Evidence of Variation in the Mastery of German Morphosyntax Independent of Learning Strategies: A Study on L2 Acquisition

Evidencia de variación en el dominio de la morfosintaxis del alemán independiente de las estrategias de aprendizaje: un estudio sobre adquisición de una L2

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Abstract

Variation in second language acquisition (L2) has been extensively studied within the context of language teaching, yet less attention has been paid to learners themselves and their specific learning processes. We investigated the relationship between German morphosyntax mastery and the use of learning strategies for German as an L2, using version 7 of the Oxford Strategy Inventory of Language Learning (1990, 2003) to measure the use of language learning strategies, and a C-Test by Arras et al. (2002) to assess morphosyntax mastery in 146 third-year secondary school students from three German schools in Chile. Analysis through mixed models revealed that the variability in C-Test items affected participants' results independently of the strategies used. We interpret our results as evidence that the complexity of particular morphosyntactic structures is more relevant for the acquisition of German as an L2 than the use of learning strategies. We discuss these results in the light of differences in the acquisition difficulty of various morphosyntactic structures.

Keywords: German morphosyntax, L2 learning strategies, second language acquisition, language distance, C-test

Resumen

La variación en la adquisición de una L2 se ha estudiado extensamente en el contexto de la enseñanza de idiomas. Sin embargo, se ha prestado menos atención a los estudiantes y sus procesos de aprendizaje correspondientes. En este artículo, investigamos la relación entre el dominio de la morfosintaxis alemana y el uso de

estrategias de aprendizaje para el alemán como L2, utilizando la versión 7 del Oxford Strategy Inventory of Language Learning (1990, 2003) para medir el uso de estrategias de aprendizaje de idiomas, y un C-Test de Arras et al. (2002) para evaluar el dominio de la morfosintaxis en 146 estudiantes de tercer año de educación media de tres colegios alemanes en Chile. El análisis, a través de métodos estadísticos de modelo mixto, reveló que la variabilidad en los ítems del C-Test afectó los resultados de los participantes independientemente de las estrategias utilizadas. Interpretamos nuestros resultados como evidencia de que la complejidad de estructuras morfosintácticas particulares es más relevante para la adquisición del alemán como L2 que el uso de estrategias de aprendizaje. Discutimos estos resultados a la luz de las diferencias en la dificultad de adquisición de las diferentes estructuras morfosintácticas.

INTRODUCTION

The acquisition of an L2[1] in educational settings has predominantly been studied from the perspective of the teaching processes. However, there is a need to investigate the learning processes, focusing on the different mechanisms involved in the acquisition of an L2. In this research, we focus on the use of learning strategies, frequently used cognitive procedures employed by individual learners to achieve specific goals, following the conceptualization proposed by Oxford (2016, see also Hardiyanti & Abidin, 2022; Thomas & Rose, 2018). Oxford defines L2 learning strategies as actions and ideas selected by learners based on their awareness levels in various contexts, which enable them to regulate cognitive, emotional, and social aspects of learning by themselves. Studies conducted by Moskovsky et al. (2016), Oxford (2016), and Habók et al. (2022) suggest that the use of L2 learning strategies is geared towards enhancing language proficiency in specific tasks, fostering language performance during the acquisition process, and contributing to the achievement of long-term proficiency.

Even though these strategies appear to be relevant for the acquisition of any L2, each language poses a range of challenges for L2 learners. In the case of German, one of the most complex aspects of L2 acquisition is morphosyntax. German morphosyntax comprises linguistic processes such as inflection, compounding, number, person, gender, declension, and other functions of a language's grammar that are markedly more complex than those in languages, such as Spanish (Parodi et al., 2004). Nevertheless, studies on language learning strategies in German have primarily explored their correlation with aspects like vocabulary proficiency and linguistic aptitude. As far as we are aware, no prior research has considered the relationship between L2 learning strategies and German morphosyntax, even though this seems to be a particularly complex aspect for L2 German learners (Krause et al., 2015). The impact of different linguistic features on strategy use has been examined in languages with marked differences from Indo-European languages, such as Chinese, where

linguistic differences from English significantly influence strategy application (Lin et al., 2021; Zhang & Lu, 2015).

1. Theoretical framework

1.1 Learning strategies

In psychology, learning is considered a personal and individualised process, varying significantly from one person to another (Rafiq et al., 2021). This individual variation is particularly relevant in the context of Second Language Acquisition (SLA) (Hucke, 2021; Liu, 2017; Jayakumar, 2022). Different individuals use different learning strategies, psychological processes that learners use to achieve cognitive objectives, such as understanding or the acquisition of new knowledge (Dakun, 2006; Weinstein & Palmer, 2002). These strategies facilitate the learning process by enabling learners to make more efficient and effective decisions considering their abilities (del Castillo et al., 2003; Endres et al., 2021; Oxford & Nyikos, 1989).

