International Journal of Educational Innovations
ISSN 3078-5677

International Journal of Educational Innovations
Volume 2, Issue 1, 35-47
https://doi.org/10.46451/ijei.260104

Received: 14 August, 2025
Accepted: 20 October, 2025
Published: 1 January, 2026

Creative Ability and EFL Semantic Fluency in Heritage and Monolingual Learners: Preliminary Evidence

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Abstract
Individuals with high levels of creativity often excel in semantic fluency tasks, mainly due to enhanced semantic memory structure and executive functioning. Yet, whether this ability also facilitates second language (L2) learning, remains an open question. Creativity, understood as the capacity to produce ideas that are both novel and functional, has been frequently linked to bilingualism (Kharkhurin, 2024). However, this research has largely investigated normative bilingual individuals, neglecting other bilingual populations such as immigrant heritage speakers (IHSs). In particular, empirical research on the L2 learning of IHSs in formal educational settings remains limited, especially regarding individual cognitive variables such as creativity. In an attempt to help address these research gaps, the present study compares the relationship between creativity and semantic fluency in English as a Foreign Language (EFL) among two cohorts of 10th-grade students in Spain: 36 Spanish monolinguals and 36 IHSs who are learning EFL. While a trend toward higher EFL semantic fluency and creativity was observed in the monolingual group, independent samples t-tests revealed no statistically significant differences between the two groups on any of the variables examined. Partial correlation analyses revealed a moderate positive relationship between creativity and EFL semantic fluency only among monolingual learners, independent of language proficiency. In a more qualitative analysis, subtle yet meaningful differences were found between their creativity levels and EFL semantic fluency. Both higher and lower creativity IHSs showed a great lexical variety, mostly due to a greater inclusion of international food and drink terms. These preliminary tendencies suggest that further qualitative research is needed.

Keywords
Creativity, HIS, EFL semantic fluency, EFL, divergent thinking

Introduction

Creativity is considered one of the most fundamental skills of the 21st century. This complex construct can be broadly defined from a cognitive perspective as an individual's ability to

generate novel and functional ideas (Guilford, 1959). The psychometric approach, which understands creativity as a cognitive aspect that can be measured, links this cognitive variable to two key skills: divergent and convergent thinking. Divergent thinking, quantified through measures of fluency, flexibility, originality and elaboration, is understood as the ability to generate unique and unexpected ideas (Sternberg & Lubart, 1995). Meanwhile, convergent thinking entails selecting the preferred, correct solution to a problem (Cropley, 2006; Pipes, 2023).

A growing body of research has studied the relationship between creativity and language. This has led to two research areas. On the one hand, studies researching the antecedents of creativity have found that linguistic phenomena such as bilingualism may enhance creative thinking (for a literature review see Kharkhurin, 2024). On the other hand, L2 research has explored whether creativity, as an individual variable, can facilitate L2 learning outcomes (e.g., Suzuki et al., 2022). However, despite scholarly interest in both areas, they have typically been pursued in isolation, which represents a significant gap in the literature.

This research gap is particularly pronounced with certain type of L2 speakers. As pointed out by Pipes (2023), the majority of studies in the field have focused on monolinguals or bilingual individuals in environments where multiple languages are used regularly in everyday life. Thus, there has been little systematic investigation of other increasingly common types of bilinguals: IHSs (i.e., heritage speakers with an immigrant background). These bilinguals possess both a minority and a majority language, and the lack of status of the minority language has been shown to impact their bilingual development (Montrul, 2016). Their distinctive linguistic and cultural experiences may affect both their creativity and their L2 learning. However, surprisingly little attention has been paid to this group in these two research areas.

In an attempt to contribute to addressing the aforementioned research gaps, the present paper is an exploratory study which examines the creative ability and L2 semantic fluency of 36 IHSs and 36 monolingual learners of EFL. In particular, the study aims to compare potential differences in creativity and EFL semantic fluency, explore the correlation between these variables, and identify qualitative differences in EFL semantic fluency between the groups depending on their creativity level.

