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Translanguaging pedagogies in an ESP context: Exploring trilingual students' metalinguistic awareness

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Abstract: As a pedagogical practice, translanguaging develops the languages that are part of the learners' linguistic repertoire in a horizontal continuum rather than as separate compartments. This approach to language pedagogy affirms the dynamic language practices of multilingual learners, and thus many educators working on bilingual programs have embraced it in compulsory education with positive results, even when minoritized languages are involved. However, its potential in tertiary education has been less investigated. The goal of this study is to explore the effect of a translanguaging intervention on the metalinguistic awareness of 31 trilingual undergraduate students in a Business English course in the Basque Autonomous Community. Results showed significant improvement in morphological awareness and cognate awareness as well as an increase in the perception of cross-linguistic similarities across English, Spanish, and Basque. In this way, we suggest that pedagogical translanguaging can be a valid approach in ESP courses and in tertiary education.

Keywords: *translanguaging, metalinguistic awareness, morphological awareness, cognate awareness, english for specific purposes (esp).*

Pedagogías del translenguaje en un contexto de inglés para fines específicos: Explorando la conciencia metalingüística de estudiantes trilingües

Resumen: Como práctica pedagógica, el translanguaging desarrolla las lenguas que forman parte del repertorio lingüístico del alumnado en un continuo horizontal en lugar de en compartimentos separados. Este enfoque de la pedagogía del lenguaje afirma las prácticas lingüísticas dinámicas de los estudiantes multilingües y, por lo tanto, muchos educadores que trabajan en programas bilingües lo han adoptado en la educación obligatoria con resultados positivos, incluso cuando se trata de lenguas minoritarias. Sin embargo, su potencial en la educación terciaria ha sido menos investigado. El objetivo de este estudio es explorar el efecto de una intervención basada en el translanguaging en la conciencia metalingüística de 31 estudiantes universitarios trilingües de un curso de inglés comercial en la Comunidad Autónoma Vasca. Los resultados mostraron una mejora significativa en la conciencia morfológica así como un aumento en la percepción de similitudes interlingüísticas entre el inglés, el español y el euskera. De esta manera, sugerimos que el translanguaging pedagógico puede ser un enfoque válido en los cursos de ESP y en la educación superior.

Palabras clave: translanguaging, conciencia metalingüística, conciencia morfológica, conciencia de cognados, inglés para fines específicos (esp).

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1. Introduction

The knowledge of academic vocabulary is crucial for educational and professional success. Moreover, it has been shown that good lexical knowledge favors literacy and overall academic performance (Nation, 2008), and that both morphological awareness (Nation, 2001) and cognate awareness (Otwinowska, 2016) play a crucial role in learning vocabulary.

In multilingual educational contexts, morphological and cognate awareness may be enhanced using students' consciousness of their multilingual repertoire and creating learning environments in which other languages besides the target language are used (Cenoz & Gorter, 2021). Yet, in language teaching, the assumption that teachers should avoid using languages other than the target one is still very present, and languages are taught in a compartmentalized manner (Cummins, 2007).

In recent years, several researchers are looking for new pedagogical practices that break with this language isolation (Canagarajah, 2011; Cenoz & Gorter, 2021; Creese & Blackledge, 2010; García & Li Wei, 2014), and translanguaging has become the most widely used term to refer to this type of pedagogies. The translanguaging intervention presented in this article focuses on increasing students' cross-linguistic awareness and specifically morphological and cognate awareness by creating opportunities to use the students' entire linguistic repertoire in an English for Specific Purposes (ESP) classroom. In order to do so, students were exposed to sequences of activities that explicitly teach cognate and morphological awareness strategies they could use in learning business English. The concept of translanguaging and its pedagogical use will be reviewed in the following section.

1.1 Translanguaging as a pedagogical strategy

Translanguaging may be understood as both the flexible use of the languages of bilingual students inside and outside the classroom (spontaneous translanguaging) or as the planned action of the teacher in the classroom (pedagogical translanguaging; Cenoz & Gorter, 2017). Leung and Valdes (2019) point out that translanguaging is a polysemic term involving several layers and interpretations, and that it is in constant development. With the aim of clarifying the current debate on translanguaging, Vogel and García (2017, p.4) propose some fundamental premises for translanguaging theories according to which bi- and multilingual perspectives should answer individuals' linguistic and semiotic practices above the named languages of nations and states. According to these researchers, individuals have a unitary linguistic repertoire comprising elements from different 'named languages' and they choose and deploy these elements according to their communicative needs. However, these researchers still recognize the importance of socially constructed named language categories, particularly for minoritized language speakers.

In this way, Leung and Valdes (2019, p. 359) distinguish two main analytic perspectives among the epistemic diversity that focuses on educational and pedagogic practices. The first perspective sees languages as 'distinct and separate semiotic entities', which is associated

with the original concept of translanguaging developed in Wales (Lewis et al., 2012). The second perspective views languages as 'configurations of temporal lexical and syntactic features' that express human meaning, which is linked to the concept of translanguaging proposed by Otheguy et al. (2015).