1.2 Learning strategies in the SLA process

As part of acquiring a new language, learners use strategies to facilitate language acquisition and enhance information retention (Dawi & Hashim, 2022; Hardan, 2013). Oxford's taxonomy of learning strategies led to the development of the Strategy Inventory of Language Learning (SILL), a widely used assessment instrument for L2 learning strategies (Papadopoulou et al., 2018). The SILL has versions for L2 learners of English and L1 speakers of English learning other languages (Amjusfa et al., 2021; Aslan, 2009; Lem, 2019; Yilmaz, 2010), and has been translated into multiple languages (among others Greek: Gavriilidou & Mitits, 2016; Japanese: Robson & Midorikawa, 2002; Estonian: Saks et al., 2015). This classification divides strategies into direct (involving the target language) and indirect (supporting language learning without direct use of the target language) (Alfarisy, 2022). Direct strategies include memoristic, cognitive, and compensatory strategies, while indirect ones include metacognitive, affective, and social strategies.

According to Oxford (2016), language learning strategies encompass a range of complex, dynamic cognitive and behavioural processes that learners employ in particular situations to manage various personal aspects like cognition, emotions, and social interactions. Though primarily cognitive, L2 strategies can be manifested also in physical forms and be observed in different learner behaviours. Strategy use can be trained, and its increased application correlates with better learning outcomes (Gunning & Oxford, 2014; Ruiz de Zarobe & Zenotz, 2018). Strategy awareness, on the other hand, has been shown to positively influence learning outcomes (Gunning & Oxford, 2014), even though strategy use measurement through SILL does not depend on explicit awareness (Williams et al., 2013).

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Moreover, studies using Oxford's SILL have demonstrated significant correlations between specific language learning strategies and linguistic levels. For instance, the use of vocabulary learning strategies is closely linked to both the breadth and depth of vocabulary knowledge. Furthermore, higher proficiency learners tend to employ metacognitive strategies more frequently, which correlates with enhanced general language proficiency and positive attitudes towards language learning (Fan, 2020; Habók et al., 2022; Raymunde & Mamonong, 2022).

L2 learners can select a range of learning strategies and actions, but there are a number of factors that influence these choices, related to individual differences between learners. Among these factors, sex has emerged as one of the most relevant in the specific selection of learning strategies (Chen, 2014; Green & Oxford, 1995; Hong-Nam & Leavell, 2006; Koç, 2017; Lee, 2003; Liyanage & Bartlett, 2012; von Hausen, 2024). Although research has not determined a specific strategy for a particular sex, numerous studies have indicated that females tend to employ all learning strategies more frequently than males (Nguyen, 2008; Ehrman & Oxford, 1988; Oxford & Nyikos, 1989; Politzer, 1983).

1.3 Morphosyntax acquisition in L2

The process by which learners acquire the grammatical structures and rules for combining morphological and syntactic elements in an L2 has been recognised as highly complex and subject to variations depending on the specific L2 and L1 of the individual, impacting multiple linguistic levels (Ansarin et al., 2012; Huan, 2019). Morphosyntactic acquisition in L2 involves unique characteristics, including accuracy and overregularization on one side (Grinstead, 2009; Kelly et al., 2013; Pires & Rothman, 2009; Rose & Brittain, 2011), and features such as null subjects, later language development, and a preference for main clauses over subordinate clauses on the other (Belletti et al., 2012; Collins, 2005; Hirsch & Wexler, 2007; Hornstein, 2003; Landau, 2001). For the case of L2 morphosyntax acquisition in successive bilinguals, certain factors, such as the learner's age, where young children exhibit greater linguistic plasticity, along with the learning environment, exposure to L2, and learner motivation, play a crucial role (Cox & Sanz, 2022; Birdsong, 2018).

German morphosyntax might present particular challenges for L2 speakers. Focusing on grammatical role assignment and case-marking usage in German L2 learners with English as L1. Jackson (2008) revealed that advanced L2 learners displayed immediate sensitivity to case-marking, whereas intermediate speakers showed delayed sensitivity. This difference suggests they are aware of case-marking, but process it less automatically, possibly relying on sentence wrap-up strategies rather than real-time integration. Ritterbusch et al. (2006), on the other hand, explored associations between learners' ability to accurately identify German case marking and learner variables, showing that complexities in learning the German case system, such

as understanding grammatical case concepts, selecting correct forms from overlapping functions, and correctly identifying grammatical gender, correlate with individual variables such as knowledge of English grammar and case-identification strategies. These results suggest explicit grammar instruction and a focus on form are beneficial for achieving fluent and accurate L2 language production.

