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Sound Familiar? Heritage Learners, Phonological Awareness and Literacy Skills

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Abstract

This study explores the impact of the unique motivation and language skills of low-proficiency heritage learners on their performance in dictation tasks. A total of 24 beginner learners of L2 German were monitored for one semester while completing a dictation task in an intelligent computer-assisted language learning (ICALL) environment at a Canadian university. All native speakers of English, the participants were grouped by relationship to the target language community: 12 L2 heritage learners had at least one German parent, and 12 non-heritage learners had neither a German parent nor had travelled to a German-speaking country. Extensive computer log files, augmented by student questionnaires, were examined for learner behaviour and performance patterns. Results indicate that heritage learners on average made significantly more spelling mistakes and were more likely to access additional resources to complete the task than non-heritage language learners. This leads to a tentative conclusion that any benefit of motivational differences, phonological awareness and/or acuity from childhood L2 exposure is outweighed by literacy skills far below their communicative competence. The results of this study add to the growing body of research demonstrating that heritage learners have distinct learner behaviours and language skill sets and their pedagogical needs should be considered separately from traditional foreign language learners in the classroom.

1 Introduction

Heritage language learners (HLLs) commonly experience L2 exposure in their home as children with at least one parent who speaks the language in question (Campbell & Rosenthal, 2000).[1] However, once they begin school in the dominant language of the society, their proficiency in the heritage language diminishes to varying degrees (Lee, Jang, & Seo, 2009). Unlike traditional L2 language students, heritage learners have acquired a large portion of the phonological system, some grammar, sociolinguistic rules and a limited vocabulary as children, but have not learned to read and write in the ancestral language (Campbell & Rosenthal, 2000). Additionally, the primary language of the home and community may significantly differ from the standard language taught in the classroom (Kagan & Dillon, 2012). For instance, Lam (2006) reports on the discrepancy between teaching standard Vietnamese mostly spoken in Northern Vietnam to a large population of heritage language learners who have been exposed to the Southern dialect in their home. Heritage language learners can be generalized to have strong verbal skills in a colloquial register or

dialect, but under- or completely undeveloped literacy in their heritage language (Carreira & Kagan, 2011; Loewen, 2008).

Heritage learners come into the classroom with a skill set that differs from traditional L2 learners. They also have a distinct set of expectations and goals that may not be best served in the traditional language classroom. Carreira (2004) explains that a heritage language learner's relationship to the target language community brings them to the classroom for very different reasons than those of the traditional foreign language learner. Noels (2005) finds that HLLs are motivated by issues of self-concept, and a wish to integrate further into the language community. She believes that these motivations usually lead to higher commitment to long term study. The connection that an HLL has to the target language creates both benefits and challenges for their learning journey.

These differences in skills and motivations result in an ill-fit for heritage language learners in traditional L2 classrooms. For instance, the more traditional language learning classroom generally focuses equally on all four language skills (i.e. speaking, listening, reading, and writing) and thus does not address the special needs of heritage learners. This may affect their extrinsic motivation (see Section 2.1), specifically their desire to strengthen their connection to the heritage community, as heritage learners may not feel challenged enough by a mainstream curriculum that does not address their concerns with identity, culture and language issues (see Polinsky & Kagan, 2007). Conversely, traditional L2 learners (TLLs) may feel intimidated by the more developed speaking and listening skills of their heritage learner classmates (Campbell & Rosenthal, 2000; Loewen, 2008).

While strategies like dual stream programs have been developed for learners at the intermediate and advanced levels (Titus, 2012), little attention has been given to HLLs who are assessed as low proficiency. Noels (2005) and Carreira (2004) both argue that low proficiency HLLs share the same motivational orientation as those with high proficiency. In addition, placement tests that do not take heritage learners into account (i.e., those that are based solely on written competency) may not be accurate, and self-reporting of proficiency may not be exact either (Campbell & Rosenthal, 2000). Many scholars suggest that an exploration of new assessment approaches (e.g., learner background questionnaires, oral proficiency testing) might be beneficial (see e.g. Kagan & Dillon, 2012; Norris & Ortega, 2012). Little data have been gathered to determine whether the differences present between HLLs and TLLs in the beginning level classroom translate into significant behavioural and performance differences.

