

Some good news for the school: the levelling effect of the EFL class in FL vocabulary production and FL categorization of autochthonous learners and heritage speaker learners

Abstract

Several researchers have drawn attention to the educational challenge posed by multilingual classes where students from different linguistic backgrounds coexist. Current institutional initiatives in Europe, but also elsewhere, advocate for the maintenance and promotion of multilingual and multicultural diversity within both monolingual and multilingual classrooms. In this study located in Spain, we were interested in exploring the English as a Foreign Language (EFL) vocabulary production and FL categorization of a group of heritage bilinguals in comparison with their mainstream monolingual peers. Results from a categorization task revealed that on most measures taken, heritage bilinguals, despite being a more heterogeneous group, performed similarly in terms of vocabulary production in general, and as compared against the framework of a standard pre-B1 Cambridge vocabulary list, FL categorization, and typicality structures. The levelling effect of the EFL class is claimed to be accountable for this lack of differences. Furthermore, we dare speculate the generalization of CLIL could play in favour of more inclusive classes where immigrant learners are not left behind and can realise their potential to the fullest.

Keywords: FL vocabulary production, FL categorization, typicality structures, heritage bilinguals

Introduction

Current migratory movements have made it imperative to attend adequately to the new situation created by the growing number of multilingual classrooms. The (English) as a Foreign Language classroom is not alien to this situation. Quite on the contrary, the foreign language classroom is familiar with and encourages intercultural and linguistic diversity and multilingualism (cf. Council of Europe, Companion CEFR 2018). Some of these challenges multilingual classrooms face pertain to how to transit from monolingual FL teaching to paying heed to learners' linguistic repertoires, or how to overcome affective and other-than-linguistic variables in the FL classroom. Two main trends of studies emerge within the field of multilingual classrooms; first those that deal with pedagogical approaches within the classroom (e.g. Busse et al. 2020, Cenoz and Gorter 2021, Cots et al. 2022; Hopp et al. 2022) and second those that set to empirically test bi- or multilinguals learning an additional language (e.g. Cenoz 2013, 2003, de Angelis 2007, Thomas 1988, Edele et al. 2018, Hopp et al. 2019, Lorenz and Siemund 2020, Siemund et al. 2023). The present study fits within the last of these currents. Specifically, it examines how heritage speakers from diverse linguistic backgrounds within a majority language classroom resemble majority speakers in their vocabulary production and semantic categorization.

Heritage speakers as FL learners

Heritage speakers, especially those of migrant origin in Europe, often experience a startling situation at the mainstream school where the learning of foreign languages, such as English, French, German, Italian, Spanish, is enthusiastically encouraged, but the use and learning of their own home languages is neglected and more often than not disregarded as unimportant or worthless (e.g., Busse et al 2020). As a result of this situation, it is not surprising that heritage

speakers might give up their family languages, and perhaps even cultures and identities, for the sake of mainstream adjustment and assimilation (see e.g., Busse et al. 2021). Additionally, most EFL classes in Europe and elsewhere (cf. Cots et al. 2022, Busse et al. 2020) take a monolingual approach to FL teaching, that is, they advocate for language separation in order to avoid interference, for instance, and to gain exposure time. Difficulties and problems dealt with in the classroom are singled out from information derived from the mainstream monolinguals ignoring any other linguistic knowledge present in the class.

Within a European perspective, however, the goal has been for the maintenance and promotion of multilingual and multicultural diversity within both monolingual and multilingual classrooms (Council of Europe 2007, Companion 2018). This multilingualism refers to minority languages, to home languages of heritage speakers, and to mainstream FL, as well. Developing an intercultural competence involves two main approaches, a cognitive one dealing with a recodification of thought and the co-creation of meaning; and second a cultural approach which entails valuing all cultures in similar ways, both the native culture (L1) and any other culture (Ln) (L1+FLn), cooperative learning, and appreciation of diversity (Santamaría 2010: 48-54).

Contrary to what happens in bilingual or multilingual societies, where bilinguals were found at an advantaged position in third language acquisition (e.g., Cenoz 2013, 2003, de Angelis 2007, Thomas 1988), this advantage has not been all so present in learners with migrant backgrounds (e.g., Edele et al. 2018, Hopp et al. 2019, Lorenz and Siemund 2020, Siemund et al. 2023). Socio-economic reasons, lack of formal education in the home language, as well as those related to the social prestige of the home languages have been brandished to hamper migrant learners' acquisition of additional languages at school (see Busse et al. 2021: 2, Lorenz and Siemund 2020, Montrul 2016, Kessler and Paulick 2010). For instance, several studies have explored the processes of additional language acquisition by bilingual heritage speakers revealing that they do not show advantages nor disadvantages as compared to monolingual learners in, for example, general English proficiency (Mägiste 1984), subject omission (e.g. Iverson 2009), EFL reading achievement (Rauch et al. 2012), or verb and adverb-order (Hopp 2018). Heritage learners performed poorer than monolingual counterparts in maintaining FL English word order (Sahingöz 2014), in using the progressive aspect (Lorenz 2018, Lorenz and Siemund 2019), in levels of metalinguistic awareness (Spellerberg 2016) or in performing several measures of grammar learning in early stages of L3 interlanguage development (Pereira Soares et al. 2022). However, when socioeconomic factors are controlled, heritage bilinguals are shown to outperform their monolingual peers in general English proficiency (Maluch et al 2015) or in a battery of measures in EFL such as grammar, listening comprehension, reading, writing (Hesse et al. 2008).

From a crosslinguistic perspective, the majority language has been identified as the main source of influence in L3 acquisition over the heritage language, even if the later was acquired earlier in time (cf. Lorenz and Siemund 2020, Lorenz 2018, Fallah and Jabbari 2018, Hopp 2018). All in all, Lorenz and Siemund (2020) recognize that knowledge of other languages necessarily shapes the acquisition of additional languages, even if it does not manifest in clear advantages. In this vein, Hopp et al (2022) conducted a very interesting study, where they compared language gains in monolingual and heritage bilingual EFL learners deriving from a multilingual and a traditional monolingual EFL teaching approach. They could find no differences in vocabulary and grammar gains but argue that phonological awareness can be a predictor of language development in plurilingual approaches.

From the studies reviewed above, we can conclude that the issue is far from being settled and further research is needed in order to clarify how heritage bilinguals face the task of learning an additional language at school.

Semantic categorization and vocabulary production

Speakers organize their knowledge into categories that have mainly a semantic base, i.e., elements in our experience are grouped together according to their semantic or conceptual similarity. This process is called categorization (cf. Cuenca and Hilferty 1999). Thematic associations, i.e., words that are conceptually and semantically similar, and real-world experience, i.e., objects and elements that appear together in real life situations, are the driving force of the categorization process. Vocabulary knowledge also influences this categorization process, so that an enhanced vocabulary knowledge derives in a more nuanced and extended categorization (cf. Shivabasappa et al. 2017). Additionally, linguistic, and cultural background also determine the internal structure of the categories, since concepts and typical exemplars of the categories might raise a different mental image in the different languages and cultures (cf. Lakoff, 1986; Kövecses 2006).