Language distance appears to be another factor impacting the ease of L2 learning for successive bilinguals (Odlin & Yu, 2016; Ringbom & Jarvis, 2009). German and Spanish differ in morphological declension, verb conjugation, and syntax, contributing to varying levels of entrenchment (Bosch & Casas, 2014; Pérez, 2008). Overall, difficulties faced by Spanish-speaking German L2 learners are often linked to the morphosyntactic distance between their L1 and L2 (Muñoz, 2021). It is important to note that this distance corresponds to the degree of similarity between two languages and the closer two languages are, the easier it becomes for learners to acquire the L2 (Knopp, 2022). In German, nouns, adjectives, and pronouns undergo declension and conjugation based on case, number, and gender, demanding familiarity with such grammatical structures. Additionally, German presents complex word formation processes involving compounding, derivation, and conversion, resulting in lexically rich expressions (Steiner & Ruppenhofer, 2018), and displays long-distance dependency structures in sentences, where associated elements appear in non-adjacent syntactic positions (Sheppard, 2016). These linguistic characteristics pose difficulties for learners, especially those whose L1s lack similar structures. Given these challenges, our research questions are 1) What are the most frequently used learning strategies by German as L2 learners? 2) What is the level of German morphosyntax mastery of German L2 learners, as measured by the C-test?, and 3) What is the correlation between their frequency of use of learning strategies and their mastery of German morphosyntax?

2. Method

2.1 Study design

In this quantitative study, we focused on examining the relationship between learning strategies and the mastery of German morphosyntax among students learning German as an L2. Additionally, we looked into how these factors vary by sex. Our objective was to collect naturalistic data without implementing any treatments, recognising that, as Oxford (2016) notes, these are frequently utilised by learners with a certain level of awareness in L2 learning contexts, even without explicit instruction. Our hypotheses suggests that more frequent use of direct strategies might be associated with better morphosyntax mastery, and that female learners may not only have a stronger grasp of morphosyntax than their male counterparts, but also use learning strategies more often.

2.2 Participants

We calculated the sample size through a literature review and with the use of G Power software. Based on the literature on L2 learning strategies (Fahim & Noormohammadi, 2014; Marashi & Assgar, 2019) and on morphosyntax mastery (Ghodrati et al., 2014; Hajebi et al., 2018), we decided to opt for a medium effect size, which corresponds to approximately 100 participants. We then used the G Power software to calculate the sample size. Considering reliabilities of 0.5, mean effect size $f2= 0.3$, and power of 0.95, we selected a sample size of 111 participants (Soper, 2020). Critically, to secure the sample, we applied the instrument to 30% more participants than calculated by the G Power software. Therefore, 35 more students were included in the sample, resulting in a sample of 146 participants.

Accordingly, we selected a non-probabilistic convenience sample consisting of 146 eleventh grade students from three German schools (school 1 n = 50; school 2 n = 48; school 3 n = 48). Participants were selected on the basis of the research questions and objectives, meeting the proposed inclusion and exclusion criteria. To participate in the study, participants were required to have passed the *Deutsches Sprachdiplom I* (B1 level); B1 failing students were excluded from the sample. Following the ethical guidelines for research issued by Universidad Católica de la Santísima Concepción, the students were informed about the objectives, aims, and implementation of the study, and were asked to digitally sign an assent form before beginning the survey.

2.3 Materials

We used version 7 of the Oxford (1990, 2003) Strategy Inventory for Language Learning (SILL) to measure the frequency of use of six different types of L2 learning strategies, categorised into two groups: 1) direct strategies (memoristic, cognitive, compensatory), and 2) indirect strategies (metacognitive, affective, and social), in the Spanish translation of the inventory proposed by Wang and Cáceres (2019). Research validates the preference for Oxford's Strategy Inventory for Language Learning (SILL) over other assessment tools due to its comprehensive coverage across multiple strategic categories. This allows for an analysis of language learning strategies in diverse contexts, demonstrating its effectiveness and its robust, generalisable outcomes (Danko & Dečman, 2019; Pawlak, 2018; Salam et al., 2020). Additionally, this instrument has been previously used in Chilean contexts in English L2 learning, which allows for comparisons regarding different L2s within the same population (Cancino et al., 2022; Domínguez & Juanías, 2024).

The reliability of the questionnaire has been confirmed by numerous studies on language learners from different cultural backgrounds (Oxford & Burry-Stock, 1995; Oxford, 2016). Ganjooei and Rahimi (2008) reported internal consistency values between .86 and .88. Hong-Nam and Leavell (2007), on the other hand, noted high Cronbach's alpha coefficients for their two subsamples (.91 and .94). The inventory

consisted of 50 items and six dimensions, one dimension per learning strategy. The response format had a 5-point Likert-type scale, where 1 is "never or almost never" and 5 "always or almost always".

To establish the level of proficiency of German morphosyntax, we selected a C-Test that meets the criteria for assessing morphosyntax in L2 learners. According to Rumlich (2002), this instrument can assess syntactic and morphological mastery of a language. C-Tests are constructed following the "rule of two": from the second sentence onwards, the second half of every other word is deleted (McKay, 2019). At the end of the text, one (partial) sentence remains intact. Proper names and abbreviations are excluded from the deletion. All lines are of equal length, independent of the length of the missing part of the word. Our chosen C-Tests contain four paragraphs and have a Cronbach's Alpha of .842 for method A and .836 for method B, both reporting reliable inter-rater reliability (Arras et al., 2002; Taber, 2018). Materials including instruments, raw data, and models are available at https://osf.io/uvd9n/?view_only=42c4d9bce4aa4568a472fe3ffc8d3b55.