Dictation tasks require both listening skills (HLL strength) and literacy skills (HLL challenge). While a variety of writing tasks can be used as literacy teaching and assessment tools for intermediate or advanced learners, they are not appropriate at the beginner level. Previous studies have selected dictation to look at the literacy skills of intermediate HLLs of Korean (Pyun & Lee-Smith, 2011) and Mandarin (Xiao, 2006).

For an entire semester, we monitored 24 beginner L2 learners of German at a Canadian university while completing a dictation task in an intelligent computer-assisted language learning (ICALL) environment. All native speakers of English, the participants were grouped by connection to the target language community: 12 heritage learners had at least one German parent, and 12 non-heritage learners had neither a German parent nor had travelled to a German-speaking country.

In the following, we first situate our study in related research on heritage learners and dictation tasks. We then introduce our study by describing participants, task, and methodology. The results section provides an examination of the phonological awareness and literacy skills of our heritage and traditional language learners. Discussion of the results focuses on pedagogical implications of the findings. The article concludes with comments on the limitations of the study and opportunities for further research.

2 Theoretical background

The literature defines a heritage language learner in a number of different ways. One of the most frequently quoted definitions goes back to Valdés (2000), who refers to heritage learners as

"individuals raised in homes where a language other than English is spoken and who are to some degree bilingual in English and the heritage language" (p. 375). In contrast to focusing on measurable proficiencies, Van Deusen-Scholl (2003) defines individuals who "have been raised with a strong cultural connection to a particular language through family interaction" as learners "with a heritage motivation" (p. 222). Carriera (2004) collects them all under a broad umbrella organized into four functional categories based on the sociolinguistic profile for the language community, the learner's place in the heritage community, family background, and language proficiency. More specifically, Carriera's (2004) first category (HLL1) includes learners who are primary members of an ethnic community looking to preserve their culture through language, as exemplified by many first nations groups. HLL2 is populated by learners with secondary group membership, who wish to validate their identity through the language. A Canadian student who enrolls in a Gaelic course because her grandparents emigrated from Ireland would be an HLL2. Learners belonging to HLL3 have communicative proficiency and some literacy skills, with a desire to increase and maintain their language abilities. Finally, HLL4s may be more closely connected to the heritage community than HLL2s, but due to little or no formal education in the heritage language, they find themselves at the low end of the continuum for linguistic skills, and in need of identity affirmation. The current study adopts Carriera's (2004) classification, with category 4 (HLL4) as our focus of interest.

2.1 Linguistic and sociolinguistic challenges for heritage learners

Heritage learners differ from traditional L2 learners (TLLs) in both the skill set with which they enter the classroom and the factors that draw them there. Noels (2005) investigates differences in the motivations of HLLs and TLLs in university L2 German classes. She uses the motivation frameworks from Clément (1980), Gardner (1985), and Ryan and Deci (2000) to describe motivation for heritage language learners. Ryan and Deci's (2000) intrinsic-extrinsic scale describes interpersonal orientation within the classroom, while an integrative scale describes intergroup orientation, meaning whether the learner is motivated by a desire to integrate into the speech community.

On the intrinsic-extrinsic scale, Noels (2004) finds heritage learners to have extrinsic motivation, with identified regulation. This means that they are motivated to learn the language in order to attain a goal outside the classroom that is connected to their sense of self (Ryan & Deci, 2000). Noels also finds HLL motivation to have a strong integrative orientation toward the language. In other words, these learners feel a need to identify with members of the target language community. Their level of motivation is independent of proficiency, stemming instead from social relations. Noels argues that even an HLL2 with no exposure to the target language will have a motivational profile more like other heritage learners than like traditional learners. This is in contrast to TLLS, who generally find their motivation through intrinsic personal fulfilment and interpersonal relations within the classroom (Ryan & Deci, 2000). According to Noels (2005), HLLs also have higher perceived autonomy, competence and relatedness to the target culture than TLLs. This orientation is conducive to consistent and long-term commitment, and greater engagement (Noels, 2005). Campbell and Rosenthal (2000) believe that the unique set of motivations shared by heritage learners mitigates the difficulties of teaching a group that is incredibly varied in linguistic skill levels.