Take the semantic category *birds* within the broader category *animals*, for instance. Lin, Schwanenflugel, and Wisenbaker (1990) argue that while *parrot* might be a more familiar bird in South America and therefore a typical exemplar of the category, i.e., it would come first in a category generation task, for example. In North America or in Europe other exemplars such as *canary* or *robin* might be more typical and elicited first when generating birds. Previous research has found that speakers of different languages and coming from different cultures and even speakers of different geographical varieties of the same language (e.g. Carcedo 2000) identified different typical members of the semantic categories examined (Aitchison 1992, Núñez Romero 2008), produced different concept to word mappings (e.g. Ameel, Storms, Malt, and Sloman, 2005; Malt, Sloman, Gennari, Shi, & Wang, 1999; Wierzbicka, 1992), or assigned different semantic frames to same or synonym words (Johnson and Pfenninger 2020).

Categorization studies initially focused on native learners producing semantic sets or category members when prompted (e.g. Gougenheim et al. 1956 for French, López Morales 1973 for Spanish, Rosch 1975 for English), and research examined their responses in light of a series of variables such as age (adult vs. children) (e.g. Bjorklund et al. 1983, Shivabasappa et al. 2017), geographical origin and dialect (e.g. Carcedo 2000, Borrego and Fernández 2003), sociolinguistic factors (e.g. Samper 2002), or semantic category (e.g. Manjón Cabeza 2010, Salcedo et al. 2022). Also, studies on semantic categorization comparing monolingual and bilingual learners are frequent. These studies focus on categorization in the shared language of the monolinguals and bilinguals. For instance, Peña et al (2002) found that bilingual children generate different responses or exemplars for the same category in their different languages (English and Spanish), depending on the emphasis each item receives in the corresponding linguistic and cultural environment. However, Ameel et al. (2009) compared bilingual ratings (French and Dutch) with corresponding monolingual ones and showed that bilingual responses were more similar between them than compared to those of the monolingual respondents. Ning, Hayakawa, Bartolotti, & Marian (2020) conducted a study on categorization and showed that Spanish-English bilinguals judged the semantic relatedness between non-obviously related concepts (*cloud-present*) to be higher than English monolinguals did. When comparing bilingual and monolingual speakers' semantic categorization, previous research has shown that bilinguals are slower and produce fewer responses, probably because of between-languages competition (e.g., Portocarrero et al. 2007, Sandoval et al. 2010). So far, we are not aware of any studies that

look into how monolingual and heritage bilingual learners perform in a categorization task in their shared FL.

Especially in FL acquisition and production, examination of how learners organize their lexical material is of crucial interest. The way lexical items are grouped together and how most relevant or typical words are identified influence the retrieval process and concurrently the FL communication process. Some previous studies focused on comparing categorization in a language as the native language and as an L2, their results point to differences in the way learners and native speakers respond to specific semantic categories (e.g., Borododkin et al. 2016, Ferreira and Echeverría 2014, Malt et al. 1999). Other studies addressed the role of different variables such as L2 proficiency (e.g., Samper 2002), gender (e.g., López Rivero 2008), or mental lexicon structure (e.g., Hernández Muñoz et al. 2006). In linguistically diverse classrooms where monolingual/ monocultural learners share time and space with bilingual/ bicultural heritage learners exploring the categorization process and typicality effects is a pursuit worth undertaking. In the present study, we use a category generation task (of the lexical availability task-type) to identify the typical exemplars as the most accessible and most available items, i.e. produced first when prompted by the category (cf. Shivabasappa et al. 2017). This is, to our knowledge, the first attempt at such an enterprise with monolingual and heritage EFL learners.

With these considerations in mind, in the present study we wanted to ascertain if there are any significant differences in vocabulary production and typicality assessment in responses of monolingual and heritage bilingual EFL learners. Specifically, we asked:

1. Are there any quantitative differences in the vocabulary production of the two groups?
2. Are there any qualitative differences, measured through word frequency, in the vocabulary production of the two groups?
3. What are the most typical (frequency and position) responses of learners in both groups in the different semantic categories?

Methodology

This study presents a quasi-experimental design where the vocabulary produced in response to a category generation task of two groups of students is analysed.

Participants

A total of 265 students participated in the study. Eleven grade 12 classrooms across the region were selected to participate in the study. This makes up for over 25% of the total student population at this grade (pre-university preparatory grade, age between 17-18 years) in the region of La Rioja. From these pool of participants, two groups were created; one with those students who had Spanish as their only mother tongue and those who apart from the majority language Spanish, acknowledged having knowledge of another language, which was spoken at home. The first group is formed by 251 participants called “monolingual EFL learners” or local learners; the second group is made up of 14 students, referred to as “heritage speakers EFL learners”. All participants were learning English as a Foreign Language as a school subject within the same classrooms. Their English FL level as per legal regulations of the National and Regional Education Councils is B1.

Despite the imbalance in the sample sizes of the two groups, the ecological validity of the study is very high, because intact classrooms were used and the total of heritage learners of around 25% of the target population of students in year 12 in La Rioja (total amount is around 1,000

students) was identified. Using intact classrooms for research purposes can pose some problems related to internal validity, however they have high ecological validity, which is especially important in educational studies. As can be seen from Table 1, heritage learners display an array of different L1s: Arabic, Romanian, Portuguese, Armenian, Georgian, and Russian. Heritage learners were spread across the 11 classes selected for testing. They did not receive extra tuition in their home languages, but they declare that they speak those languages at home.

The following Table 1 presents participants' characteristics.

	Group 1	Group 2
N	251	14
Grade (Age)	12 (17-18)	12 (17-18)
L1/L2 status	Monolingual	Environmental bilingual
Languages	L1: Spanish FL: English L2	L1s: Spanish + Arabic /Romanian/Portuguese/ Armenian/ Georgian/ Russian FL: English L3
Location	Monolingual community	Monolingual community
EFL proficiency level	B1	B1

Table 1. Participants' characteristics

Instruments

A category generation task was used to gather data from the informants. Specifically, participants had 2 minutes to react to a total of 15 semantic categories and write the first words or lexical items that came to their minds in relation to those categories. No linguistic or other limitations were imposed on the learners. The categories used as prompts were *parts of the body, clothes, the house, to make, food and drink, black and white, sad, school, countryside, town, love, animals, hobbies, professions, hate*. These categories or prompts are part of an instrument used in a larger research project with public funding. Some of these categories such as *food and drink, clothes, the house*, are frequently used in other studies (see e.g., Sámper Hernández 2002, Jiménez and Ojeda 2009), so they allow for convenient comparison. Some of the other prompts used here, such as *love, hate, or sad*, are more novel and have been selected in order to tap into other semantic fields related to emotions, feelings and personal experiences and culture.

Previous studies have also used a task similar to the one used here, but with a time limit of one minute instead of two. For instance, Borodkin et al. (2016), Roghani and Milton (2017) and Milton and Alexiou (2020), just to cite some recent studies, use this type of category generation task to look into the vocabulary production and lexical organization of the participants.

Analyses and procedures

Participants complete the category generation task, pen and paper, in one single class session at their respective schools. The teachers and the researchers were present through the data gathering sessions. Responses were typed in into excel files, one line per response per prompt, and one file per prompt. Data was curated for the purposes of analyses (cf. e.g., Jiménez Catalán and Ojeda Alba 2009).