2.4 Procedure

We digitalised the Spanish translation of the SILL inventory and the C-test into a single Google Form. We sent the instrument to the German department heads of the three schools for review. Subsequently, L2 German teachers were made aware of the application protocol, conducted in a highly structured manner. Only students that had accepted and signed the assent form participated in the study. The data was collected in a single session for each class, supervised by the corresponding German teacher to ensure the fidelity of the procedure. This session lasted for 60 minutes and was strategically scheduled in the morning on a day free from any evaluative activities, minimising potential distractions. The data collection process lasted one week, to accommodate the schedules and logistical constraints of each institution.

2.5 Data analysis

All analyses were carried out in the R programming language and environment. We generated visualisations of interest with the ggplot2 package (Wickham, 2016, version 3.3.3). For the SILL, we calculated the average per individual for each of the learning strategies. For the C-Test, we coded the responses of each participant according to the categories shown in Table 1.

Table 1

Categories of analysis of the C-Test.

Code	Response category	Meaning	Example
1	Incomplete	No answer, empty answer.	
2	Original word orthographically correct	The answer corresponds to the original word without spelling mistakes.	Hier tref**fen** sich d**ie** Studierenden zwis**chen** den Vorle**sungen.**
3	Not acceptable in terms of content.	The answer is not acceptable in the German language. Word does not exist.	Hier tref**en** sich d**ie** Studierenden zwis**chen** den Vorle**tigheit.**
4	Variant word orthographically correct	The answer corresponds to a variant word (diminutive, augmentative, etc.) without spelling errors.	Bröt**chen** Bröt**lein** Bröt**li**
5	Original word orthographically incorrect	The answer distinguishes the original word, but errors in the spelling are evident.	Hier tref**en** sich di … *Trefen* instead of de *treffen* *Di* instead of *die*
6	Variant word orthographically incorrect	The answer distinguishes the variant word, but errors are evident in the spelling.	*Brötlain* instead of de *Brötlein*
7	Acceptable in terms of content, but grammatically incorrect.	The answer is acceptable in lexical terms, but with errors on morphosyntactic levels.	*Lesen Zeitung* en vez de *lesen Zeitungen* *eine politisch Verpflichtung* instead of *eine politische Verpflichtung*

Note. Source: Authors' own elaboration based on Arras et al. (2002).

To ensure accuracy, the raw data was sent to three experts who each coded 100% of the C-Test responses. We employed Cronbach α reliability coefficient as a measure of internal consistency between coders. Taber (2018) categorisations were used to interpret α scores. The inter-rater reliability of the C-Test coding had an alpha of .918, which is in the strong range of inter-rater reliability. The four paragraphs have 20 items each to be filled in. With a score of 1 point per correct item, the C-Test has a total of 80 points. The correction process of the C-Test has two scoring methods, where method A is stricter than method B, as the latter normally considers the learners to be L2 learners. The two correction methods proposed by Arras et al. (2002) consider that method A scores orthographically correct originals and orthographically correct variants as correct (categories 2 and 4), while method B scores both orthographically correct originals and orthographically correct and incorrect variants as correct (categories 2, 4, 5, 6, and 7). We selected method B for the correction of the C-Tests, as it considers possible spelling errors in the variant words that are to be expected in L2 learners, who tend to use the original words more frequently as those are the first words they encounter in their SLA process (Arras et al., 2002).

We conducted a mixed-model analysis that accounted for both between-individual and between-item variability to isolate the overall effect of strategy use on the morphosyntax mastery. The model considers fixed and random effects, so that the