Heritage learners have widely disparate facility in the target language despite having similar backgrounds (Chevalier, 2004). Though these learners are exposed to the language in their home as children, once they begin school in the dominant language of the society, their proficiency in the heritage language diminishes to varying degrees (Campbell & Rosenthal, 2000). In a study of acquisition and attrition among child and adult heritage speakers of Korean, O'Grady, Lee and Lee (2011) find attrition of form-meaning mappings for less salient and less frequent grammatical constructions. Unlike TLLs, most heritage learners have acquired a degree of phonological, grammatical, sociolinguistic and lexical knowledge as children, but have not learned to read or write in the ancestral language (Campbell & Rosenthal, 2000). All or most of their learning has taken place in

the "home and hearth" register (Chevalier, 2004). This has limited their access to vocabulary, formal styles, discourse devices and syntactic structure (Chefe, 1982, cited in Chevalier, 2004; Titus, 2012). These learners are dependent on non-linguistic and prosodic cues for meaning (Chevalier, 2004), and rely on aural cues for spelling and writing (Loewen, 2008). These gaps cause several problems for teaching HLLs in the classroom. Foreign language teachers are not currently equipped for initial language assessment and placement of HLLs, nor understanding the cultural, historical, and linguistic contexts that define them (see also Kagan & Dillon, 2008). Researchers generally agree that the more fundamental differences between the language proficiency of HLLs and TLLs are at the onset of instruction (see Kagan & Dillon, 2012; Montrul, 2008; Rifkin, 2002).

2.2 Dictation tasks

In addition to studies that have found differences between HLLs and TLLs through the use of dictation tasks as assessment tools, two recent studies suggest that dictation is a useful teaching device for HLLs. These learners experience difficulties with spelling and grammar due to aural interference, which involves the mismatch between colloquial spoken and more formal written language as well as between sounds and spelling (Loewen, 2008). Attrition of grammatical and syntactic forms with low frequency of exposure also occurs to varying degrees (O'Grady et. al, 2011). Many scholars believe dictation to be helpful for listening comprehension, writing skills, and vocabulary practice (Rahimi, 2008). In his study of Iranian EFL students, Rahimi (2008) finds that dictation is not very helpful in the areas of listening comprehension or grammar, but does observe improvement in reading and vocabulary skills over time. Even opponents to the usefulness of dictation concede that it does measure spelling ability and offers practice at listening comprehension (Rahimi, 2008).

Due to little or no exposure to the written form of the target language, HLLs write the way they speak (Pyun & Lee-Smith, 2011). Loewen (2008) explains that HLLs rely on vernacular pronunciation of words and phrases, which can diverge considerably from standard spelling. This leads to myriad spelling errors, omission of particles and other grammatical mistakes (Loewen, 2008; Pyun & Lee-Smith, 2011).

In addition to aural interference, language attrition also causes writing difficulties for HLLs of all levels (O'Grady et. al, 2011). There are language structures that occur with very low frequency, creating input deficits during acquisition. Once exposure to the language ceases or diminishes, the lowest frequency forms are the first to fade (O'Grady et. al, 2011).

Previous studies have found that grammar and spelling errors are more prevalent and pattern differently for HLLs than TLLs of Russian (Kagan & Friedman, 2004; Loewen, 2008), Korean (Lee et. al, 2009; O'Grady et. al, 2011; Pyun & Lee-Smith, 2011), and Mandarin (Xiao, 2006). Sauvignon (1982) also finds spelling difficulties to be a major difference between TLLs of French and participants who learned in "'natural' and immersion settings" (p. 36).

Titus (2012) believes that one way to bridge the gaps between the advanced speaking and listening skills of HLLs and the literacy skills they need is practice with dictation tasks. Through her work with Russian heritage learners, she finds that dictation helps to solidify grammar rules, can be used to draw attention to particular features, and makes a good diagnostic tool (Titus, 2012). Pyun and Lee-Smith (2011) also find that systematic dictation activities can help HLLs to "develop linkages between their separate skills of listening and writing" (p. 156). They also note that dictation within an ICALL environment makes the task more learner-centred. More studies are needed to determine if dictation is beneficial to HLLs across languages and scripts. Further investigation is also necessary to ascertain whether any benefits apply across categories and proficiency levels of HLLs.