The social reality of languages is reflected in education policies and language curricula (Cenoz & Gorter, 2021), as it is exemplified by the Business English course in which the present study has been carried out. Cenoz and Gorter (2021) explain that students develop abilities in specific languages to use them according to rules and regulations that have been socially constructed. In this case, Business Management students enrolled in a Business English course in the Basque Country aim at developing linguistic competence in English so that they can have access to the business world at the international level, where the use of English is essential. In this way, even if translanguaging has been mainly studied as a natural or spontaneous practice, researchers such as Canagarajah (2011) and Poza (2017) point to the need to go beyond pure intuitive practice and suggest explicitly teaching translanguaging strategies in classrooms, while claiming the need of conducting more research regarding the effect of translanguaging on academic development.

Most of the pedagogical interventions that encourage the use of the entire linguistic repertoire of students have been conducted in the school setting (e.g. Cenoz et al., 2022; Leonet et al., 2020; Charamba & Zano, 2019; Makalela, 2017, 2015; Stewart & Hansen-Thomas, 2016). This approach offers the opportunity to raise awareness of how the language itself works (i.e., metalinguistic awareness) by linking the features shared by languages and transferring them from the languages that students already master to the target language (Cenoz et al., 2022; Ossa Parra & Proctor, 2021; Leonet et al., 2020; Cenoz & Gorter, 2017; Soltero-González et al., 2012).

1.2 Translanguaging strategies in the development of metalinguistic awareness

1.2.1 Morphological and Cognate Awareness

Researchers in the fields of Second Language Acquisition and Multilingualism have demonstrated that focusing on the similarities between students' languages and raising their awareness of them may help students in the learning of an additional language (Cummins, 2017). When students use their entire linguistic repertoire, linguistic knowledge and strategies are transferred from the source languages (the languages known by students) to the target language and, as a result, their metalinguistic awareness is strengthened (Arteagoitia & Howard, 2015; Dressler et al., 2011). This, in turn, enhances students' perception of their multilingual resources and facilitates the identification of cross-linguistic similarities such as cognates or morphological strategies for word formation (Cenoz et al., 2022; Leonet et al., 2020).

1.2.1.1 Morphological awareness

Morphological awareness entails a 'conscious awareness of the morphemic structure of words and ability to reflect on and manipulate that structure' (Carlisle, 1995, p.194). Many researchers suggest that the teaching of the skills associated with this type of awareness is a worthwhile classroom endeavour (Bowers & Kirby, 2010; Freyd & Baron, 1982; White et al., 1989), and there is evidence that morphological awareness improves reading comprehension (Kuo & Anderson, 2006; Carlisle, 2000) and develops vocabulary beyond the words targeted (Bowers & Kirby, 2010).

According to Nation (2001), strategies to decompose words in their units, or 'word part analysis', is one of the major vocabulary learning strategies. This strategy is shared across languages, and it requires awareness to recognize meaningful units in a word, to be able to link meaning to those units, and to see how the meanings of the units relate to the meaning of the word. The word part analysis can also contribute to making cross-linguistic identification of cognates among languages that share vocabulary of Latin origin, as is the case of English, Spanish, and Basque. In fact, several studies have shown a relation between word structure knowledge and cognate identification (Hancin-Bhatt & Nagy, 1994; Dressler et al., 2011).

In addition to the strategy to decompose words, the strategy to create new words by deriving or compounding has also been analyzed. The essence of these strategies is to create derivative or compound words by adding affixes or other units to the base of the words in order to create new meanings. Creating new words by adding new morphemes entails far more complex processes than decomposing words because it requires knowing the grammatical function and meaning of these morphemes. Exposition to the reading language might be enough to acquire the ability to decompose words (Carlisle, 2000). Yet, in order to derive words, students might need explicit instruction on the affixes and their grammatical functions.

Some intervention studies in the school context have explored the potential of the translanguaging approach for morphology instruction (Cenoz et al., 2022; Leonet et al., 2020; Lyster et al. 2013). For example, Ossa Parra and Proctor (2021) examined the discourse and interactions during morphology and syntax instruction lessons to understand how students engaged with the language structures taught as well as how translanguaging manifested in their talk about language. They found that translanguaging practices supported students' metalinguistic awareness and cognitive engagement by establishing connections between English and Spanish morphemes, comparing English and Spanish morphology and syntax, and exploring alternative syntactic structures.