psycholinguistic effect attributable to individual variation, and the differences in responses to our items, can be distinguished from the overall effect of strategies. Our model consists of fixed effects that consider the answer to C-test questions as a function of each of the L2 learning strategies and sex, and random effects that consider individuals within their schools and items within their respective C-test. We considered the maximal random effect structure justified by the study design (Barr et al., 2013; Baayen et al., 2008). We applied this generalised linear mixed model in the lme4 R package (Bates et al., 2015, version 1.1-25).
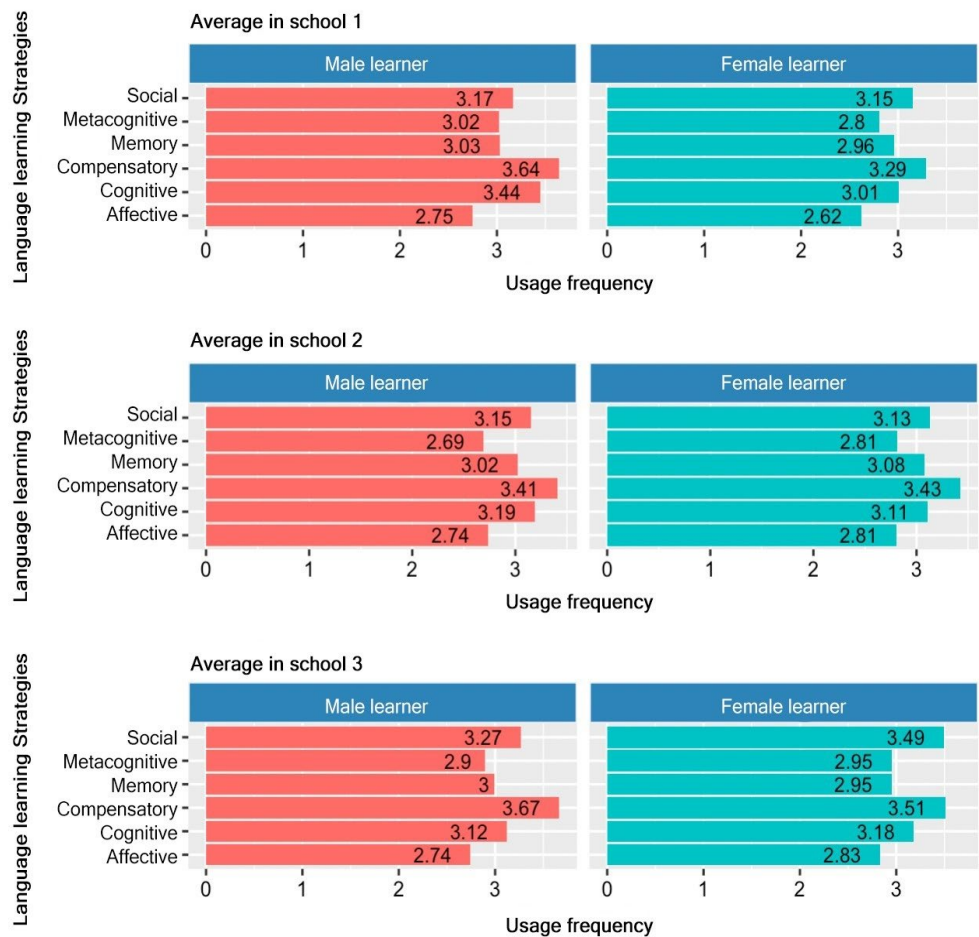
3. Results

In this study, we aimed to find out 1) how frequently our participants used specific learning strategies, 2) what was their level of morphosyntax mastery, and 3) what was the relationship between the use of these strategies and their mastery of German morphosyntax. Therefore, we organised our results as follows: First, we assessed the frequency of the six learning strategies, focusing on differences by sex and school, and the level of German morphosyntax mastery as measured by the C-test. Second, we explored the relationship between the strategies and German morphosyntax mastery, considering the full model comprising C-test results as a function of all six strategies plus sex. Third, we isolated C-Test items that demonstrated the highest variance, as determined by the random effect structure of the minimal model.

3.1 Learning strategies

We analysed the six Oxford learning strategies used by the participants, by sex, and by school (Figure 1). The compensatory strategy was the most used strategy in all schools by male and female learners, in all cases showing an average frequency of use of more than 3 on the Likert scale. The results also indicate that the affective strategy was the least used strategy in all schools and by all groups of learners.

Figure 1

Average frequency of use of L2 learning strategies in three schools.
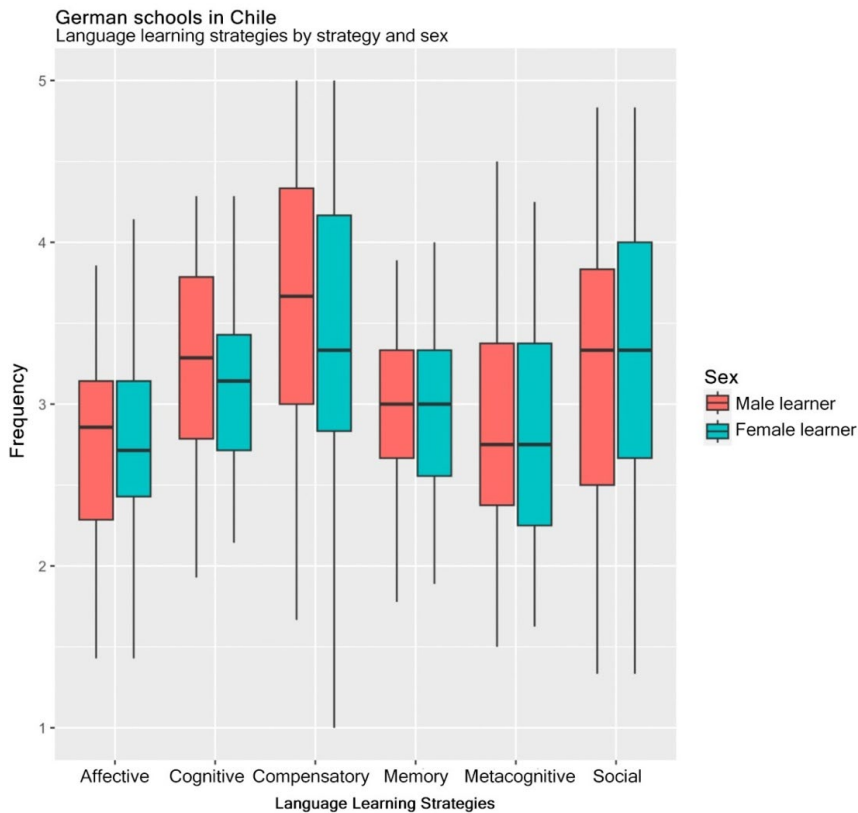

Note. Source: Authors' own elaboration.