To summarize, the literature review provided above paints a picture of heritage language learners that is starkly different from that of traditional second language learners. Even though HLLs form as much of a heterogeneous group as TLLs do, HLLs cannot be assumed to function identically to TLLs in the L2 classroom given their distinct skill sets, their different set of expectations

and goals, and their divergent motivations for language learning. One major area where heritage learners struggle, especially at the beginner level, is with writing and spelling. The studies mentioned above indicate that dictation may be beneficial for HLL literacy skills, particularly, for spelling of vocabulary items. As for their motivation, they are drawn to the language classroom in order to affirm their identity within the target speech community (Carriera, 2004). Regardless of their proficiency level, HLLs desire to improve their language ability in order to strengthen ties to the community (Noels, 2004). Their sense of connection gives them a higher perceived competence in the language, and a greater likelihood of maintaining effort over a longer period of language study (Noels, 2004).

It is important to examine the low-proficiency heritage language learners separately within the classroom context rather than assume they will experience the same benefits from traditional SLA approaches as traditional learners do. Detailed studies of how practice with dictation tasks affects the performance of low-proficiency HLLs over time are still needed, especially how HLLs may differ from TLLs in computer assisted learning tasks, which is the focus of our current investigation.

3 Research questions

In our research, we are generally interested in the impact of the unique motivational orientation and literacy skills of beginner heritage learners on their performance and behaviour in a dictation task. More specifically, we have pursued the following research questions:

1. Do traditional language learners outperform heritage language learners on a dictation task?
2. Do heritage learners make more use of additional resources than traditional language learners when completing a dictation task?

4 Methodology

4.1 Study participants

A total of 24 learners of L2 German, all native English speakers, participated in our study. According to an online pre-questionnaire consisting of 11 questions regarding their vital statistics, language and cultural background, 12 participants were classified for the purposes of this study as heritage learners (HLLs) by having at least one parent who speaks German,[2] while the remaining 12 who had neither a German parent nor had travelled to a German-speaking country were classified as non-heritage learners or traditional L2 learners (TLLs). In the HLL group, there were seven females and five males with an age range of 17–22 (avg. 18.4), while the TLL group consisted of seven females and five males, aged 18–23 (avg. 19.67).

The 24 study participants were all enrolled as beginner learners in their first semester of L2 German. Their language proficiency was determined by a university placement test prior to course enrolment.

4.2 Task, data collection and analysis

Throughout a semester of 13 weeks, as part of their homework assignments, students completed a dictation task which consisted of a dialogue relating to the content of the four chapters of the beginner language course. The dictation task is part of the e-tutor, an online ICALL system for L2 German that is integrated into the students' regular curriculum (for a detailed description of the ICALL program, see Heift, 2010). From a pedagogical perspective, the e-tutor is a comprehensive language learning environment with a multitude of exercises for L2 learners of German of all levels, from beginner to advanced. Each chapter of the e-tutor corresponds to a chapter of Deutsch: Na klar! (Di Donato, Clyde, & Vansant, 2008), a textbook commonly used in North America for university L2 learners of German. The exercises cover pronunciation, vocabulary, grammar, writing, listening and reading comprehension as well as cultural information about Germany. For the

purpose of the study, students' interaction with the ICALL system was recorded throughout the semester in order to examine their performance in the dictation exercises of the four chapters of the introductory course.[3]

In the dictation task, students listened to a dialogue in German and then typed out each sentence (see Fig. 1). In total, there were four chapters with 39 individual sentences that students completed during the semester. The dialogue of Chapter 1 consisted of nine individual sentences, Chapter 2 had eight sentences that made up the dialogue, Chapter 3 consisted of 13 sentences, and Chapter 4 had nine sentences. The user interface included buttons for the German graphemes that do not occur on the standard English keyboard in addition to an audio button for the entire dialogue and individual sentences, which students could listen to as often as they desired. In response to student input, the ICALL system also displayed appropriate corrective feedback with a hint about the nature of their mistake to prompt students to correct their input. Moreover, the ICALL system displayed one mistake at a time thus often requiring students to make several submissions until they arrived at a correct answer. Finally, students also had the option to peek at the answer at any time by pressing the SOLVE button (see Fig. 1). Accordingly, students either provided the correct answer by themselves which, in many cases took more than one attempt, or accessed the correct answer by clicking the SOLVE button. In any case, only by providing the correct answer were they able to advance to the next sentence of the dialogue.