Data were then submitted to analysis using the *Dispogen* (Echeverría et al. 2006) tools. Thus, we managed to obtain information on the total number of tokens elicited as well as on the types or different words produced by each participant. Means were calculated on the individual basis.

Additionally, types produced by participants were checked and assigned to a frequency level band through the Lexical Frequency Profiler available in www.lextutor.ca.

In order to look into the typicality of responses generated by each of the different semantic categories, we used the lexical availability index put forward by Echeverría and colleagues (2006, *Dispogen* tool). Specifically, this measure is calculated by taking into consideration both the frequency of the word at stake and the position of each of the times it appears in the data, i.e., whether the said word is produced 1st, 2nd, 3rd, and so on in response to the prompt. The exact formula it uses to calculate the availability of a specific word is the following (see Callealta Barroso and Gallego 2016):

$$D(P_j) = \sum_{i=1}^n e^{-2.3 \left(\frac{i-1}{n-1} \right)} \frac{f_{ji}}{I_1}$$

where

n = max. position reached by the word in the sample.

i = position of the Word at the specific test explored.

j = target word index.

e = Euler's number (Napier constant) (2,718281828459045...)

f_{ji} = absolute frequency of word j in position i .

I_1 = number of informants in the sample.

$D(P_j)$ = target word's j availability.

Additionally, we submitted data to descriptive and inferential analysis via SPSS 26.0 in order to gather information about the significance and generalizability of our results, wherever possible.

Results

First, we wanted to look into the quantitative differences and similarities in vocabulary production of local monolingual and heritage bilingual EFL learners. Accordingly, we obtained production of tokens and types from the category generation task. As can be gathered from the figures in Tables 2 and 3, the numbers of total tokens and types are much bigger for monolingual learners, just because of the sheer difference in sample size. However, when examining mean token production, results are very much alike, as can be observed in Figure 1 in a graphical way. Total type production is a measure which can be deceiving with the big differences in sample size that we have here. If tempted to calculate mean figures for type production, we would obtain much higher numbers for the smaller sample. The reason behind might not be heritage bilinguals' higher lexical sophistication, but it most probably lies in sample size and in the nature of the task, which allows for aggregated calculations for type production. Thus, it is not surprising that the bigger group produces more types altogether, nor that the smaller group throws higher average type production, since this group has more room for producing new words unprecedented in the sample thus far. This has to do with the type/token ratio (TTR) and the length of the text produced. Longer texts throw lower TTR, thus in a sample with large

amounts of tokens, type presence is expected to be lower than in shorter texts or samples with fewer tokens (cf. Meara and Miralpeix 2017 for a very thorough account of this problem).

Semantic category	Total tokens	Total types	Mean tokens	Individual Lexical Availability Index (ILAI)
Body	3796	200	15.12	3.23
Clothes	3256	267	12.97	2.72
House	3638	350	14.49	2.53
Make	1679	531	6.68	0.35
Food drink	4616	444	18.4	2.07
Black white	2559	731	10.2	0.38
Sad	2559	868	10.2	0.36
School	5010	728	19.96	2.1
Town	4083	698	16.26	1.5
Countryside	3216	819	12.81	0.68
Love	3684	866	14.67	1.2
Animals	4253	465	16.94	2.8
Hobbies	4053	827	16.14	1.13
Professions	2915	583	11.61	1.24
Hate	2853	1050	11.36	0.37

Table 2. Descriptive results for local monolingual EFL learners

Semantic category	Total tokens	Total types	Mean tokens	ILAI
Body	176	52	12.57	2.07
Clothes	137	51	9.78	1.91
House	170	63	12.14	1.63
Make	81	64	5.78	0.38
Food drink	211	91	15.07	1.2
Black white	152	106	10.85	0.51
Sad	132	116	9.43	0.37
School	238	119	17	1.74
Town	186	104	13.28	1.06
Countryside	109	90	7.78	0.3
Love	185	108	13.21	1.08
Animals	201	81	14.36	2.2
Hobbies	182	104	13	0.83
Professions	156	92	11.14	1.45
Hate	152	122	10.86	0.56

Table 3. Descriptive results for heritage bilingual EFL learners

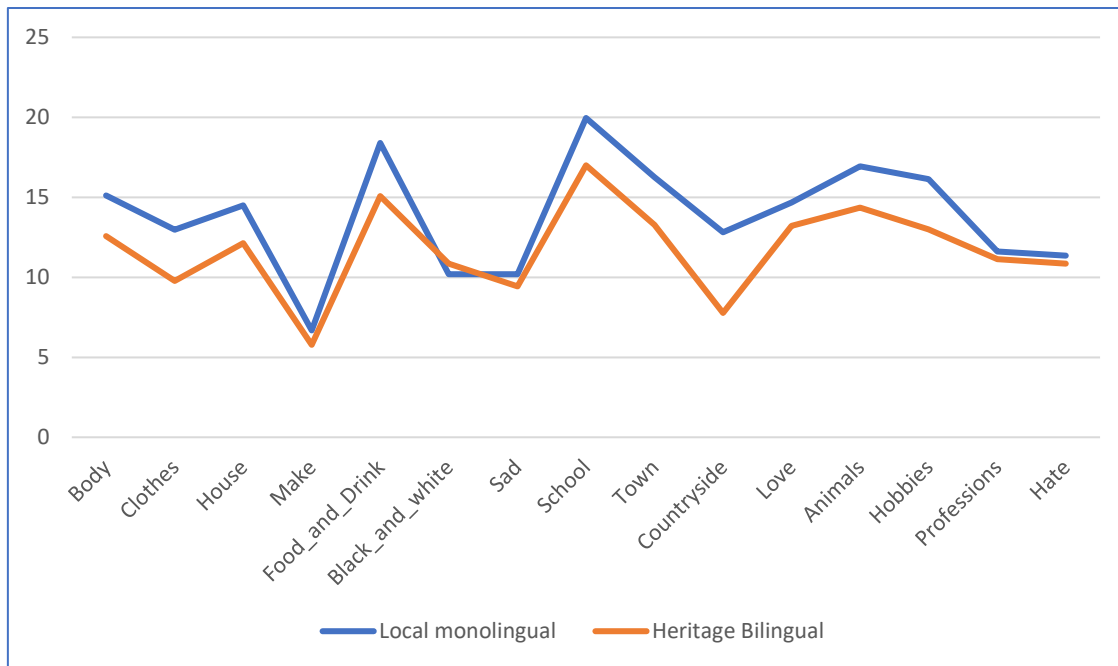


Figure 1. Mean responses (in tokens)

Another interesting measure is the individual lexical availability index (ILAI) which represents the communicability within the sample, i.e., this index intends to measure the lexical contribution of a single participant to the general responses list. It is calculated by comparing the responses given by a single participant with those of the rest of participants and with the general list (López Chávez and Strassburger Frías 1991, Callealta and Gallego 2016). According to the figures in Tables 2 and 3, monolingual learners show higher ILAI means on 11 out of the 16 fields (*body, clothes, house, food and drink, school, town, countryside, love, animals and hobbies*), meaning that the monolingual group has a higher level of communicability in these topics than their heritage counterparts. Additionally, this measure also points to a more homogeneous and more alike organization of the corresponding categories within the monolingual learners.