Considering the results of the frequency of learning strategies in all schools, according to sex (Figure 2), the compensatory strategy is the most frequently used strategy by both male and female participants. Male learners show a higher average frequency of use of the compensatory strategy than female learners. We observed no significant numerical differences in the frequency of use of the other strategies, except for the cognitive strategy, which is used more frequently by male learners.

Figure 2

L2 Learning strategies by sex in all schools.

German schools in Chile
Language learning strategies by strategy and sex

Note. Source: Authors' own elaboration.

Considering our total sample (Table 2), the compensatory strategy has a median of 3.500000 and a mean of 3.481735 (SD = 0.885845). The least used strategy according to the median is the metacognitive strategy (*Mdn* = 2.750000) and the least used strategy according to the mean is the affective strategy (*M* = 2.744618).

Table 2

Median, mean and standard deviation according to L2 Learning Strategies in three schools.

L2 Learning Strategies	Median	Mean	Standard Deviation
Affective	2.857	2.744	0.591
Cognitive	3.142	3.166	0.588
Compensatory	3.500	3.481	0.885
Memory	3.000	3.003	0.490
Metacognitive	2.750	2.859	0.736
Social	3.333	3.226	0.852

Note. Source: Authors' own elaboration.

3.2 C-Test

C-test scores, obtained using the B-scoring method, were numerically similar across schools (Table 3 and Figure 3). On average, female learners perform better in the morphosyntax mastery test than male learners. School 1 has the best results for female participants. School 2 has better results for males than females, with more below-average outliers and one above-average outlier, in the case of females, but females concentrate their responses on average with a higher score than males. In School 3, females present better results than males and also have the highest level of differences between males and females.
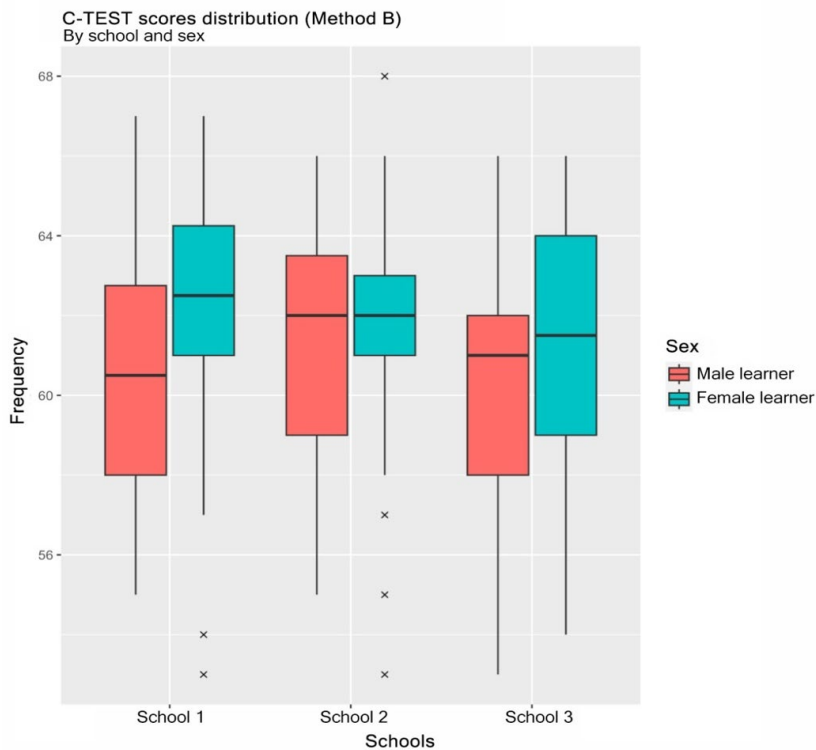
Table 3

Median, mean and standard deviation according to C-Test scores distribution (Method B).

School	Min	Max	Median	Mean	Standard Deviation
1	53	67	62	61.500	3.506
2	53	68	62	61.395	3.106
3	53	66	61	60.895	3.130

Note. Source: Authors' own elaboration.

Figure 3

C-Test scores distribution by school and sex (method B).

Note. Source: Authors' own elaboration.

The complete model comprising C-test results as a function of all six Oxford's strategies plus sex did not reach convergence. Therefore, we chose the alternative of considering each strategy separately, i.e., fitting one model per strategy as a main effect, in order to determine which strategies are relevant to be included in the final model. The minimum model consisted of fixed effects that consider the C-test answer as a function of learning strategy and sex, and random effects that consider the schools with their individuals and the C-Test with their respective items. Within each minimum model the variance attributable to each strategy and the variance attributable to the random effects (individuals in each school and questions within each C-Test, which are non-manipulable variations) were separated.