Fig. 1. Dictation Task in e-tutor

The e-tutor contains an extensive tracking system: besides a unique student ID and a time stamp, the log records the entire interaction between the computer and the student. This includes the activity type, the student input, the system feedback, and navigation patterns. Accordingly, and after obtaining the students' consent, the e-tutor logged the entire student interaction with the e-tutor system, keeping track of each submission and recording errors as well as correct answers for each exercise the student completed. Moreover, the system also noted when students looked up an answer and thus clicking the SOLVE button instead of trying to figure out the answer by themselves.

5 Data analysis

For the data analysis, both descriptive and inferential statistics were applied.

For the descriptive data of Research Question 1, we counted for each student the number of unique spelling mistakes in each individual target sentence of each chapter by considering all attempts until the student either submitted the correct answer or accessed the answer by clicking the SOLVE button. To normalize the scores over the four chapters, we then divided this number by the total number of individual sentences contained in each chapter dialogue. For instance, Chapter 1 contains 8 target sentences that make up the dialogue. The student made 4 mistakes. Thus the ratio of student errors to the total number of sentences for the dialogue in Chapter 1 equals 0.5 (4/8).

Similarly, for the descriptive data of Research Question 2, we counted the number of times a student looked up the target sentence by pressing the SOLVE button. We then divided this number by the total number of individual sentences contained in each chapter dialogue. For instance, if the student pressed the SOLVE button for 2 of the 8 sentences of Chapter 1, then the average number of times the student looked up the correct answer for Chapter 1 equals 0.25 (2/8) implying that, on average, the student looked up every fourth sentence or one quarter of the target sentences of Chapter 1.

For the inferential statistics, we applied an independent samples t-test to compare the means of the two groups for both Research Questions 1 and 2. In addition, we calculated effect sizes for each research question using Cohen's d.

6 Results

6.1 Research question #1

Our first research question investigated whether our heritage learners in fact do make more mistakes than our traditional learners to complete the 39 dictations that were part of the four chapters of the L2 beginner German course. The data displayed in Table 1 show that, on average, heritage learners made more spelling mistakes to arrive at a correct answer than our traditional language learners. More specifically, while our HLLs made an average of 1.4 (1.4230) mistakes for the four chapters they completed, our traditional learners made an average of only 0.6 (.6495) mistakes. The larger standard deviation (.6400 compared to .2435) also indicates that there is more variation among our heritage learners.

Table 1. Number of errors for the four chapters

Task	Group	N	Mean	Std. Deviation
Chapters 1-4	HLL	12	1.4230	.6400
	TLL	12	.6495	.2435

As for the inferential statistics, an independent samples t-test reveals a significant difference in the mean scores for the two language exposure groups for the four chapters: $t(24) = 3.912$, $p = .001$. These results further indicate a large effect size (Cohen's $d = 1.597$) thus suggesting that early L2 language exposure is a strong predictor for learner performance on our dictation exercises.

6.2 Research Question #2

Our second research question examined whether our heritage learners make more use of additional resources to complete the dictation task. More specifically, we investigated learners' look-

up behaviour of the target sentence by counting the number of times students accessed the correct answer instead of supplying it by themselves.

The descriptive data displayed in Table 2 indicate that our heritage learners accessed the correct answer more often (.2393) than our traditional language learners (.0705). More specifically, while the HLLs looked up approximately every fourth sentence, the TLLs accessed less than 1 in 10 sentences.

Table 2. Number of times students accessed the correct answer

Group	N	Mean	Std. Deviation
HLL	12	.2393	. 2281
TLL	12	.0705	. 0826

As for the inferential statistics, an independent samples t-test reveals a significant difference in the mean scores for the two language exposure groups: $t(24) = 2.410$, $p = .025$. These results further indicate a large effect size (Cohen's $d = .984$) thus suggesting that early L2 language exposure is a strong predictor for learner reliance on additional language resources while completing our dictation exercises.