In order to check for significant differences, we conducted independent samples t-test of means comparison, which was the most appropriate test-type considering the nature of the sample (small group of heritage participants and different group sizes). Results show that there were not significant differences in the production of tokens among learners in the two groups, except for the semantic category of *clothes, food and drink, town, countryside, hobbies* (see Table 4), where heritage learners write significantly fewer responses (means per student). For ILAI, results show that there are significant differences in all semantic categories except for *to make, sad and love* (see Table 5). Only in the semantic categories *black and white, professions and hate* do heritage learners show significantly higher ILAI, i.e., monolingual EFL learners have a harder time communicating about these topics than heritage bilingual learners have. Because of concerns that the disparate sizes of the samples might be influencing results, we conducted additional tests between a randomly selected sample of 14 local participants and the 14 heritage participants. Results, which appear in the Appendix, confirm the general results presented here and point to lack of differences on most of the measures taken and fields analysed (see Appendix Table 4' and Table 5').

Semantic category	F	Sig.	T	df	Sig. (two-tailed)
Body	1.310	.253	1.771	263	.078
Clothes	.339	.561	2.221	263	.027
House	2.343	.127	1.612	263	.108
Make	.009	.926	.964	263	.336
Food drink	4.794	.029	3.355	18.082	.004
Black white	1.058	.305	-.459	263	.646
Sad	.173	.678	.530	263	.596
School	2.731	.100	1.739	263	.083
Town	4.494	.035	2.991	17.261	.008
Countryside	6.528	.011	4.480	18.036	.000
Love	.104	.747	.902	263	.368
Animals	.093	.760	1.738	263	.083
Hobbies	6.138	.014	3.614	19.007	.002
Professions	1.991	.159	.348	263	.728
Hate	1.727	.190	.313	263	.755

Table 4. Tests of between-groups effects for token production

Semantic category	F	Sig.	T	df	Sig. (two-tailed)
Body	5.656	.018	16.194	26.763	.000
Clothes	8.472	.004	13.709	27.689	.000
House	3.040	.082	6.315	263	.000
Make	1.071	.302	-.561	263	.575
Food drink	3.270	.072	6.315	263	.000
Black white	3.098	.080	-2.196	263	.029
Sad	3.822	.052	-.193	263	.847
School	3.857	.051	2.311	263	.022
Town	.095	.759	3.803	263	.000
Countryside	15.931	.000	8.920	28.890	.000
Love	6.659	.010	1.308	17.278	.208
Animals	.635	.426	3.988	263	.000
Hobbies	6.875	.009	5.086	19.850	.000
Professions	1.178	.279	-2.491	263	.013
Hate	.544	.462	-3.480	263	.001

Table 5. Tests of between-groups effects for ILAI

We also wanted to check for qualitative differences in vocabulary production, so we examined the frequency levels of the words produced by members of the two groups and thus answer our second research question. For this comparison, and for the sake of a more balanced distribution of the samples, 14 participants of the local sample were selected randomly. Descriptive results show that mean figures for word responses belonging to the first and second thousand (K1 and K2, respectively) frequency levels are very similar for learners in both groups (see Table 6)¹. The application of the independent samples *t*-test to compare the mean percentages of responses

¹ In order to simplify data comparisons, we randomly selected a subsample of monolingual learners to match the heritage bilingual sample.

at the K1, K2, off-list frequency bands fail to find significant differences among the learners for K2 and off-lists words (see Table 7) but find slightly significant differences for the K1 responses.

	Local-Heritage	N	Mean %	S.D.
K1	Local	14	57.6821	6.43470
	Heritage	14	63.3850	7.87522
K2	Local	14	14.6121	3.08708
	Heritage	14	14.1200	3.10693
Off-list	Local	14	12.4843	5.92346
	Heritage	14	11.3607	3.97814

Table 6. Descriptive results for frequency level of responses produce

Semantic category	F	Sig.	T	df	Sig. (two-tailed)
K1	1.444	.240	-2.098	26	.046
K2	.012	.913	.420	26	.678
Off-lists	3.097	.090	.589	26	.561

Table 7. Tests of between-groups effects for frequency

Finally, we were interested in exploring the typicality of the responses thrown for each semantic category. Typicality can be a matter of distinction between monolingual and (heritage) bilingual learners, because of the multicultural character of the latter. Accordingly, the first ten most typical responses for each semantic category were explored. Results appear in Table 8 with shared responses shaded. From the data in Table 8, we can observe that coincidence ranges from 90%, i.e., 9 out of 10 most typical words coincide in both groups, in the fields of *body* and *clothes*, to 30 % in the field of *countryside*, and 50% in *sad* and *hate*.

Semantic category	Local monolingual		Heritage bilingual	
Body	Eye Nose Head Arm Leg	Mouth Hand Finger Hair Ear	Eye Head Nose Hand Arm	Finger Hair Mouth Leg Foot
Clothes	Tshirt Trousers Jeans Shoe Jacket	Shirt Skirt Trainers Dress Hat	Tshirt Jeans Shoe Trousers Skirt	Jacket Shirt Dress Shorts Hat
House	Kitchen Bedroom Bathroom Livingroom Bed	Garden Table Sofa Door Hall	Kitchen Door Livingroom Bedroom Table	Chair Garage Window Bathroom Bed
Make	Cake Bed Dinner Do Food	Homework Makeup Mistake Friend Made	Cake Do Homework Sport Up	Noise Food Made Dinner Coffee
food-drink	Water Apple	Banana Salad	Water Apple	Spaghetti Banana

	Fish Meat Tomato	Hamburger Spaghetti Chips	Potato Chips Fish	Meat Tomato Cake
black_white	Colour Film Clothes Zebra Red	Blue Yellow Green Night Tshirt	Colour Clothes Photography Green Yellow	Art Red Tshirt Car Film
Sad	Cry Happy Bad Unhappy Tear	Death Dead Feeling Angry Exam	Happy Cry Day Angry Movie	Death Man Unhappy Person Something
School	Teacher Pencil Pen Table Chair	Book Exam Maths Blackboard Pencilcase	Teacher Book Pencil Pen Exam	Student Maths Schoolbag Chair Table
Town	Car House Shop Park People	Street School Townhall Supermarket Cinema	Car Park People House Shop	School Restaurant Supermarket Small Flat
Countryside	Animal Tree River Mountain Cow	Green Flower Grass Farm Horse	Nature Animal People River City	Village Cow House Fresh_air Poor
Love	Boyfriend Girlfriend Heart Family Friend	Kiss Sex Couple Relationship Present	Girlfriend Boyfriend Heart Marriage Couple	Kiss Family Relationship Children Marry
Animals	Dog Cat Bird Lion Cow	Horse Fish Tiger Elephant Snake	Dog Cat Lion Snake Cow	Horse Elephant Bird Giraffe Dolphin
Hobbies	Football Sport Read Music Basketball	Dance Run Swim Sing Tennis	Basketball Draw Study Read Dance	Football Sport Run Swim Paint
Professions	Teacher Doctor Policeman Nurse Lawyer	Fireman Engineer Singer Professor Shop_assistant	Teacher Lawyer Doctor Professor Scientist	Waiter Policeman Singer Nurse Work
Hate	Study Love School Exam People	Fish Homework Enemy Sport Fight	Study School Love People Feeling	Darkness War Fish Animal Bad