Literature Review

Creativity and bilingualism

Research on the relationship between creativity and language has increasingly focused on bilingualism's influence on creative performance (Pipes, 2023). A substantial body of work suggests a positive correlation between the cognitive and linguistic variables (see the systematic review by Kharkhurin, 2024). Most of these studies have compared monolinguals and bilinguals, reporting, in most instances, advantages for bilingual participants across diverse measures of creativity (e.g., Kessler & Quinn, 1987; Leikin & Tovli, 2014).

This bilingual advantage has been predominantly attributed to the coexistence of two linguistic systems in their brain, which forces bilinguals to go through cognitively demanding processes such as code-switching between languages or avoidance of potential interferences from the other language (Pipes, 2023). These processes are thought to enhance their executive control and attentional regulation, thereby improving their problem-solving skills and fostering creative abilities such as divergent thinking (Bialystok, 2001).

However, the literature also presents some studies reporting a neutral relationship between bilingualism and creativity (e.g., Booton et al., 2021). Investigations have sought to clarify these discrepancies by examining variations among different bilingual profiles. Some results indicate that specific linguistic characteristics, such as high proficiency in both languages, simultaneous age of language acquisition, or frequent code-switching, are associated with stronger creative advantages (e.g., Leikin, 2013; Xia et al., 2022). This highlights the need for further research on a less normative type of bilinguals to fully understand the complex relationship between bilingualism and creativity.

Creativity and L2 learning

Recent years have witnessed a surge of interest in individual differences in language learning, with creativity emerging as a potentially significant cognitive factor influencing L2 learning outcomes. Nevertheless, despite this growing scholarly attention, research in this domain remains relatively scarce and is marked by inconsistent findings. The existing literature has conceptualized creativity as an independent variable, focusing primarily on its relationship with either L2 proficiency (e.g., Ottó, 1998; Novikova, 2020) or specific linguistic skills (e.g., Albert & Kormos, 2004; Suzuki et al., 2022). In addition, these studies have mostly adopted a psychometric approach to creativity, with divergent thinking tests being the main tools of creativity assessment (Pipes, 2023).

The relationship between creativity and L2 proficiency has yielded mixed findings. Seminal work by Ottó (1998) first established the link between creativity and L2 proficiency. Specifically, in this study, a moderately strong correlation was found between L2 course grades and four components of creativity, including ideational fluency, associational fluency, originality, and elaboration. More recently, Novikova et al. (2020) found that higher teacher evaluations and final grades in EFL correlated significantly with fluency and figural creativity. In contrast, other studies, such as Albert's (2006), showed no clear link between creativity and proficiency, highlighting the need for further research to reconcile these discrepancies.

A limited but insightful body of work has also explored creativity's role in different language skills. In the domain of L2 oral production, Suzuki et al. (2022) linked divergent and convergent thinking to discourse quality in argumentative and narrative oral tasks, while Albert and Kormos (2004) identified fluency in divergent thinking as a predictor of lexical diversity in L2 speech. Parallel studies into L2 writing, have shown similar outcomes. For instance, Wu and Qin (2025) found creativity influenced content richness in story continuation tasks, and Zabihi et al. (2013) reported correlations between creativity and fluency in collaborative narrative writing.

Creativity and L2 semantic fluency

Of particular interest to our study are those investigations within creativity and L2 learning research which focus on semantic fluency, understood as the ability to generate words that belong to a specific category (Gourovitch et al., 2000). These types of studies are mostly conducted using a semantic fluency task, more traditionally referred to in the literature as the lexical availability test (e.g., Geoghegan & Agustín-Llach, 2023) or a category generation task (Dodigovic et al., 2025). Participants are provided with a stimulus category (e.g., 'Countryside') and asked to generate as many responses as possible within a limited time frame, generally 120 seconds (Jiménez Catalán, 2014).