We looked for the full output of the minimum model specified according to each strategy, considering the variance attributed to the random effects and the variance attributed to the fixed effects. Using this procedure with all strategies separately, we determined that none of the strategies had a significant relationship with the proficiency of the participants in the C-test. On the contrary, the variance appeared to be determined by the difference between questions (C-Test items). Following the analytical design of Castillo et al. (2019), we added *p*-values obtained through likelihood ratio tests (LRT) for each strategy against the minimum model using the function *mixed* in the *afex* package (Singmann et al., 2016). We summarised estimates by strategy, *p*-value by strategy–both according to minimum models–and random effect variance of the questions nested in the C-Test (Table 4).

Table 4

Estimate and p- value by strategy - minimum models and random effect variance.

Strategy	Estimate by strategy – minimum models	*p*-value by strategy	Random effect variance: Question nested in C-Test
Memoristic	0.08092	.157	0.63057
Cognitive	0.048791	.175	0.63058
Affective	0.020565	.356	0.63060
Compensatory	-0.008776	.678	0.63058
Social	0.0001418	.857	0.63057
Metacognitive	0.036324	.283	0.63058

Note. Source: Authors' own elaboration.

Based on these results, and given that no correlations were observed between the variables, but that we observed that the variance was induced by the difficulty of the C-Test items, we decided to analyse the 10 C-Test items with the largest variance. Therefore, we isolated the items of the C-Test to which the largest variance was attributed according to the random effect structure of the social strategy minimum model (Figure 4).

Figure 4

Question distribution as random effect in the minimum model of the Social Strategy.
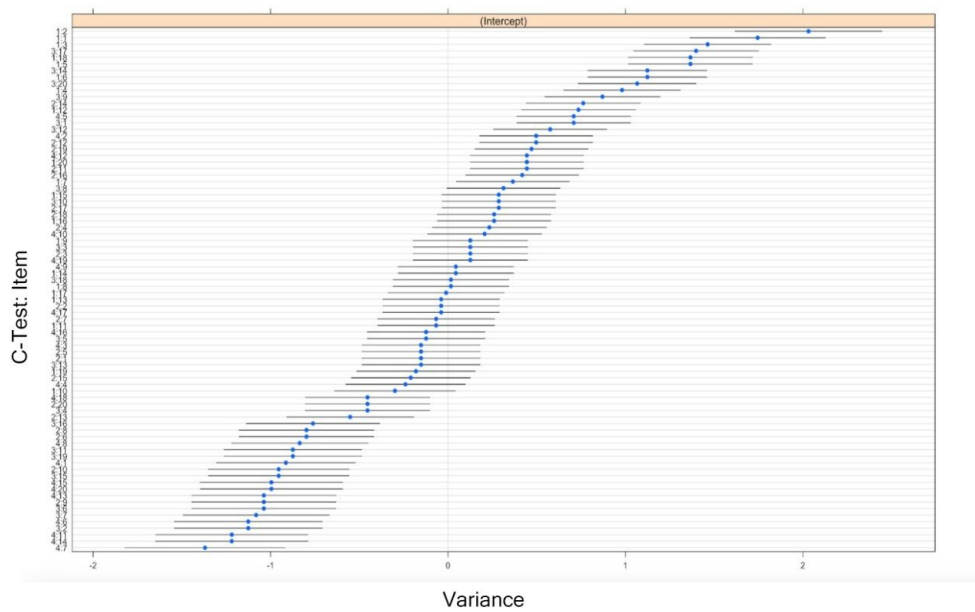
We then analysed the items with the largest negative variance in relation to the answers to the questions in the C-Tests, finding that these items also exhibited the highest number of errors. In ascending order, these are 4:20, 4:13, 2:9, 3:6, 3:7, 4:6, 3:2, 4:11, 4:14, and 4:7. We present the 10 words within context, along with the expected response, word type, and response category. For each case, we include three categories: (3) Not acceptable in terms of content, (5) Original word orthographically incorrect, and (7) Acceptable in terms of content, but grammatically incorrect. Additionally, we provide comments regarding word type as well as specific morphology and syntax for each case (Table 5, the whole table is available at https://osf.io/uvd9n/?view_only=42c4d9bce4aa4568a472fe3ffc8d3b55).

Table 5

Overview of the items with the largest variance in the C-Test.

Item	Context	Word type	Expected answer	Response category			Comments regarding word, morphology and syntax
				(3)	(5)	(7)	
4:20	Diese Entwicklung ist m<u>it</u> einem sta<u>rken</u> (20) Produktivität srückgang verbunden.	Adjective	starken	star starem	starcken	stark starkem starkes	Adjective in the positive degree declined in dative for a masculine noun. Morphology: Omission: stark Commission: starkes, starkem Syntax: Main clause, simple sentence

Note. Source: Authors' own elaboration.