Table 8. Ten most typical words per semantic category for local monolingual and heritage bilingual EFL learners

Additionally, in order to look at the impact of bilingualism on the acquisition of English FL in a school context, we scrutinized informants' responses to the fluency task for target words from the Cambridge Vocabulary List (B1 Preliminary for Schools 2021), henceforth CVL². At least 8 fields could be identified that overlapped with our semantic categories. These were *animals*, *food and drink*, *the house (house and home)*, *hobbies (hobbies and leisure)*, *school (education)*,

² Available online under <https://www.cambridgeenglish.org/images/506887-b1-preliminary-2020-vocabulary-list.pdf>.

professions (work and jobs), town (town and city (minus buildings)), and countryside. The number of CVL words that appear in students' responses were tallied for each of the 8 fields. Result revealed very different word coverages for the different semantic categories, ranging from means of 12 CVL word types in informants' responses to *animals*, for instance, to 1 or 2 CVL instances in *countryside* or *hobbies*; but no significant differences for the target groups (local and heritage learners) (see Table 9 for descriptive data and Table 10 for inferential results of the t-tests). Results also reveal that the number of CVL instances in the data is significantly correlated to the number of responses per participant (token production) (see Table 11).

	CVL (n.)	Local (mean CVL words in responses) (s.d.)	Heritage (mean CVL words in responses) (s.d.)
Animals	61	11.95 (3.949)	11.29 (4.531)
Food and Drink	160	11.84 (4.628)	10.43 (2.954)
School	85	7.30 (3.110)	6.07 (2.200)
Town	39	6.3 (2.87)	4.7 (4.13)
Countryside	35	1.791.797)	0.86 (1.610)
Professions	146	7.27 (5.814)	6.79 (3.286)
House	152	10.71 (4.061)	9.29 (3.604)
Hobbies	66	1.94 (1.473)	1.71 (1.267)

Table 9. Descriptive results for the appearance of CVL words in students' responses (individual data)

	T	Sig. (bilateral)
CVL_animals	.610	.543
CVL_fooddrink	1.125	.262
CVL_school	1.455	.147
CVL_town	1.344	.201
CVL_countryside	1.905	.058
CVL_professions	.309	.757
CVL_house	1.287	.199
CVL_hobbies	.562	.574

Table 10. Inferential results of t-tests for local and heritage learners' CVL words in semantic categories responses

	Pearson r	Sig. (bilateral)
CVL/tokens_animals	.650	.000
CVL/tokens_fooddrink	.841	.000
CVL/tokens_school	.680	.000
CVL/tokens_town	.554	.000
CVL/tokens_countryside	.539	.000
CVL/tokens_professions	.362	.000
CVL/tokens_house	.845	.000
CVL/tokens_hobbies	.497	.000

Table 11. Correlations between tokens produced per semantic category and presence of CVL words of the same category in the responses

It is interesting to note, that the semantic category *town and city* in CVL includes a slightly different target than the plain semantic category *town* of our fluency task, since the former does not include words relating to buildings such as *hospital, university, train station, bank, supermarket, factory, shop, cinema*, and so on which appear under a different category; but are subsumed under the single category *town* in our task. Accordingly, we combined the categories *town and city* and *buildings* in order to more accurately be able to compare with our semantic category *town*.

Another interesting observation made during the curation of the data refers to the different conceptualizations of the category *countryside*. In the CVL, *countryside* is defined by words relating to the maritime field such as *seaside, isle, beach, ocean, sand, port*, highlighting thus the insular character of the United Kingdom. In our data, although those maritime words are not altogether absent, other more rural words are preferred such as *flower, grass, farm, mountain* disclosing thus the inland origin of our informants. Special notice deserves the word *railway*, which features in the CVL countryside, since trains are so distinctive of the British (rural) landscape, but which is absent from our data (*train* is mentioned by only two students).

Discussion

Results from the present study show lack of significant quantitative and qualitative differences, in the responses elicited by local monolingual and heritage bilingual EFL learners in most of the measures taken. This lack of differences points to learners in both groups displaying similar levels of vocabulary production in most semantic fields and also similar categorization skills and typicality effects, despite their disparate linguistic and cultural backgrounds.

Significant differences in most of the thematic categories as concerns the ILAI point to local learners being a more homogeneous group and having it easier to communicate in the FL within the group, in the sense that they use the same or very similar lexical items to define specific semantic categories or scenarios, in other words, their categorization of specific fields has very high intragroup resemblance. Heritage learners, on the contrary, display more heterogeneity in how they define and narrow down the components or members of a category, i.e., the lexical items they use to respond to the different categories is more varied within the group, it has more intragroup variability. Besides, they tend to resort to more frequent words which are also more easily accessible. This result is not surprising and just comes to reinforce the idea that the heritage group of learners is more heterogeneous, thus reflecting the diverse linguistic and cultural backgrounds of its members, together with their more varied life and linguistic experiences before schooling.

It is interesting to note that learners base their categorization decisions not only on linguistic data or linguistic encoding but also on the contextual information available at the time a category item is experienced (cf. e.g., Rosch 1978). In this sense, although heritage bilinguals have some different linguistic and cultural background from local counterparts, the context when and where they are experiencing the category is the same, and this clearly influences how they conceptualize their categories. This idea can account for lack of differences in categorization in both groups. Communicative setting and purpose can affect categorization to some extent. This result is in line with Barsalou's (1987) observation (see also Medin, Lynch, Coley, and Atran 1997) that speakers construct category representations "on the fly". Additionally, the previous experiences and personal characteristics of learners need to be considered when explaining and interpreting this result. Specifically, in fields related to

emotions and personal experiences such as *sad*, *love*, or *hate*, it is reasonable to expect more differences among the participants than in more specific fields such as *body*.

A special note merits the category *countryside*, where monolinguals and heritage bilinguals display quite different behaviours. This result is worth further interpretation. We believe that differences spotted in *countryside* can be traced back to the idiosyncratic lifestyle and geographical configuration of Spain, which makes it different from experiences in other places. In Spain, due to historical and economic reasons, most of the population originally coming from rural areas emigrated to bigger towns and cities so that nowadays only around 15.9% of the Spanish population lives in rural areas as of 2020³. However, most people still have links to their rural origins and keep family homes (second home, holiday home) in those rural areas, or *villages* in Spanish. Accordingly, for most of the population, holidays and festivities (mainly summer) imply visits to those family homes in the village, in the countryside. This experience has conformed a semantic category with very specific and idiosyncratic conceptual members, which not always find counterparts in other languages or cultures. In Fillmore's terms (e.g., 2008) learners from different cultural and linguistic backgrounds might have different semantic frames for the semantic category *countryside*, i.e., expected connections and word meanings are interpreted differently. We believe this is what makes this category so special and justifies why differences were systematically found here and not in other categories.