1.2.1.2 Cognate awareness

Cognate words are representative of the linguistic knowledge students may transfer and use in the learning of an additional language. Nash (1997) reported that Spanish and English share between 10.000 and 15.000 cognate words, some of which may be found also in

Basque due to the historical contact between Basque and Latin, and more recently between Basque, Spanish, and French. However, from a psycholinguistic perspective, cognates do not need to share the same etymological origin necessarily, and thus may be defined as 'words similar in their form and meaning, which have descended from a common parent word, have been borrowed from Lx language to Ly language, or are internationalisms borrowed independently by languages Lx, Ly and Lz' (Otwinowska, 2016, p.46). If we understand that these words may be represented in a continuum between form and meaning relationship, we could represent on one side of the continuum cognate words with similar form and meaning (e.g., arte in Spanish / art in English / artea in Basque) and, on the other side of the continuum, false friends. A false friend refers to a linguistic phenomenon where two or more words from different languages appear similar or identical in terms of their spelling or pronunciation, but have different meanings. These deceptive words may lead language learners or speakers to assume that they have the same or similar meanings in both languages, often resulting in misunderstandings or errors in communication (e.g. to introduce ≠ introducir [to insert in Spanish]).

According to Otwinowska (2016), language learners transfer their cognate knowledge from one language to another if, first, they perceive the target language and their first (L1) and second (L2) languages as typologically close and, second, if they make accurate semantic identification. Language typology defines how relatively far or near languages are from each other based on their similarities and differences, and research shows that this is a key factor in native (i.e., L1>L3) and non-native cross-linguistic associations (i.e., L2s>L3) (e.g., Orcasitas-Vicandi, 2019, 2020, 2022; De Angelis, 2005; Cenoz, 2001; Ecke, 2015; Fouser, 2001).

Similarly, various studies have shown that students identify cognate words easier if they are orthographically similar, and also that even the smallest orthographic alteration may influence this identification (Cenoz et al., 2022; Bowers et al., 2000; Nagy et al., 1993). In this way, besides the linguistic distance between cognates, orthographic transparency has been considered a determinant factor in the identification of cognate words (Vanhove & Berthele, 2015).

In addition to orthographic transparency, semantic transparency also plays a decisive role in the identification of cognates. Despite the fact that many Spanish and English words have a Latin origin, lexical elements have differed in development in each language, and do not necessarily share much meaning today (Lubliner & Hiebert, 2011). A factor to consider when analyzing semantic word transparency is polysemy. Polysemous words have more than one meaning (e.g., importar in Spanish corresponds to both "to care" and "to import" in English). These different meanings may lead to confusion when identifying cognate words, since certain cognate words may take a different place in the continuum of the semantic relation depending on their meaning (see, Lubliner & Hiebert, 2011).

Some researchers consider that cognates have not been properly investigated as they have been analyzed in isolation (e.g., Singleton, 2003). These conditions are especially beneficial to identify cognate words. However, they have a scarce ecologic value because

they do not represent the real conditions in which cognates are usually presented. Some studies have found that the advantage of cognate words disappears once a semantic context is offered (Van Hell & De Groot, 2008; Schwartz & Kroll, 2006). Other studies have shown that students use this semantic context to identify cognate words that are not orthographically similar (Möller & Zeevaert, 2015).

Bravo et al. (2007) argued that cognates offered an additional advantage to L1 Spanish speakers compared to L1 English speakers when reading English science texts. According to these researchers, many cognate words with a Latin origin are high frequency words in Spanish while, in English, they are low frequency words and therefore far more sophisticated and used mainly in written language, as the high-frequency words in English tend to be of Germanic origin. For instance, 'signify' (English) and significar (Spanish). Considering this, L1 Spanish speakers could have an advantage when reading English academic texts, as they are able to draw the connection between their L1 and English vocabulary.

English academic texts usually contain many cognate words with a Latin origin, and these words tend to share orthographic and semantic similarities between English and Spanish (Lubliner & Hiebert, 2011). Thus, some researchers have investigated the relationship between reading comprehension and the capacity to identify cognate words in Spanish and English speakers (Proctor & Mo, 2009; Nagy et al., 1993). Proctor and Mo (2009), for instance, found a relationship between reading comprehension in English and cognate identification in Spanish L1 speakers, and not in English L1 speakers. These results showed that students who scored higher in reading comprehension also obtained higher grades in cognate identification. Intervention studies focused on the development of schoolchildren's cognate awareness have also found a positive effect of explicit instruction (Arteagoitia & Howard, 2015; White & Horst, 2012; Dressler et al., 2011).

Intervention studies in this field in tertiary education are scarce. However, several studies report positive relationships between adult learners' metalinguistic awareness and vocabulary learning across languages. For example, Candry et al. (2017) analysed form-meaning elaboration categories L2 learners make during a form-meaning-fit motivation task. They found five types of associations: cross-lexical associations, sound-symbolic associations, word-form comparisons, morphological associations, and idiosyncratic associations, being cross-lexical associations the most frequent type of elaborations.