Since research on creativity and L2 semantic fluency is a relatively recent phenomenon, the evidence is still very scarce. To the best of our knowledge, the existing findings have been

conducted only by Fernández-Fontecha and colleagues. Fernández-Fontecha (2021) observed that higher creativity L2 Spanish learners outperformed their peers in both the quantity and uniqueness of lexical items produced during semantic fluency tasks using atypical categories (e.g., 'Box', 'Fun'). These findings were replicated in subsequent studies (e.g., Fernández-Fontecha & Ryan, 2023; Fernández-Fontecha & Pérez-Hernández, in press), reinforcing the argument that creativity facilitates lexical retrieval by broadening associative networks (Fernández-Fontecha & Kenett, 2022).

Immigrant heritage speakers

Before we present the details of the present study, it is important to establish a clear understanding of the characteristic of IHSs (for a more comprehensive review, see Pérez-Hernández, 2024). Although bilinguals are often perceived as a homogenous group, in reality they represent a highly heterogenous population. Due to the increase of immigration and globalization, IHSs represent a growing body of bilinguals in our society. This group of bilinguals is characterized by their use of a minority language (i.e., the heritage language of immigrant origin) and a majority language (i.e., the language of the host country) (Hopp et al., 2021). The minority language lacks social status within the host country and is often confined to the home environment (Lorenz et al., 2020). In contrast, the majority language has social status and is the language of government, official administration and education (Montrul, 2016). The difference in opportunities for exposure in their two languages gives rise to distinctive characteristics that are shared by most IHSs. First, the lack of social status of the minority language leads to them not being able to receive formal instruction in their minority language (Montrul, 2016). Thus, IHSs' proficiency in their minority language is largely confined to oral communication (Lorenz et al., 2020). Second, the majority language is acquired and developed both formally and informally. Third, as a consequence of the aforementioned conditions, the bilingualism of IHSs is often unbalanced, with greater proficiency in the majority language (Bonifacci et al., 2017). Finally, in the most adverse cases, some of these IHSs suffer from subtractive bilingualism due to the lack of regular use of the minority language (Maluch et al., 2017).

As noted above, this type of bilingual has been underresearched, particularly in relation to the research areas of the present study. Concerning L2 semantic fluency, only a limited number of studies have examined the performance of IHSs in comparison to monolinguals and more normative bilinguals (e.g., Jiménez Catalán & Fernández-Fontecha, 2019; Agustín-Llach, 2023). For instance, Jiménez Catalán and Fernández-Fontecha (2019) found that IHSs produced fewer words than their monolingual counterparts, although the difference was not statistically significant. Similarly, Agustín-Llach (2023) used an EFL semantic fluency task to examine and compare the L2 lexical organization of monolinguals, IHSs and educational bilinguals. The educational bilinguals, who were more balanced in their bilingualism, showed that they better navigated better their lexicon. However, to the best of our knowledge, no previous study has directly examined the effect of IHSs' status on their creativity performance and L2 semantic fluency. This gap is what the present exploratory study aims to address.

The Study

Rationale and research questions

As evidenced by the literature review, despite some contradictory results, most of the existing research demonstrates a positive relationship between (1) creativity and bilingualism, and (2) creativity and L2 learning outcomes. However, studies examining how creativity might influence L2 performance among bilingual populations, especially IHSs, remain remarkably

limited. To the best of our knowledge, no previous study has directly addressed this research gap. This highlights the pressing need for further research.

This preliminary study seeks to address this dual research gap through three key contributions. First, it quantitatively compares the EFL semantic fluency and creativity performance of monolingual and bilingual learners. Second, it quantitatively and qualitatively explores the correlation between creativity and EFL semantic fluency in the two research groups. Third, it extends current understanding by selecting IHSs, which are an underexamined type of bilinguals.

The present study will try to answer the following research questions:
RQ1. What are the quantitative differences between monolinguals and IHSs in terms of EFL semantic fluency and creativity level?
RQ2. What is the relationship between global creativity and EFL semantic fluency?
RQ3. What are the qualitative differences in EFL semantic fluency in terms of creativity?

Methodology

Participants

The study sample consisted of 72 students who were in their 10th year of Spanish secondary education. These students were recruited from two public high schools in two different Spanish regions: La Rioja (northern Spain) and Extremadura (western Spain). For the purpose of this study, the sample of participants was divided into two groups depending on their linguistic background.