7 Discussion

Our results generally provide further support for previous literature claiming a gap in literacy skills between heritage language learners and traditional second language learners.

Our first research question investigated whether, on average, our heritage learners make more spelling mistakes producing the correct target sentences on a dictation task than the TLLs. The finding that our group of heritage learners produced significantly more errors is in line with Loewen's study (2008) which suggests that HLLs generally rely on vernacular pronunciation of words and phrases which may lead to myriad spelling errors, omission of particles and other grammatical mistakes. These findings also agree with the observation that heritage language learners are a very diverse group. The much larger standard deviation for our HLL groups is in line with other accounts of heterogeneity (Campbell & Rosenthal, 2000; Carreira, 2004; Chevalier, 2004). However, rather than solely measuring the performance of our students at a definite point in time (e.g., at the end of the experiment), we also compared the overall development of the written language of our HLLs and TLLs throughout the semester while undergoing pedagogical interventions in the form of feedback provided by an ICALL program. We are therefore also considering how the performance of HLLs and TLLs compares over time, that is, whether the interventions affected the two groups equally.

The data in Table 3 display the average number of errors to complete the exercises of the four chapters for each of our 12 HLLs. The final row shows the average number of errors for each chapter for all learners; the final column displays the change in average number of mistakes from Chapter 1 to Chapter 4 for each learner.[4]

The data in Table 3 show that, while there is no steady increase in spelling errors throughout the semester, given the decline in spelling mistakes in Chapter 3, there is an overall increase of 1.29 errors from Chapters 1 to 4 (i.e., from the beginning to the end of the semester). Five HLLs show a marked increase (HLL3, HLL8, HLL9, HLL10, HLL11), four show a slight increase (HLL2, HLL5, HLL6, HLL7), and there are three HLLs (HLL1, HLL4, HLL12) who committed fewer errors in the last chapter compared to the beginning chapter. This variation in performance between participants in the same group is not surprising, given the heterogeneity of heritage language learners, as discussed in Section 2.1.

Table 3. Average number of spelling mistakes for HLLs

Student	Chapter				Change
HLL 1	.50	0.78	0.92	0.44	*-0.06*
HLL 2	0.88	2.33	1.00	1.67	0.79
HLL 3	0.38	2.33	1.69	2.11	1.74
HLL 4	0.88	0.78	1.08	0.78	*-0.10*
HLL 5	0.38	0.44	0.46	1.11	0.74
HLL 6	1.88	1.00	1.23	2.22	0.35
HLL 7	1.00	1.11	1.08	1.56	0.56
HLL 8	0.13	6.89	1.92	2.56	2.43
HLL 9	0.63	2.44	1.77	3.33	2.71
HLL 10	1.38	1.11	0.77	3.11	1.74
HLL 11	0.13	1.78	0.77	4.78	4.65
HLL 12	0.75	1.67	0.54	0.67	*-0.08*
TOTAL	**0.74**	**1.89**	**1.10**	**2.03**	**1.29**

Table 4. Average number of spelling mistakes for TLLs

Student	Chapter				Change
TLL 1	0.50	1.56	0.92	1.11	0.61
TLL 2	*0.38*	*1.33*	*0.46*	*0.33*	*-0.04*
TLL 3	0.38	0.22	0.31	0.56	0.18
TLL 4	0.13	0.44	0.54	0.67	0.54
TLL 5	*0.88*	*0.11*	*0.46*	*0.22*	*-0.65*
TLL 6	0.13	3.00	0.85	0.67	0.54
TLL 7	0.38	0.78	0.38	1.00	0.63
TLL 8	0.13	1.67	0.62	0.89	0.76
TLL 9	0.50	0.89	0.69	0.56	0.06
TLL 10	0.25	0.67	0.46	1.33	1.08
TLL 11	*0.25*	*0.44*	*0.77*	*0.22*	*-0.03*
TLL 12	0.38	0.67	0.54	0.56	0.18
TOTAL	**0.35**	**0.98**	**0.58**	**0.68**	**0.32**

In contrast, the data in Table 4 indicate that our TLLs improved their performance over time more than our HLLs. On average, there was only an increase of 0.32 spelling mistakes from Chapter 1 to Chapter 4. The TLL group also had three students who performed better at the end of the semester than at the beginning. Similarly to the performance of our HLLs, there was no steady increase in the number of spelling mistakes given the decline in spelling errors in Chapter 3. However, the general error rate increase noted for both groups from Chapters 1-4 is likely due to an increase in complexity both in terms of individual words and sentence length thereby making the task more demanding in higher chapters.