In turn, Woll (2018) studied the role of metalinguistic awareness in positive lexical transfer from L2 English to L3 German by a group of French native speakers. Based on introspective verbal data, she found that a higher level of metalinguistic awareness is associated with positive transfer from an L2 to a typologically related L3. That is, participants successfully translated unknown words in the target language German (L3) into the French (L1) based on the positive influence of English (L2).

2. The present study

In tertiary education, spontaneous translanguaging is avoided (Gallego-Balsà & Cots, 2019) and both lecturers (Breeze and Roothooft, 2021) and students (Fang and Liu, 2020) are reluctant to admit that they use their L1s in their L2/Foreign Language (FL) classes, even if it is with a pedagogical purpose. Yet, pedagogical translanguaging intervention studies in tertiary education have shown positive results when leveraging students' bilingual resources to create affordances for students to develop their understanding of the academic subject matter (Makalela, 2017; Mazak et al., 2017). That is why, in this study, we wanted to add to this conversation by focusing specifically on the impact of pedagogical translanguaging on students' development of metalinguistic awareness.

With this in mind, our aim was to explore whether a translanguaging-based intervention could enhance students' ability to make cross-linguistic associations, which would in turn increase their cross-linguistic awareness. Therefore, we formulated our research questions as follows:

- Research Question 1: Does the intervention based on translanguaging influence the use of morphological strategies?
- Research Question 2: Does the intervention based on translanguaging influence students' cognate awareness?
- Research Question 3: What factors influence the identification of cognate words?

2.1 Participants

Participants were 31 trilingual undergraduate students (mean age~22.16) from the public University of the Basque Autonomous Community, where the main language of instruction is Basque, Spanish is the majority language, and English is taught as a FL. As part of the degree in Business Management, participants took a course in Business English as a minor subject.

All students were bilingual in Basque and Spanish. They reported having Spanish (46%), Basque (43%), or both (11%) as their native language, and English as their third language. The Business English course was aimed at students with an upper-intermediate level (B2) in the target language. Regarding proficiency level, 37% of the participants could certify a B2 level or above, according the Common European Framework of Reference (CEFR), 21 % of the students had a B1 certificate or lower, and the rest did not have any certificate.

2.2 Participants

The present study involved a 12-week intervention implemented at the Faculty of Economics in Donostia, located at the University of the Basque Country. The study followed a pre-test - post-test design, with the pre-test administered in the week preceding the intervention's implementation, and the post-test conducted in the week immediately following the completion of the 12-week intervention. This approach ensured that the pre-

test measured participants' initial metalinguistic awareness prior to any intervention, while the post-test gauged their metalinguistic awareness after the 12-week intervention period. The intervention sessions were conducted for a duration of 2 hours per week in total.

Pedagogical translanguaging was implemented in order to allow students to take advantage of all their linguistic resources in the process of language learning. Activities were designed and planned according to this translanguaging idea, but they went beyond the original translanguaging developed in Wales, where two languages were used in the input and output (Lewis et al., 2012), as it involved at least three languages (Basque, Spanish and English), and it encouraged making connections with other additional languages that could be part of the students' linguistic repertoires (e.g., their home languages). Yet, pertaining to our study, the participants explicitly indicated their proficiency in Basque, Spanish, and English, and thus no other languages were incorporated into the intervention's design.

The didactic materials designed for the intervention took into account the degree's curriculum guidelines, and the vocabulary to be learnt during that English for Specific Purposes (ESP) course was included (see examples in the Appendix A). A series of tasks were designed in order to integrate metalinguistic strategies related to morphological structure knowledge and cognate awareness in the three languages. Adapting to tertiary education the activities designed by Leonet et al. (2020), the activities developed in this study focused on oral and written language, and mainly on vocabulary and discourse. Some of the exercises proposed focused on derivatives and compounds in Spanish, Basque, and English in order to enhance students' awareness of the similar word formation processes they could use in the three languages. Explicit instruction on the English prefixes and suffixes was provided together with exercises that aimed at developing the students' metalinguistic awareness to improve their production and comprehension both in oral and written discourse. In some cases, for instance, students were asked to compare the same item in the three languages (e.g., liburudenda, librería, bookstore) in order to discuss the differences between these words' formation. In the case of "liburudenda, librería, bookstore" students talked about the inclusion of two compounds in the same order (Basque "liburudenda" and English "bookstore") and a derivative word in Spanish, "librería". In these exercises, students were asked to use these strategies and to think of more examples in which they were used. Students were also asked to use these strategies to come across more vocabulary they could later use in their academic writing. In other cases, students were asked to read scientific or academic texts in English and identify cognates, compounds, and derivative words, and to relate them with the languages they knew.

2.3 Measures

Three complementary measures were designed for this study.

2.3.1 Morphological Awareness Test

An ad hoc designed test was used to assess morphological awareness based on previous instruments designed for other contexts (Lyster et al., 2013; McBridge-Chang et al., 2005;

Carlisle, 2000). Sixty English words that were to be learnt in the ESP course were included in the test. These words were selected considering their appropriateness for the task (i.e., considering the number of affixes) and were divided into two parts (morpheme identification task and base derivation task).