- Monolingual speakers who are learners of English as an L2 (n = 36).
- IHSs who are learners of English as an L3 (n = 36).

Each group was then further subdivided, based on the median of the overall creativity scores, into two additional sub-groups (i.e., high-creativity and low-creativity) for the qualitative analysis.

- Higher creativity monolinguals (n = 19).
- Lower creativity monolinguals (n = 17).
- Higher creativity IHSs (n = 17).
- Lower creativity IHSs (n = 19).

Data collection instruments

Since this data sample is part of a larger national project, it was collected by professionals in the field from the two different regions in more than one session. The following data tests were collected.

Linguistic background questionnaire

To determine participants' linguistic background, we administrated a paper-based questionnaire. This instrument collected information about their native language, their exposure to EFL and basic demographic data (i.e., age, sex and nationality).

Productive Vocabulary Level Test

To control the productive vocabulary level of the participants in the L2, we administered the validated Productive Vocabulary Level Test (Laufer & Nation, 1999).

 ISSN 3078-5677

Oxford Quick Placement Test (OPT)
To control for the proficiency of the participants in English, we administrated the Oxford Quick Placement Test (UCLES, 2001). This validated instrument comprises 60 questions combining multiple-choice and gap-filling exercises.

Semantic fluency task
This paper-based task required participants to generate as many words in English as came to their minds in response to the semantic stimulus 'Food and drink'. As it measures fluency, this is a time-controlled task. Hence, following standard administration procedures for semantic fluency assessment, participants were given 120 seconds to complete the task.

PIC-J test
To test their creativity, the participants were administered the paper-based PIC-J test, developed by Artola et al. (2008). This test assesses creativity as divergent thinking through four tasks which were done in the majority language. The first three tasks are used to assess verbal creativity (fluency, flexibility, originality), and the fourth task is used to evaluate figural creativity (originality, elaboration, specification of a title, and use of creative details).

Analyses
The participants' retrieval in the EFL semantic fluency tasks was codified, edited and lemmatized by following the same criteria as in Jiménez Catalán and Dewaele (2017). Accordingly, we (1) eliminated duplicated words, (2) converted regular plurals to their singular forms, (3) excluded Spanish words, (4) replaced the verbs in different time tenses with their bare infinitive forms and (5) counted as single entities the compound words or lexical units.

To analyse the responses of the PIC-J test, we followed the instructions provided in the test manual by Artola et al. (2008) and obtained scores for global creativity, verbal creativity (including verbal fluency, verbal flexibility, verbal originality), and pictorial or figurative creativity.

For the statistical analysis of the quantitative measures, we used JASP (JASP Team, 2024). Since the data distribution was non-normal, we employed non-parametric tests. For the qualitative analysis, we employed the computer program LexTutor, specifically the Text_Lex_Compare_ Input computer program (Cobb, 2024).

Results
Quantitative differences between monolinguals and IHSs in terms of EFL semantic fluency and creativity level
As can be seen in Table 1, descriptive statistics revealed that monolinguals produced a higher mean of lexical items in the EFL semantic fluency test (M = 13.78, SD = 5.37) compared to IHSs (M = 11.81, SD = 5.16). However, a Mann-Whitney U test indicated that this difference was not statistically significant (U = 778.00, p = .14) with a small effect size (rank-biserial r = .20) according to common benchmarks (0.1 = small, 0.3 = medium, 0.5 = large).

Table 1
Descriptive Statistics for Each Group in L2 Semantic Fluency

		M	SD	Max.	Min.	SE
'Food and drink'	Monolinguals	13.78	5.37	5.00	24.00	0.90
	IHSs	11.81	5.16	3.00	22.00	0.86

Note. Monolinguals (N = 36), IHSs (N = *36)*

 ISSN 3078-5677

With regards to creativity (see Table 2), monolinguals again scored higher than IHSs in global creativity (*M* = 75.94, SD = 26.84 vs. *M* = 67.08, SD = 23.46) and verbal creativity (*M* = 68.17, SD = 25.35 vs. *M* = 58.94, SD = 22.95). However, in terms of visual creativity, IHSs slightly outperformed the monolingual group (*M* = 8.14, SD = 3.76 vs. *M* = 7.78, SD = 3.58). Nevertheless, despite these tendencies, Mann-Whitney U tests showed no statistically significant group differences for global creativity (*U* = 765.00, *p*= .19, rank-biserial = 0.18), verbal creativity (*U* = 792.00, *p*= .11, rank-biserial = 0.22), or visual creativity (*U* = 617.00, *p*= .73, rank-biserial = 0.05). All effect sizes, as measured by rank-biserial correlation, fell within the small range.