Accordingly, our data show that while our HLLs produced more mistakes than our TLLs in each of the four chapters, their performance also developed differently throughout the semester.[5] Our TLLs performed much more evenly than our HLLs, which is reflected in a smaller overall increase in errors from the beginning to the end of the semester thereby suggesting that, despite

early phonological exposure to the target language, even after a semester of instruction, the HLLs' literacy skills are still behind those of traditional language learners. Accordingly, our data do not directly support the assertion by Titus (2012) that dictation is a useful activity for improving literacy skills especially for heritage language learners, given that the average number of spelling errors for the HLL group increased more than for our TLLs throughout the semester.

As for our second research question, we found that HLLs accessed the additional language resources of the e-tutor significantly more often than the TLLs. While higher average spelling mistakes for HLLs may be connected with lower linguistic competence, the markedly higher rate of peeking (i.e. looking up the answer) could possibly be due to motivation issues, that is, frustration over asymmetry in linguistic/communicative competency and/or internal pressure connected to self-identity and performance. Both Noels (2004) and Titus (2012) have noted that HLLs tend to overestimate their listening skills. Another possibility is that the current reality of the L2 classroom may not be providing a mix of activities and resources that sufficiently engage heritage learners. Carreira (2004) cautions that without special measures, HLLs with a close community connection but low linguistic skills "are the most likely… to find language learning to be a profoundly disappointing and invalidating activity" (p. 17). Unfortunately, making connections between motivation/attitudes and performance of heritage learners is beyond the scope of this study as our data are not sufficient and appropriate for such an assessment. However, by investigating learners' access of additional resources (i.e. the correct answer) over the course of the semester, the data in Tables 5 and 6 reveal that, while the TLL group again shows a much more even behaviour throughout the semester, our HLLs accessed the correct answer not only more steadily and frequently for all four chapters, but also the average increase in their access from the beginning to the end of the semester exceeds that of our TLLs, 0.27 and 0.17, respectively.

Table 5. Average number of peeks for HLLs

Student	**Chapter**				**Change**
HLL 1	0.00	0.33	0.46	0.33	0.33
HLL 2	0.13	0.33	0.69	0.56	0.43
HLL 3	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
HLL 4	0.38	0.78	0.77	0.78	0.40
HLL 5	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
HLL 6	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
HLL 7	0.00	0.44	0.23	0.44	0.44
HLL 8	0.00	0.44	0.85	0.56	0.56
HLL 9	0.00	0.11	0.15	0.44	0.44
HLL 10	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
HLL 11	0.00	0.33	0.15	0.22	0.22
HLL 12	0.00	0.22	0.31	0.44	0.44
TOTAL	**0.04**	**0.25**	**0.30**	**0.31**	**0.27**

Table 6. Average number of peeks for TLLs

Student	Chapter				Change
TLL 1	0.00	0.11	0.15	0.33	0.33
TLL 2	0.00	0.11	0.00	0.00	0.00
TLL 3	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
TLL 4	0.00	0.00	0.00	0.22	0.22
TLL 5	0.00	0.00	0.00	1.00	1.00
TLL 6	0.00	0.22	0.46	0.00	0.00
TLL 7	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
TLL 8	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
TLL 9	0.00	0.11	0.00	0.22	0.22
TLL 10	0.00	0.11	0.00	0.22	0.22
TLL 11	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
TLL 12	0.00	0.11	0.00	0.00	0.00
TOTAL	**0.00**	**0.06**	**0.05**	**0.17**	**0.17**

These results are fairly intuitive in that a correlation between the number of mistakes and the access of additional learning resources is likely. Additionally, there are four students in each group who never accessed the correct answer but, instead, provided it by themselves for all four chapters. At the same time, the remaining HLLs show a much larger range of access than the corresponding TLLs.