2.3.1.1 Morpheme identification task

In this task, participants were asked to identify parts of derived forms in a set of 30 multi-morphemic words in English (e.g., dis/place/ment). Half of the words in the task (n=15) were constituted by two affixes plus the base and the remaining 15 words, by a base and an affix. Moreover, 15 words of the task had an equivalent cognate in Spanish or Basque. The items were analyzed on a scale from 0 to 3 according to the following criteria:

- 0 points if participants divided the word in the wrong way (e.g., coverage = cove/rage).
- 1 point if participants only identified one of the two affixes (e.g., disapproval = dis/approval).
- 2 points if participants identified the two parts in a word composed of a stem and an affix (e.g., coverage = cover/age).
- 3 points if participants identified the three parts in a word composed of a stem and two affixes (e.g., disapproval = dis/approv/al).

The analysis of the internal consistency of the morpheme identification task using pre-test scores had a good internal consistency with a Cronbach coefficient of .82.

2.3.1.2 Base derivation task

This task required responses involving morpheme compounding in English in order to assess the ability of the participants to produce new words from their base. The task consisted of 30 scenarios in English. Each one provided the base of each target word at the end of the sentence. Participants were asked to come up with new derived forms from the given base. Oral and written guidelines were provided at the beginning of the task and students were also given the following example:

Population growth in the third world has drastically increased ..... [GLOBAL] *.....food demand.* (globe)

In 18 of the items, participants were asked to derivate the base adding a suffix, while another 6 items required to add an affix and, finally, the last 6 items required a base plus two affixes. The items were analyzed on a two-point scale according to the following criteria:

- 0 points for incorrect word formations (e.g., endors-ing instead of endorse-ment).
- 1 point when the word was appropriate but misspelled (e.g., endorsment).
- 2 points if students linked the given base to the appropriate affix without any spelling mistake (e.g., endorse-ment).

The maximum score for this task was 60. In the Base derivation pre-test, the Cronbach alpha coefficient was .82 showing good internal consistency as well.

2.3.2 Cognate Awareness Test

An ad hoc designed test was used to assess cognate awareness based on previous instruments designed for other contexts (Lyster et al., 2013; McBridge-Chang et al., 2005; Carlisle, 2000).

2.3.2.1 Reading comprehension task

Four different expository passages related to Business Studies in English were adapted to the students' proficiency level. The length of texts administered in the pre-test was 346 words containing 103 cognates for passage 1, and 485 words containing 115 cognates for passage 2. Regarding post-test reading passages, passage 3 had 412 words of which 157 were cognates, and passage 4 had 382 words of which 120 were cognates. The texts were chosen considering the topics to be covered in the course from copyright-free content webpages (e.g., NewUSA) and were adapted considering that the total amount of cognates in each text needed to be balanced from the pre- to the post-test. The number of cognates was calculated considering cognates across at least two languages (Spanish and English). The reason for this choice was the idea that being bilingual students, the minimum number of connections they could make between cognates would occur in at least one of their two languages. Moreover, we also took into account the fact that almost any cognate word in Basque would also have its equivalent cognate word in Spanish, as there is no option to be cognates in Basque-English, without going through Spanish, the other Indo-European language.

Once students had read the text, they had to answer four questions regarding the content of each passage in which cognate words were involved. All the items were multiple-choice with four different possible answers.

2.3.2.2 Cognate Identification Task

In the cognate identification task, students were asked to underline all the words that, in their view, had an identical or similar spelling and meaning to other words they already knew in Basque and/or Spanish. The concept of cognate was introduced to participants and the following examples were provided:

1. Illustration (Eng.) – Ilustración (Sp.) – Ilustrazioa (Bas.)
2. Navigate (Eng.) – Navegar (Sp.) – Nabigatu (Bas.)
3. Surf (Eng.) – Surf (Sp.) – Surf (Bas.)

RESLA_TXT_Body_After_Example

All instructions were administered in English both written and orally before the task.

2.3.2.3 Cognates in Context task

A total of 28 cognates were selected from the reading passages of which 14 belonged to the pre-test, and the other 14 to the post-test. Students were asked to deduce the meaning of the cognates taking into account the context of the passage. All the items were multiple'choice with four different possible answers, and one point was given for each correct answer. These words had an equivalent cognate pair in Spanish and/or Basque and were selected by the two authors as being the most ambiguous cognate pairs in the texts after measuring for their semantic and orthographic transparency (see Appendix A). The set of words also included false friends. The target cognate set was small to make it possible to administer the whole task within a single class period.