Table 2
Descriptive Statistics for Each Group in Creativity Level

		M	SD	Max.	Min.	SE
Global creativity	Monolinguals	75.94	26.84	34.00	142.00	4.47
	IHSs	67.08	23.46	31.00	121.00	3.91
Verbal creativity	Monolinguals	68.17	25.35	25.00	133.00	4.23
	IHSs	58.94	22.95	23.00	114.00	3.82
Visual creativity	Monolinguals	7.78	3.58	1.00	16.00	0.60
	IHSs	8.14	3.76	1.00	18.00	0.63
Verbal fluency	Monolinguals	32.03	12.05	12.00	66.00	2.01
	IHSs	28.11	10.55	11.00	51.00	1.76
Verbal flexibility	Monolinguals	21.64	6.13	9.00	38.00	1.58
	IHSs	19.67	6.31	8.00	35.00	1.24
Verbal originality	Monolinguals	14.50	9.46	3.00	39.00	1.02
	IHSs	11.17	7.43	1.00	31.00	1.05

Note. Monolinguals (*N* = 36), IHSs (*N = 36)*

The relationship between global creativity and L2 semantic fluency

To explore potential relationships between creativity and semantic fluency in the 'Food and drink' semantic stimulus, partial correlation analyses were conducted, holding constant participants' OPT scores. In the case of the monolinguals, there was a modest, statistically significant positive correlation between global creativity and semantic fluency in 'Food and drink' (r = .447, *p* = .007). Following Cohen's benchmarks (Cohen, 1992), the medium-to-large effect size suggests that higher levels of creativity were associated with greater lexical production in this category within this group. In contrast, for the IHSs, the partial correlation between global creativity and EFL semantic fluency was weaker and non-significant (r = .198, *p* = .253).

The PVLT results showed that the mean scores across groups were similar (monolinguals: M = 2.74; IHSs: M = 2.69), suggesting comparable performance in lexical production. Therefore, we may assume that productive vocabulary did not exert a substantial influence in the outcomes.

Qualitative differences in EFL semantic fluency in terms of creativity

Given that no apparent differences were observed between the two groups in terms of creativity or EFL semantic fluency, we have opted to utilize Text_Lex_Compare_ Input (Cobb, 2024) to compare the responses of the most creative participants in each group (higher creativity monolinguals and higher creativity IHSs) as well as those of the least creative learners (lower

creativity monolinguals and lower creativity IHSs) to determine whether shared patterns or potential differences can be identified.

When comparing the responses of the higher creativity monolinguals and higher creativity IHSs, we can observe both similarities and notable differences in how each group conceptualises this category. As suggested by the high number of shared words between the two groups, there is a common lexical core centred around basic foods and drinks (e.g., *pizza, hamburger, salad, rice, juice*). This overlap is further evidenced by the top ten most frequently used words in each group (see Table 4).

Table 4
Top 10 Words from Each Group

Higher creativity monolinguals		Higher creativity IHSs	
water	19	***hamburger***	11
hamburger	11	***water***	11
pizza	10	***salad***	8
salad	9	***pizza***	8
cocacola	6	***meat***	8
chicken	6	***cocacola***	6
vegetable	6	*pasta*	5
cookie	5	***chocolate***	4
chocolate	5	*rice*	4
meat	5	***chicken***	4

Note. Words shown in bold indicate shared terms.