4. Discussion

We investigated the correlation between L2 learning strategies and German morphosyntax mastery in L2 learners. Our results suggest that, while participants frequently use direct and indirect learning strategies, German morphosyntax mastery is influenced by the difficulties of specific morphosyntactic structures, and not by the strategies used. Moreover, our results suggest there are no significant differences in strategy use in German L2 learning between female and male learners, contradicting previous findings that female learners tend to have a wider repertoire of strategies compared to males (Nguyen, 2008; Ehrman & Oxford, 1988; Green & Oxford, 1995; Oxford & Nyikos, 1989; Politzer, 1983).

Even though differences in strategy use were not statistically significant, compensatory strategies were most frequently employed by learners across all schools, likely due to their immediate benefits in facilitating communication despite gaps in linguistic knowledge (Oxford, 2016). These strategies enable learners to maintain conversation flow and to effectively convey meaning, potentially providing practical advantages in real-time communication. In contrast, affective strategies, which involve managing emotions and motivation, were the least used. This might be associated with the higher level of self-awareness and emotional regulation required by this strategy, which learners may not prioritise or recognise as essential to their immediate language learning needs. Additionally, cognitive strategies, which involve direct manipulation of learning material, were more frequently used by male learners. This difference may be influenced by a variety of factors, including personal learning preferences and educational experiences that emphasise analytical and structured approaches. This difference might also be aligned with the homogeneity of teaching approaches that German schools have in Chile, which emphasise analytical and structured learning methods (ZfA, 2009).

Differences between C-Test items, however, do have an impact on participants' results regardless of the strategies used. The C-Test items that had the least correct answers (Table 5) were the ones carrying the most variance within the model. Learning strategies might be more relevant at other language levels, as studies have suggested (Ansarin et al., 2012; Huan, 2019). Moreover, L2 morphosyntax acquisition appears not to be a unitary phenomenon but is influenced by the specific characteristics of individual structures, especially when the L2 diverges considerably from the L1 (Bosch & Casas, 2014; Ringbom & Jarvis, 2009). In this context, features in German such as long-distance dependency structures and null subjects present additional layers of syntactic complexity, as these allow for elements that are syntactically related to appear in non-adjacent positions within a sentence.

Our study observed several morphosyntactic errors in the C-Test, which align with previous findings in the specialised literature (Belletti et al., 2012; Pires & Rothman, 2009; Rose & Brittain, 2011). Notably, in word 3:2, learners struggled with the declension of the adjective *politisch*, a structure that is absent in their L1 (Spanish). This led to both omission (*politisch*) and commission (*politischer*) errors, as well as a change of word type (*Politik*) from adjective to noun. Similarly, in word 3:6, the adverb *nachhaltig*, determined by *künftig*, posed challenges due to its lack of direct equivalence in the learners' L1. Consequently, these words, typically used as adjectives and declined, were treated as adverbs in the C-Test, leading to errors in the learners' responses. Another set of errors arose in word 4:20, where participants analysed the declined adjective *stark* in relation to the preposition *mit*, independently of the verb's position in the sentence. This case highlighted potential knowledge gaps in declensions among the learners. Additionally, the word *Klimaveränderung* (2:9), a copulative composition combining *Klima* and *Veränderung*, presented difficulties for Spanish-speaking learners. Such compounding nouns are less common in Spanish, where the equivalent would be *cambio climático* (climate change), formed by a noun and an adjective. Overall, our results highlight the impact of morphosyntactic distance from Spanish on the learners' difficulties in German acquisition (Pérez, 2008; Bosch & Casas, 2014), emphasising the relevance of considering language distance in second language acquisition studies (Muñoz, 2021).

CONCLUSIONS

In our study, we examined language learning strategies and the mastery of German morphosyntax, focusing on Chilean high school students with a B1 level of German. Descriptive statistics revealed that the compensatory strategy was the most frequently used by participants, while the affective strategy was the least employed. A mixed-model statistical analysis was employed to establish the relationship between self-reported learning strategies and the results of the morphosyntax test at the individual level. Our analysis revealed that differences in the difficulty of the C-Test questions

had a significant impact on the participants' results independently of the strategies used.

These findings hold relevance for both applied linguistics and L2 acquisition research, suggesting that, on the whole, differences in the difficulty of acquisition of specific structures might be more influential for morphosyntax mastery than individual variables such as learners' learning strategies. Overall, the process of morphosyntax acquisition may be perceived as being influenced primarily by the difficulty of the structures being acquired. In the case of Spanish-speaking learners, determining the linguistic distance between the morphosyntactic structures of Spanish and German might help elucidate which structures pose more difficulty in their SLA processes. Syntactic distance, especially for challenging sentence types like subordinate clauses with long-distance dependencies, and morphological distance in declensions, conjugations, and compositions, are crucial considerations in this regard. Analysing the relationship between L2 learning strategies and other linguistic levels, such as phonetics or the size of the lexical repertoire, might also offer valuable insights into the challenges for L2 learners, allowing for a more efficient organisation of L2 learning processes.

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NOTE

[1] We define L2 as the language acquired later in life, after an L1 has already been acquired (Schwartz, 2008).