Orthographical transparency was measured by the Levenshtein Distance (LD) and the Normalised LD (NLD), which has been satisfactorily used in other studies to determine the degree of transparency between cognate pairs (Schepens et al., 2012). LD consists of counting the minimum number of insertions, deletions, or substitutions of single characters needed to transform one string into the other. NLD measures the relationship between the LD and the length of the longest word in a cognate pair (see, Figure 1). NLD establishes a range between 0 and 1, where score 0 means full orthographic overlap, while score 1 means the greatest difference. As the language of the text was English, the NLD analysis was conducted between both English-Spanish and English-Basque.

$$\text{Normalised LD (NLD)} = \frac{\text{LD}}{a\ maximun\ length\ of\ the\ longer\ word}$$

Figure 1. Algorithm to calculate the Normalised Levenshtein Distance.

Additionally, semantic transparency or "the extent to which the meaning or a multimorphemic word can be determined from the meaning of its constituents" (Auch et al., 2020, p. 1) was considered an influential factor in cognate recognition, and it was taken into account in order to determine the grade of difficulty of each cognate. Semantic transparency was measured considering the number of different meanings each target word had in Basque and/or Spanish. These words were classified in a continuum from only one meaning (providers) to 14 different meanings (receive). The Real Academia Española (RAE) online dictionary was used to determine the number of meanings of each word in Spanish. For the equivalents in Basque, Elhuyar and Arluxet online dictionaries were consulted.

2.3.3 Cognate Awareness Questionnaire

Participants completed a short questionnaire before and after the intervention. The questionnaire was adapted from Otwinowska-Kasztelanic (2011) to the design and the context of our study, and it was provided both in Basque and Spanish. It contained four questions concerning cross-linguistic similarities among English, Spanish, and Basque (see Appendix B). More concretely, it looked at students' awareness of the number of cognates

between Basque and English, and Spanish and English (Questions 1 and 2) and participants' self-reported knowledge of cognate pairs in these language pairs (Questions 3). The pre-test version also had a section designed to gather background information related to gender, age, and participants' previous experience with English.

2.2 Procedure

The tests were group-administered by one of the authors before and after a four-month intervention. During that period, participants were trained on morphological and cognate strategies, which were transferable among English, Spanish, and Basque. Testing time was distributed over two days. On the first day, participants completed the Morphological Awareness Test (i.e., Morpheme identification task and Base derivation task) and Cognate Awareness Test (i.e., Reading comprehension task, Cognate Identification task and Cognates in Context task). These tests involved a Basque or Spanish version of the questionnaire within the limit of 15 minutes. Then, each participant had an average time of 30 minutes to individually complete each task of the morphological awareness test, including a brief verbal instruction, and a collection of task sheets. On the second day, participants completed the Cognate Awareness Test within the limit of 50 minutes. The participants completed the three tasks that make up the test, beginning with the Reading comprehension task, following the Cognate Identification task and the Cognates in Context task. Verbal and written instructions for each task were provided in English, as it was the main language of instruction in the subject. Participants were allowed to ask further questions about the completion of the tests during the assessment sessions in the language of their choice.

Once all the data were gathered, the authors of this article corrected the tests considering the guidelines provided in the previous section. The data were later processed and analyzed using the SPSS program version 26.

3. Results

In this section, the results obtained by each research instrument will be analyzed. Therefore, the section is made up of various subsections corresponding to the instruments described above. In order to address the way the intervention influenced the students' use of morphological strategies paired t-test analyses were conducted with both the morpheme identification (2.3.1.1) and base derivation tasks (2.3.1.2).

3.1 Morpheme identification

The paired-samples t-test for the morpheme identification task (see subsection 2.3.1.1) revealed that there was a statistically significant increase from the pre-test to the post-test ($M = 35.85$, $SD = 10.61$) to ($M = 45.25$, $SD = 8.25$), $t(27) = -6.12$, $p < .00$. The mean increase in post-test score was -9.40 with a 95% confidence interval ranging from -12.54 to -6.24, $d = 1.15$. In order to get more information about the way in which students divided the words, a paired t-test was run with each of the items of the Morpheme identification task. Participants obtained higher scores in the post-test in 26 of the 30 items but the increase was only

significant for 15 of these items. "advise" t(27) = -3,00, p < .00, d=0.46, "quotation" t(27) = -1,98, p < .05, d=0.25, "export" t(27) = -3,23, p < .00, d=0.60, "importer" t(27) = -2,49, p < .01, d=0.53, "subsidiary" t(27) = -2,26, p < .03, d=.36, "advertisement" t(27) = -2,07, p < .04, d=0.38, "loyalty" t(27) = -2,71, p < .01, d=0.74, "awareness" t(27) = -3,15, p < .00,d=0.57, "acquire" t(27) = -2,29, p < .03, d=0.47, "revenue" t(27) = -3,10, p < .00, d=0.65, "coverage" t(27) = -2,27, p < .03, d=0.47, "acknowledge" t(27) = -2,92, p < .00, d=70, "updating" t(27) = -2,19, p < .03, d=0.58, "unskilled" t(27) = -2,68, p < .01, d=0.62, and for the item "depth" " t(27) = -3.00, p < .00. d=0.58. The results of the Morpheme identification task are shown in Table 1.