Despite this shared lexical core, a more thorough analysis of the unique words produced by each group reveals differences in terms of the lexical categories they employ and their conceptual approaches. Higher creativity monolinguals tended to incorporate vocabulary that extends beyond mere types of food and drink. If we consider their word production as a whole, they introduced other terms related to the cultural aspects of eating and drinking such as kitchen utensils (e.g., *knife, spoon*) and the names of daily meals (e.g., *breakfast, lunch*). Additionally, this group demonstrated greater use of verbs and adjectives (e.g., *salty, delicious*) than the IHS group.

On the other hand, highly creative IHS employed a notably wider range of food and drink brand names and chains (e.g., *Red Bull, Pepsi, Starbucks, McDonald's*). Second, and although only four separate cases were found, this group exhibited creativity in forming compound words absent in the other group's vocabulary (e.g., *potato with ketchup, chicken with potato*). Additionally, their word choices reflected stronger sociocultural influences, incorporating terms for foods foreign to Spanish cuisine (e.g., *falafel, durum, macaron*). Finally, their lexicon included abstract and scientific terms linked to nutrition and health (e.g., *protein, calorie, nutrient*), a feature entirely missing in the higher creativity monolinguals' dataset.

A comparative analysis of the least creative learners in both groups revealed a shared lexical core consisting primarily of typical Western foods and drinks (e.g., *pizza, hamburger, juice, water, milk, chocolate, soup*). Also, both groups predominantly used nouns and exhibited minimal use of sociocultural or affective language related to food consumption. This absence is, however, more notable in the group of monolinguals since some learners of the lower creativity IHSs group included words that could be considered as such (e.g., *fun, time, restaurant*).

Despite these similarities, a key distinction lies in lexical diversity. The lower creativity monolinguals relied heavily on basic food and drink terminology (e.g., *fruit, egg, fish, soda, popcorn*), while lower creativity IHSs demonstrated a significantly broader lexical repertoire, producing nearly twice as many unique words. This expanded vocabulary included culturally varied food items, specifically international cuisine (e.g., *tajine, couscous, crêpe, kebab, mac and cheese*). Additionally, in the case of drinks, the monolinguals produced common drink terms (e.g., *juice, soda, coffee, Coca-Cola*). Meanwhile, their IHSs counterparts employed a wider variety of international brand names and alcoholic beverages (e.g., *Gatorade, 7up, Monster, vodka, whiskey*).

Discussion

The aim of this research study was to examine the effect creativity had on the EFL semantic fluency of monolinguals and IHSs. For that purpose, we took a quantitative approach to compare the level of creativity and L2 semantic fluency of the two group of EFL learners (RQ1) and analyse the correlation between these two variables. Given the lack of differences between the groups, we took a more qualitative approach and sought for similarities and differences between the groups in terms of EFL semantic fluency considering their level of creativity (RQ3).

As regards to the level of creativity and EFL semantic fluency of the monolinguals and IHSs, no significant differences were found in the results. In the case of the level of creativity, this finding stands in contrast to prior studies reporting a positive correlation between bilingualism and creativity (e.g., Kharkhurin, 2010; Leikin & Tovli, 2014). Nevertheless, the results could align with emerging evidence suggesting that the cognitive advantages of bilinguals that would enhance their creative thinking are primarily observed among balanced bilinguals (Leikin, 2020).

Considering this, a plausible interpretation for the absence of significant differences in creativity between these two groups could be the unbalanced bilingual profile of the IHSs. While we have not directly measured their proficiency in the heritage language and majority language, existing evidence indicates that IHSs often exhibit asymmetric competence in their two languages (Montrul, 2016). More specifically, their heritage language proficiency tends to be limited to oral competence, while the majority language becomes dominant due to both formal instruction and broader exposure to it in the host society (Bonifacci et al., 2017).

Their lack of advantage in the EFL semantic fluency does align with previous findings in the literature. Jiménez Catalán and Fernández-Fontecha's (2019) pioneering study comparing monolinguals and IHSs on EFL semantic fluency tasks similarly showed no significant differences in word production for the semantic stimulus 'Food and drink'. This parallel finding may again be a result of IHSs' distinct linguistic profile since their language development trajectory differs from that of educational bilinguals (Agustín-Llach, 2023). Furthermore, the comparable creativity levels observed between groups may also provide additional insight into these findings. While preliminary evidence from Fernández-Fontecha (2021) has suggested a possible relationship between creativity and EFL semantic fluency, the absence of inter-group differences in creative capacity in the current study could indicate that this factor may have constrained IHSs potential ability to generate more rapid semantic associations in the EFL.