Other lack of differences can be interpreted in terms of the overriding effect of schooling, and specifically the EFL classroom. Shared curricula, objectives, assessment, teaching contexts and classroom space have a levelling effect among learners from linguistically diverse backgrounds. Cultural and linguistic differences seem to be bridged in the EFL class and autochthonous and heritage learners' performance is absolutely comparable. Our results concur with Siemund and Lechner (2015) who could not find advantages for bilingual heritage speakers in secondary education, whereas advantages were found with younger participants. Other studies also failed to find differences in the linguistic performance of heritage bilinguals in mainstream monolingual classrooms (e.g., Mägiste 1984, Hopp 2018) pointing to EFL classes paving the paths towards inclusiveness for immigrant learners. The levelling effects of common schooling might account for that. Additionally, the potential benefits of the heritage language (knowledge thereof for positive transfer, for instance) may not be working because students fail to recognize this facilitative effect due to lack of formal education or explicit teaching of similarities. Likewise, we could also attest lack of significant differences in the instances of CVL words that appear in students' responses in each of the semantic categories analysed, which again points to the enormous levelling effect schooling and EFL classes are exerting on the learners' linguistic development.

In this sense, our results may be an advocate for CLIL or immersion programs in those places where immigrant or heritage population is big. Even multilingual CLIL approaches, such as one subject in English and another in French or German are desirable, since these multilingual approaches seem to rule out any possible differences between local monolingual and heritage bilingual learners and are beneficial for learners coming from disparate backgrounds. This basically means that in a CLIL science classroom in English, for instance, both local and heritage learners start off from the same linguistic condition, whereas in a traditional science class in the local language, e.g., Spanish, local learners might have a linguistic advantage over heritage

³ Source: Ministry of Agriculture, Fisheries and Food, https://www.mapa.gob.es/es/ministerio/servicios/analisis-y-prospectiva/ayp_demografiaenlapoblacionrural2020_tcm30-583987.pdf.

speakers, which CLIL in the FL rules out. Additionally, we believe that pedagogical translanguaging and plurilingual approaches might be beneficial as well, creating thus real plurilingual environments in the classroom and heeding the learners' different linguistic backgrounds. In this sense, Hopp et al. (2022) reached two very relevant conclusions, first that plurilingual FL teaching does not compromise proficiency development in the foreign language, and second, in plurilingual FL teaching majority-language and minority-language learners have comparable proficiency gains. These seem reasons enough to advocate for inclusive, carefully conducted, plurilingual approaches in secondary school.

We also agree with Bonnet and Siemund (2018) in the claim that multilingual classrooms are an asset and not a threat to the successful development of foreign languages in educational contexts. Cross-linguistic comparisons in the form of cognates, metaphorical or cognitive resources, conceptual approaches to the extra-linguistic reality, identity construction, or mediation (e.g., for meaning negotiation) can be examples of how to use multilingual resources in the FL classroom. Intercultural or multicultural mediation with student mediators stands as a very interesting resource in linguistically diverse classrooms to help raise metalinguistic awareness, foster positive transfer (maybe through pedagogical translanguaging? (see Cenoz and Gorter e.g. 2021)), introduce other cultures in the mainstream class, and increase learners' motivation. In this respect, Busse (2020: 386-7) believes that heritage learners' success in the English EFL class might result in learners, especially minority speakers, develop L2 and multicultural ideal selves which might further lead to a motivation, and a desire to continue developing their intercultural competence and learn other FLs (as the result of the successful experience).

Conclusion

The highly increasing number of linguistically heterogeneous classrooms, where many learners have knowledge of more than one language, typically the majority language plus a minority language learned at home, has arisen the need to address the possible differences of these bilingual learners and their monolingual counterparts in their FL outcomes. This paper has presented a study with high ecological validity, which shows that local monolingual and heritage bilingual learners perform similarly in a semantic categorization task. Findings have revealed that monolingual learners are a more homogeneous group altogether with higher production numbers in some of the semantic categories analysed, and a lexical repertoire of balanced frequency bands. However, despite being more heterogeneous, the heritage bilinguals show similar categorization and typicality structures as their local monolingual counterparts. Moreover, both groups of learners showed the same ratios of CVL words produced in their categorization responses.

From our study, we are tempted to assume that the EFL class is acting as an inclusive environment for immigrant students, where they show similar levels of EFL vocabulary proficiency, and which has allowed to pinpoint the similar semantic structure of the local monolingual and heritage bilingual learners' lexicon. And this is, definitely, good news for the school, which is acting as a levelling, equalising environment, where students can feel included, safe in their diversity, and positive of their development and progression opportunities.

References

Aitchison J. (1992) *Good Birds, Better Birds and Amazing Birds: The Development of*

- Prototypes. In: Arnaud P.J.L., Béjoint H. (eds.) *Vocabulary and Applied Linguistics*. Palgrave Macmillan, London.
- Ameel, E., Malt, B. C., Storms, G., & Van Assche, F. (2009). Semantic convergence in the bilingual lexicon. *Journal of Memory and Language*, 60, 270–290.
- Ameel, E., Storms, G., Malt, B. C., & Sloman, S. A. (2005). How bilinguals solve the naming problem. *Journal of Memory and Language*, 53, 60–80.
- Barsalou, L. W. (1987). The instability of graded structure: Implications for the nature of concepts. In U. Neisser (Ed.), *Concepts and conceptual development: Ecological and intellectual factors in categorization*. Cambridge: Cambridge University Press.
- Bjorklund, D. F., Thompson, B. E., & Ornstein, P. A. (1983). Developmental trends in children's typicality judgments. *Behavior Research Methods & Instrumentation*, 15, 350–356.
- Bonnet, Andreas & Peter Siemund (eds.) (2018). *Foreign language education in multilingual classrooms*. Amsterdam: Benjamins.
- Borodkin, K., Kenett, Y. N., Faust, M., & Mashal, N. (2016). When pumpkin is closer to onion than to squash: The structure of the second language lexicon. *Cognition*, 156, 60–70.
- Borrego, J. & Fernández, C. (2003). ¿En qué cambia la Universidad la disponibilidad léxica de los preuniversitarios?. In en F. Moreno et al. (eds.), *Lengua, variación y contexto. Estudios dedicados a Humberto López Morales*, Madrid, Arco/Libros, vol. I, 167-178.
- Busse, V., J. Cenoz, N. Dalmann, & F. Rogge. (2020). Addressing Linguistic Diversity in the Language Classroom in a Resource-Oriented way: An Intervention Study with Primary School Children. *Language Learning* 70, 382–419.
- Busse, V., McLaren, L.M. & Dahm, A. (2021). Responding to migration-related diversity in the classroom: a comparison of diversity-sensitive approaches to stimulate word acquisition in early FL teaching, *Journal of Multilingual and Multicultural Development*, DOI: 10.1080/01434632.2021.2005611
- Callealta Barroso, F., & Gallego Gallego D. (2016). Medidas de disponibilidad léxica: comparabilidad y normalización. *Boletín de Filología*, 511, Santiago, Chile.
- Carcedo, A. (2000). La lengua como manifestación de otredad cultural (o convergencia intercultural), *Espéculo*: Universidad Complutense de Madrid. <https://pendientedemigracion.ucm.es/info/especulo/ele/carcedo.html>
- Cenoz, J. (2003). The additive effect of bilingualism on third language acquisition: a review. *International Journal of Bilingualism*, 7 (1), 71-87.
- Cenoz, J. (2013). The Influence of Bilingualism on Third Language Acquisition: Focus on Multilingualism. *Language Teaching* 46 (1), 71–86.
- Cenoz, J. & Gorter, D. (2021). *Pedagogical translanguaging. Elements in language teaching*. Cambridge: Cambridge University Press.
- Cots, JM., Gallego-Balsà, L. & Llanes, A. (2022). Promoting translanguaging (or not) in the ESP classroom: An analysis of monoglossic and heteroglossic practices and discourses. *System*, 107, 2022,
- Council of Europe. (2018). *Common European Framework of Reference for Languages: Learning, Teaching, Assessment: Companion Volume with new Descriptors*. <https://rm.coe.int/cefr-companion-volume-with-new-descriptors-2018/1680787989>.
- Cuenca, M.J. & Hilferty, J. (1999). *Introducción a la lingüística cognitiva*. Barcelona: Ariel.
- De Angelis, G. (2007). *Third or additional language learning*. Clevedon: Multilingual Matters.
- Echeverría, M., Urzúa, P. & Figueroa, I. (2005). *Dispogen II. Programa computacional para el análisis de la disponibilidad léxica*. Concepción, Chile: Universidad de Concepción.
- Edele, A., S. Kempert, & K. Schotte. (2018). Does Competent Bilingualism Entail Advantages for the Third Language Learning of Immigrant Students? *Learning and Instruction* 58, 232–244.
- Fallah, N. & Jabbari, A. (2018). L3 acquisition of English attributive adjectives. Dominant