Table 1. Differences between pre-test and post-test in the Morpheme identification task.

	PRE-TEST		POST-TEST		T	S
	M	(SD)	M	(SD)		
Advise*	.50	.88	1.00	1.01	-3.00	.00
Equipment	1.71	.71	1.94	.37	-1.36	.18
Quotation	.86	1.00	1.10	.99	-1.98	.05
Export*	1.36	.95	1.87	.37	-3.28	.00
Importer*	1.82	.98	2.32	1.06	-2.49	.01
Subsidiary*	.71	.65	1.03	1.10	-2.26	.03
Advertisement	1.14	.97	1.58	1.00	-2.07	.04
Loyalty*	1.79	.41	2.00	.00	-2.71	.01
Edgewise	1.57	.83	1.61	.83	.00	1.00
Awareness	1.36	.91	1.84	.52	-3.15	.00
Endorsement	1.00	.66	1.32	1.05	-1.56	.13
Acquire*	.32	.72	.77	.99	-2.29	.03
Controversial*	.36	.48	.42	.55	.00	1.00
Announcement*	.82	.39	.90	.26	-1.36	.18
Volatility*	.96	.96	1.39	.95	-1.83	.07
Entrepreneur*	.43	.50	.52	.50	-1.00	.32
Assemble*	.04	.18	.16	.39	-1.68	.10
Configureate*	.89	.99	1.10	1.01	-.86	.39
Supplier	1.43	.92	1.52	.83	-.48	.63
Revenue	1.00	1.01	1.68	.78	-3.10	.00
Reassess	1.14	1.00	1.19	.94	-.16	.86
Coverage	1.21	.99	1.65	.78	-2.27	.03
Acknowledge	1.32	1.24	2.06	1.06	-2.92	.00
Unparalleled*	1.93	1.12	1.90	1.04	.38	.70
Updating*	1.71	.97	2.23	.96	-2.19	.03
Displacement	2.57	.83	2.81	.63	-1.14	.26
Unskilled	1.71	1.18	2.39	1.05	-2.68	.01
Researcher	2.32	1.02	2.45	.83	-1.23	.22
Depth	.36	.78	.84	1.00	-3.00	.00
Budgetary	1.50	.88	1.48	.88	.00	1.00

* Word with a cognate pair in Spanish and/or Basque

If we look at the number of affixes in each item, participants improved in 9/15 items composed of a base plus an affix. Among the items composed of a base plus two affixes, the improvement occurred in 6/15 items. Ten of these items had a prefix or a prefix and a suffix. Students improved significantly in the two items with the prefix "ad" as well as in the two items with the prefix "ac".

Moreover, half of the items in the Morpheme identification task had a cognate equivalent in Spanish or Basque. Participants improved significantly in 7/15 items with a cognate equivalent while they improved significantly in 8/15 items that did not have a cognate in Spanish or Basque.

3.2 Base derivation

The paired-samples t-test conducted for the base derivation task (see subsection 2.3.1.2) yielded a significant group effect from the pre-test to the post-test (M = 18.82, SD = 9.02) to (M = 23.57, SD = 7.92), t(27) = -4.19, p < .00, d=.79. The mean increase in post-test score was -4.75 with a 95% confidence interval ranging from -7.07 to -2.19.

For a more detailed understanding of the way in which students created words from the given base considering the information provided in the context, a paired t-test was run to determine whether there was a statistically significant mean difference in the 30 items of the Base derivation task. Participants obtained higher scores in the post-test in 24 of the 30 items, but the increase was only significant for 6 of these items. "Competitive" t(27) = -1,98, p < .05, d=0.47, "co-author" t(27) = -2,58, p < .01, d=0.54, "unsolved" t(27) = -2,93, p < .00, d=0.45, "endorsement" t(27) = -2,17, p < .03, d=0.29, "agricultural" t(27) = -2,73, p < .01, d=0.57, and for the item "historically" t(27) = -3.50, p < .00, d=0.54. Considering these results, participants improved significantly in 4/18 items that required to derivate the base by adding a suffix. The other two items required to add an affix and, finally an affix and a suffix were necessary to derivate the sixth item (see Table 2).

In order to analyze the way in which the intervention influenced students' Cognate Awareness, data from the Reading Comprehension (2.1), Cognate Identification (2.2) and Cognates in Context tasks (2.3) were analyzed. The results of these tasks are shown in Table 3. Then, the results from the Cognate Awareness questionnaire (3) were considered to gain a deeper understanding.

3. Base derivation

A paired-samples t-test revealed that there was a statistically significant increase in the Reading Comprehension task (see subsection 2.3.2.1) score from the pre-test to the post-test (M = 4.82, SD = 1.09) to (M = 5.53, SD = 1.34), t (27) = -2.84, p < .00. The mean increase in the post-test score was -.71 with a with a 95% confidence interval ranging from -1.22 to -.19, d=.53.

