation.

As it was argued in the discussion section, the type of task used in this study could have tapped more into learners' implicit knowledge, and thus may have benefited HL learners. Further studies could add a more academic task into the design and examine whether the findings observed differ in relation to the type of task employed and the target population.

Additionally, further studies could go beyond CAF and address other linguistic components, such as lexicon or spelling errors. While previous studies have looked into these aspects of language with HL learners (e.g. Beaudrie, 2012), no study to date has examined them together with CAF. An analysis of other linguistic levels could present us with a richer perspective of the learner's overall writing proficiency.

Finally, it seems natural to want to have ratings of writing quality so as to be able to address an interesting additional question: Can we say that teachers or human raters (blinded to the HL or L2 membership of the writers) score the HL writing higher than the L2 writing, given the findings for CAF? So, a good addition to the CAF measures would be a measure of writing quality by human raters/teachers, to actually observe whether the human assessment actually supports the ratings obtained by CAF. Ideally, those human raters should not be familiar with CAF measures or with its related literature, to make the writing correction and rating more objective.

## 10. Conclusion

The present study addressed the issue of CAF, that is, complexity, accuracy, and fluency, comparing how two different groups of learners, heritage vs. L2, performed on a writing task. Results yielded an overall significant advantage for the HL group, as it outperformed the L2 group in two of the three measures analyzed within complexity (mean length of T-unit and subordination), as well as in accuracy and in fluency. The importance of the present findings lies in the fact that this is the first study to date to examine the issue of CAF in HL learners on a written task, thus contributing to the existing literature on the specific needs of HL learners in academic contexts. More specifically, these results suggest that at a high level of proficiency, HL learners are able to outperform L2 learners, which contradicts what previous studies have found when examining learners with lower levels of proficiency. This trend, which should be interpreted in light of the limitations detailed in the previous section, will hopefully open new paths of research for future studies that want to further investigate the issue of heritage learners, so that a more complete picture of their acquisition process can be obtained.

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# Appendix A

**WRITING TASK 1**

**Actividad de escritura: Los teléfonos móviles**
En un estudio realizado por la empresa surcoreana Samsung se estimó que la mayoría de las personas escribe casi a diario con el teléfono móvil (o *Smartphone*), superando a la escritura a mano. Entre algunas de las conclusiones del estudio, podemos destacar las siguientes:

| Datos: | Sí | No |
|---|---|---|
| Escribir menos a mano desde adquisición de un *Smartphone.* | 75% | 25% |
| Usar Smartphone como bloc de notas con mucha frecuencia. | Personas menores de 30 años. | Personas mayores de 30 años. |
| Enviar largos mensajes románticos a través del teléfono. | 20% | 80% (escribe a mano) |
| Echar de menos abrir cartas. | 85% | 15% |

Imagina que trabajas para el periódico local, y te piden que escribas un artículo sobre los cambios que la sociedad ha experimentado desde la llegada de los teléfonos inteligentes. En este texto debes incluir lo siguiente:

- **Introducción**: incluye los datos del estudio, da contrastes.
- **Nostalgia**: Comenta sobre todo lo que creas que hemos perdido debido a la presencia de la tecnología y en especial los teléfonos móviles, puedes hablar de temas sobre la nostalgia, pero también sobre la pérdida de privacidad.
- **Advertencia**: Aquí debes opinar sobre cómo sería la vida si no tuviéramos teléfonos, y cómo crees que cambiaría tu rutina sin los *Smartphones* y la tecnología de hoy.
- **Conclusión** (el futuro): ¿Cómo crees que estos cambios seguirán evolucionando de aquí a una década o dos?

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