- language of communication matters for syntactic cross-linguistic influence. *Linguistic Approaches to Bilingualism* 8, 193–216.
- Ferreira R. & Echeverría, M. (2014). Lexical Availability of Basic and Advanced Semantic Categories in English L1 and English L2. In R. M. Jiménez Catalán (ed.) *Lexical availability in English and Spanish as a Second Language*. Springer: Dordrecht Heidelberg New York London. 15-35.
- Fillmore, Charles J. (2008). Frame semantics. In Geeraerts, D. (ed.), *Cognitive Linguistics: Basic Readings*, Berlin, New York: De Gruyter Mouton. 373-400.
- Gougenheim, G., Michéa, R., Rivenc, P. & Sauvageot, A. (1956). *L'élaboration du français élémentaire. Etude sur l'établissement d'un vocabulaire et d'une grammaire de base*. Paris, Didier.
- Hernández Muñoz, N, C. Izura & A. W. Ellis. (2006). Cognitive aspects of lexical availability. *European Journal of Cognitive Psychology* 18, 734-755.
- Hesse, H. G., K. Göbel, & J. Hartig. (2008). Sprachliche Kompetenzen von mehrsprachigen Jugendlichen und Jugendlichen nicht-deutscher Erstsprache. In Klieme, E. (ed.), *Unterricht und Kompetenzerwerb in Deutsch und Englisch. Ergebnisse der DESI-Studie*, Weinheim, Germany: Beltz. 208–230
- Hopp, H. (2018). Cross-linguistic influence in the child L3 acquisition of grammar: Sentence comprehension and production among Turkish-German and German learners of English. *International Journal of Bilingualism*.
- Hopp, H., M. Vogelbacher, T. Kieseier, & D. Thoma. (2019). Bilingual Advantages in Early FL Learning: Effects of the Minority and the Majority Language. *Learning and Instruction* 61, 99–110.
- Hopp, H., Thoma, D., Kieseier, T., Jakisch, J., & Sturm, S. (2022). Early plurilingual foreign language teaching in mixed classrooms: Linguistic and metalinguistic predictors of foreign language development among majority-language and minority-language students in EFL classes, *System*, doi: <https://doi.org/10.1016/j.system.2022.102828>.
- Iverson, M. (2009). Competing SLA hypotheses assessed: Comparing heritage and successive Spanish bilinguals of L3 Brazilian Portuguese. In: Pires, A. and Rothman, J. ed. *Minimalist Inquiries into Child and Adult Language Acquisition: Case Studies across Portuguese*. Berlin, New York: De Gruyter Mouton. 221-244.
- Jiménez Catalán, R. M., & Ojeda Alba, J. (2009). Girls' and boys' lexical availability in EFL. *ITL Journal of Applied Linguistics*, 158, 57-76.
- Johnson, T. & S. E. Pfenninger (2020). Tasty words: Using frame semantics to enhance consumer liking of potato chips and apples. *International Journal of Applied Linguistics*, 31, 79–94.
- Kessler, J.-U., & Paulick, C. (2010). Mehrsprachigkeit und schulisches Englischlernen bei Lernern mit Migrationshintergrund. In Ahrenholtz, B. (ed.), *Fachunterricht und Deutsch als Zweitsprache*. Tübingen: Narr. 257-278.
- Kövecses, Z. (2006). *Language, mind and culture: a practical introduction*, Oxford: Oxford University Press.
- Lakoff, G. (1987). *Women, Fire, and Dangerous Things*. Chicago: University Of Chicago Press.
- Lin, P.-J., Schwanenflugel, P. J., & Wisenbaker, J. M. (1990). Category typicality, cultural familiarity, and the development of category knowledge. *Developmental Psychology*, 26, 805–813.
- López Chávez, N. & Strassburger Frías, M. (1991). *Un modelo para el cambio del índice de disponibilidad léxica individual*. San Juan. Universidad de Puerto Rico.
- López Morales, H. (1973). *La disponibilidad léxica de los escolares de Puerto Rico*. MS
- López Rivero, E. (2008). *Estudio de disponibilidad léxica en 43 estudiantes de ELE*, Memoria de máster en Enseñanza del Español como Lengua Extranjera, Universidad Antonio de Nebrija.
- Lorenz, E. (2018). One day a father and his son going fishing on the Lake. A Study on the use