Concerning our RQ2 (i.e., the examination of the correlation between creativity and EFL semantic fluency), the results showed a modest positive correlation between global creativity and EFL semantic fluency, though this relationship was only observed on the monolingual

group. This result seems to suggest that the interplay between creativity and EFL semantic fluency might be modulated by the language background. However, additional research is required to draw definitive conclusions.

For the qualitative analysis (RQ3), a closer examination of the shared and unique words produced by higher creativity and lower creativity participants of each group revealed subtle but meaningful differences that were not captured quantitatively. In the comparison of higher creativity sub-groups, it was found that both demonstrated comparable lexical diversity, though their conceptual approach was different. However, one unanticipated finding was that the higher creativity IHSs exhibited greater lexical diversity than their lower creativity monolingual counterparts. A closer inspection of the data suggests that this advantage may be attributed to their multicultural exposure, as evidenced by the production of words related to cuisines from other countries. This pattern of introducing this type of vocabulary was replicated in the group of higher creativity IHSs. This sustains the assumption that bilinguals, especially those with a minority language, do not only benefit from the knowledge of two languages but also of two cultures (Kharkhurin, 2023) which could have an effect on their creativity and their lexical retrieval. Nevertheless, we have to bear in mind that this does not definitively confirm that IHSs possess greater lexical diversity in the L2 since most of the words suggesting this were either loanwords from their native language that had been incorporated into English (e.g., *tajine*) or brand names (e.g., *Gatorade*).

Another noteworthy finding from RQ3 was the substantial core vocabulary shared across groups regardless of creativity level. This significant lexical overlap reflects participants' shared familiarity with conventional semantic categories (particularly 'Food and drink'), likely stemming from classroom input since these categories are largely present in the curricula and English textbooks. This result echoes earlier findings using other traditional semantic categories such as 'Animals' (e.g., Jiménez Catalán et al., 2014).

Conclusion

The present study offers as an exploratory investigation into the dual relationship between (1) creativity and bilingualism and (2) creativity and EFL semantic fluency. Even though the quantitative findings did not confirm the expected bilingual advantage in creativity or EFL semantic fluency, nor any significant connection between creativity and EFL semantic fluency in the case of IHSs, the qualitative results revealed subtle yet meaningful differences between the groups. The use of food terms of international cuisine by the higher creativity IHSs and lower creativity IHSs suggests that this group of learners' performance in EFL semantic fluency may be shaped not only by their exposure to two languages but also by their experience with multiple cultures.

The correlation between creativity and L2 semantic fluency in the monolingual group has pedagogical implications. As Sun et al. (2020) suggest, creativity is not immutable. Therefore, explicitly fostering it in the L2 learning process may also serve to enhance learners' L2 semantic fluency. Furthermore, in light of the qualitative results showing a positive influence of IHSs group's exposure to two cultures on their EFL semantic fluency, it is worth considering whether increasing L2 learners' exposure to greater multicultural diversity in the classroom might yield similar benefits.

This study is not without limitations. First, the sample was very small, and a larger number of participants would be recommended to yield more significant findings. Second, the semantic fluency task only measured word production in a single stimulus category, one that is highly

traditional and frequently encountered in FL textbooks. Future studies could benefit from incorporating a wider range of semantic categories, including less common ones so as to better assess the role of creativity in EFL semantic fluency. Third, the proficiency level of the bilingual group in their two languages was not measured which was a handicap since we were not able to fully conclude if their unbalanced bilingualism was the cause of the lack of observed advantages in creativity and L2 semantic fluency.

Further research should build on this work and seek to minimise the aforementioned limitations by including a greater sample size, introducing more semantic fluency tasks and controlling the proficiency level of the bilinguals in their two languages. Also, it would be interesting for future studies to take a more qualitative approach since, as it was seen in the present preliminary study, this method shows more insightful findings.

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