8 Conclusion and pedagogical implications

The results of this study add to the growing body of research demonstrating that heritage learners have distinct learner behaviours and language skill sets and their pedagogical needs should be considered separately from traditional foreign language learners in the classroom. The data described in our study show that for this group of heritage learners of L2 German, performance in a dictation task in an ICALL environment indicates a lower level of competency in literacy skills than their non-heritage peers. Moreover, practice with dictation did not especially develop and/or improve their literacy skills over the course of a semester. These results lead us to suggest that even at the beginner level of instruction, there is a need for development of heritage language learner-specific curriculum that takes into account HLLs' unique strengths and challenges, motivations, and identities (see e.g. Hancock, 2002).

Approaches that take the global knowledge of heritage language learners into account are considered to be most beneficial because of heritage learners' prior and extensive exposure to language. Such approaches have been termed "macro-approaches" by Kagan and Dillon (2001) who, in their investigations of HLLs, show vastly different pedagogical needs for the two groups. A macro-approach can be otherwise described as a global or top-down approach that builds on learners' initial abilities in speaking and listening. A micro-approach, by contrast, builds competency from the bottom up, by isolating the elements of the language and gradually increasing in complexity. Instructional needs of heritage learners can be best met by "macro-approaches" to curricular and material development by, for instance, focusing on a full range of native language input, discussions, fairly complex texts from the beginning, and emphasizing content over spelling and grammar (see Kagan & Dillon, 2001, p. 6-7). Learner assessment that favours a macro-approach by, for instance, focusing on comprehension over exact spelling will also more accurately address the different skill sets of HLLs. Our data indicate that a dictation task, while possibly supporting

listening comprehension skills, does not seem to aid the spelling skills of HLLs (see also Sauvignon, 1982).

As a preliminary study that explores the performance and behaviour of low-proficiency heritage language learners, our investigation has several limitations and suggestions for further research avenues. Most importantly, our study defined an HLL as a learner who has been raised by at least one German parent. In the absence of additional information, we thus cannot rule out that the student may not have been exposed to the heritage language during childhood despite having a heritage parent. Moreover, as with all studies using a small number of participants, the results of our data may be affected by variation within both groups and, more generally, a t-test becomes less reliable with a small number of participants. A larger variation in the results of our HLLs may also suggest a variation in the length and intensity of exposure to the heritage language.

Immediate directions for further research should include a more detailed pre- and post-questionnaire to connect previous language exposure, attitudes and motivation to specific behaviour. Self-reported data such as think-aloud protocol or journal entries after each exercise would also give valuable insight in this area. Creating a corpus of learner errors for low-proficiency heritage German learners for the analysis and design of dictation tasks to specifically address the most common errors (following the design of Lee et. al, 2009) may yield improved results. Comparison studies that contrast dictation with other tasks will also help toward more effective strategies for supporting heritage learners in the acquisition of literacy skills with the goal to provide a more effective learning environment for these non-traditional language students.

Note

[1] According to Cummins (2005), the term "heritage language" originated in Canada but it has since been replaced by the term "home-background language." However, in many countries the term "community language" is used which, according to Kagan and Dillon (2012), reflects the varying uses and understandings of the term "heritage." For brevity, this article uses the term heritage language and thus heritage language learners.

[2] According to Carreira (2004), this criterion is sufficient to categorize these learners as group 4 heritage language learners. While exposure to the language and possible language attrition will vary widely between individuals, motivational orientation will be similar across individuals.

[3] Student consent to participate in the study was obtained at the beginning of the semester.

[4] Note that a negative change implies a decrease in the number of spelling errors.

[5] Note that the independent t-test for each individual chapter shows a significant difference in spelling errors for all chapters except for Chapter 2. More specifically, the results are: Chapter 1: $t(24) = 2.407$, $p = .025$; Chapter 2: $t(24) = 1.659$, $p = .111$; Chapter 3: $t(24) = 3.519$, $p = .002$; Chapter 4: $t(24) = 3.542$, $p = .002$.

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