- of the progressive aspect of monolingual and bilingual learners of English. In Andreas Bonnet & Peter Siemund (eds). *Foreign Language Education in Multilingual Classrooms*. Amsterdam: John Benjamins Publishing Company. 331–357.
- Lorenz, E., & Siemund, P. (2019). Differences in the Acquisition and Production of English as a Foreign Language: A Study of Bilingual and Monolingual Students in Germany. *International Research on Multilingualism: Breaking with the Monolingual Perspective*.
- Lorenz, E., S. Rahbari, U. Schackow & P. Siemund. (2020). Does bilingualism correlate with or predict higher proficiency in L3 English? A contrastive study of monolingual and bilingual learners. *Journal of Multilingual Theories and Practices* 1. 185–217.
- Mägiste, E. (1984). Learning a third language. *Journal of Multilingual and Multicultural Development*, 5(5), 415-421.
- Malt, B. C., Sloman, S. A., Gennari, S., Shi, M., & Wang, Y. (1999). Knowing versus naming: Similarity and the linguistic categorization of artifacts. *Journal of Memory and Language*, 40, 230–262.
- Maluch, J. T., S. Kempert, M. Neumann, & P. Stanat. (2015). The Effect of Speaking a Minority Language at Home on FL Learning. *Learning and Instruction* 36: 76–85.
- Manjón-Cabeza Cruz, A. J. (2010). Aproximación a la organización semántica del léxico sobre juegos y diversiones. *Estudios de lingüística*, 24, 199-224.
- Meara., P.M., & Miralpeix, I. (2017). *Tools for Researching Vocabulary*. Bristol: Multilingual Matters.
- Medin, D. L., Lynch, E. B., Coley, J. D., & Atran, S. (1997). Categorization and reasoning among tree experts: Do all roads lead to Rome? *Cognitive Psychology*, 32, 49-96.
- Milton, J. and Alexiou, T. (2020). Vocabulary Size Assessment: Assessing the Vocabulary Needs of Learners in Relation to their CEFR Goals. In Dodigovic, M. and Agustín-Llach, M.P. (eds.). *Vocabulary in Curriculum Planning. Needs, Strategies and Tools*. Palgrave Macmillan. 9-28.
- Montrul, S. (2016). *The acquisition of heritage languages*. Cambridge University Press.
- Ning, S., Hayakawa, S. Bartolotti, J. and Marian, V. (2020). On Language and Thought: Bilingual Experience Influences Semantic Associations. *Neurolinguistics*. 56:100932.
- Núñez Romero, L. (2008). Presencia de elementos culturales en el léxico disponible en E/LE de una muestra de estudiantes arabófonos. In J. Villatoro (ed.), *Actas del Segundo Congreso Virtual sobre E/LE. La red como espacio de colaboración*, vol. I, 267-279.
- Peña, E. D., Bedore, L. M., & Zlatic-Giunta, R. (2002). Category generation performance of bilingual children: The influence of condition, category, and language. *Journal of Speech, Language, and Hearing Research*, 45, 938–947.
- Pereira Soares, S.M.; Kupisch, T.; & Rothman, J. Testing Potential Transfer Effects in Heritage and Adult L2 Bilinguals Acquiring a Mini Grammar as an Additional Language: An ERP Approach. *Brain Sciences*, 12, 669.
- Portocarrero, J.S., Burreight, R.G., & Donovick, P.J., (2007). Vocabulary and verbal fluency of bilingual and monolingual college students. *Archives of Clinical Neuropsychology* 22 (3), 47715–422.
- Rauch, D. P., Naumann, J., & Jude, N. (2012). Metalinguistic awareness mediates effects of full biliteracy on third-language reading proficiency in Turkish–German bilinguals. *International Journal of Bilingualism*, 16(4), 402–418.
- Roghani, S. and Milton, J. (2017). Using Category Generation Tasks to Estimate Productive Vocabulary Size in a Foreign Language. *TESOL International Journal*, 12 (1): 143-159.
- Rosch, E. (1975). Cognitive representations of semantic categories. *Journal of Experimental Psychology: General*, 104 (3), 192–233
- Rosch, E. (1978). Principles of Categorization, in Eleanor Rosch & Barbara B. Lloyd (eds.), *Cognition and Categorization* (Hillsdale, NJ: Lawrence Erlbaum Associates): 27-48.

- Şahingöz, Y. (2014). *Schulische Mehrsprachigkeit bei türkisch-deutsch bilingualen Schülern: Eine Analyse von transferinduzierten Wortstellungsmustern*. PhD Dissertation. Universität Hamburg. URL: <http://ediss.sub.uni-hamburg.de/volltexte/2018/9128/>.
- Salcedo-Lagos, P., Pinacho-Davidson, P. Pinninghoff, A. Kotz, G. & Contreras, R. (2022). An Approach to Emotions Through Lexical Availability. In J. M. Ferrández Vicente et al. (Eds.): *IWINAC 2022*, LNCS 13259. 433–442.
- Samper Hernández (2002). *Disponibilidad léxica en alumnos de español como lengua extranjera*, Málaga: ASELE.
- Sandoval, T.C., Gollan, T.H., Ferreira, V.S., & Salmon, D.P., (2010). What causes the bilingual disadvantage in verbal fluency? The dual-task analogy. *Bilingualism: Language and Cognition* 13 (02), 231–252.
- Santamaría, R. (2010). *La competencia sociocultural en el aula de español I2/le: una propuesta didáctica*. ASELE Colección Monografías, 2010, n.13.
- Shivabasappa P., Peña E. D., & Bedore L. M. (2017). Typicality effect and category structure in Spanish–English bilingual children and adults. *Journal of Speech, Language, and Hearing Research*, 60 (6), 1577–1589.
- Siemund, P. & Lechner, S. (2015). Transfer effects in the acquisition of English as an additional language by bilingual children in Germany. In Hagen Peukert (ed.), *Transfer effects in multilingual language development*, Amsterdam: Benjamins. 147–160.
- Siemund, P., Lorenz, E. & Toprak-Yildiz, T.E. (2023): The impact of heritage language proficiency on English as an additional language: disentangling language and cognition. *International Journal of Multilingualism*, DOI: 10.1080/14790718.2023.2228340
- Spellerberg, SM (2016). Metalinguistic awareness and academic achievement in a linguistically diverse school setting: a study of lower secondary pupils in Denmark. *International Journal of Multilingualism*, 13 (1), 19–39.
- Thomas, J. (1988). The role played by metalinguistic awareness in second and third language learning. *Journal of Multilingual and Multicultural Development*, 9, 235–246.
- Wierzbicka, A. (1992). *Semantics, culture and cognition: Universal human concepts in culture-specific configurations*. New York: Oxford University Press.

APPENDIX

Semantic category	F	Sig.	T	df	Sig. (two-tailed)
Body	1.920	.178	0.994	26	.329
Clothes	.055	.817	2.037	26	.052
House	2.653	.115	.358	26	.723
Make	.919	.346	.732	26	.471
Food drink	.538	.470	.735	26	.469
Black white	.968	.334	-2.357	26	.026
Sad	2.391	.134	-.834	26	.412
School	.18	.896	.706	26	.486
Town	.555	.463	.587	26	.562
Countryside	5.451	.028	.975	26	.339
Love	.419	.523	-.479	26	.636
Animals	.038	.846	1.330	26	.195
Hobbies	4.854	.037	.535	26	.597
Professions	3.874	.060	.563	26	.578
Hate	.210	.650	-1.942	26	.063

Table 4'. Tests of between-groups effects for token production (14 randomly selected local participants and 14 heritage participants)

Semantic category	F	Sig.	T	df	Sig. (two-tailed)
Body	15.964	.000	7.780	17.848	.000
Clothes	9.740	.004	8.606	17.344	.000
House	2.502	.126	4.131	26	.000
Make	6.543	.017	-.761	22.473	.454
Food drink	2.864	.103	4.695	26	.000
Black white	2.839	.104	-2.515	26	.018
Sad	.359	.555	.368	26	.716
School	6.846	.015	1.527	18.234	.072
Town	.323	.575	2.818	26	.005
Countryside	24.115	.000	2.372	14.878	.032
Love	3.720	.065	-.382	26	.706
Animals	.107	.746	3.822	26	.000
Hobbies	11.880	.002	1.636	17.641	.057
Professions	3.238	.084	-1.683	26	.052
Hate	3.903	.059	-4.160	26	.000

Table 5'. Tests of between-groups effects for ILAI (14 randomly selected local participants and 14 heritage participants)