Table 2. TDifferences between pre-test and post-test in the base derivation task.

	PRE-TEST		POST-TEST		T	S
	M	SD	M	SD		
Placement (2)	1.46	.88	1.50	.88	-.17	.86
Competitive (2)	1.36	.95	1.71	.71	-1.98	.05
Loyalty (2)	1.75	.75	1.93	.37	-1.41	.17
Mismanage (1)	.14	.52	.25	.51	-1.36	.18
Unofficial (1)	.36	.78	.21	.63	1.44	.16
Challenger (2)	1.21	.99	1.36	.95	-.70	.49
Stretching (2)	.93	.97	.93	1.01	.00	1.00
Co-author (1)	.21	.56	.57	.79	-2.58	.01
Representative (3)	.07	.37	.00	.00	1.00	.32
Pressure (2)	.68	.94	.64	.95	.19	.84
Billionaire (2)	.71	.93	.86	.97	-1.00	.32
Gigantic (2)	.25	.58	.18	.47	.81	.42
Unresolved (3)	.36	.78	.82	.98	-2.93	.00
Endorsement (2)	1.04	.74	1.43	.69	-2.17	.03
Updating (3)	.29	.71	.29	.65	.00	1.00
Overcome (1)	.21	.63	.43	.83	-1.36	.18
Subset (1)	.14	.52	.29	.71	-1.44	.16
Dependence (2)	.96	.96	1.18	.98	-.90	.37
Leader (2)	1.75	.64	1.79	.63	-.32	.74
Improved (3)	.57	.87	.75	.96	-.92	.36
Differential (2)	.07	.37	.14	.52	-1.00	.32
Underemployment	.00	.00	.07	.37	-1.00	.32
Dependent (2)	.32	.72	.54	.83	-1.29	.20
Agricultural (2)	.89	.99	1.43	.92	-2.73	.01
Predictable (2)	.54	.88	.79	.99	-1.04	.30
Closely (2)	.32	.72	.36	.78	-.19	.84
Reopened (3)	.00	.00	.21	.63	-1.80	.08
Historically (2)	.89	.91	1.50	.79	-3.50	.00
Dramatically (2)	1.25	84	1.43	.83	-1.30	.20
Displaced (3)	.07	.37	.00	.00	1.00	.32

(1) Word formed by a prefix. (2) Word formed by a suffix. (3) Word formed by both prefix and suffix.

Table 3. Differences between pre-test and post-test in the Reading Comprehension task, Cognate Identification task and Cognates in Context task.

	PRE-TEST		POST-TEST		T	S
TASKS	M	SD	M	SD		
Reading Comprehension	4.82	1.09	5.53	1.34	-2.84	.00
Cognate Identification	44.89	24.72	105.40	61.08	-6.50	.00
Cognates in Context	8.42	2.99	10.42	2.86	-3.15	.00

3.4 Base derivation

The paired-samples t-test conducted for the total cognate recognition score (see subsection 2.3.2.2) yielded a significant group effect from the pre-test to the post-test (M = 44.89, SD = 24.72) to (M = 105.40, SD = 61.08), t (27) = -6.50, p < .00. The mean increase in post-test score was -60.67 with a 95% confidence interval ranging from -79.82 to -41.52, d=1.22.

3.5 Cognates in Context

Again, the paired-samples t-test conducted for the Cognates in Context Task (see subsection 2.3.2.1) revealed a statistically significant increase from the pre-test to the post-test (M = 8.42, SD = 2.99) to (M = 10.42, SD = 2.86), t (27) = -3.15, p < .00. The mean increase in the post-test score was -2,00 with a 95% confidence interval ranging from -3.30 to -.69, d=.59.

As shown in Table 4, the item-by-item analysis of the cognates of the test also showed that participants obtained more correct answers after the intervention.

Table 4. Item-by-item analysis of Cognates in Context task.

CORRECT ANSWERS	PRE-TEST	POST-TEST
< 50%	provide (35.5%) expertise (38.7%) derivatives (45.2%) equities (45.2%) record (48.4%)	consultation (38.7%)
50%-75%	combat (61.3%) focused (64.5%) legitimate (64.5%) horizons (67.7%) solid (71%) competing (74.2%)	navigate (64.5%) efficiently (64.5%) receive (67.7%) prescription(67.7%) portable (67.7%) providers (71%) resources (74.2%)
%75 >	neophyte (77.4%) consisted (87.1%) flourish (96.8%)	reputation (77.4%) trained (87.1%) records (87.1%) transition (90.3%) continent (93.5%) digitize (93.5%)

3.6 C Cognate Awareness Questionnaire

Additionally, the effect on the perception of crosslinguistic similarity across the language systems was measured by the Cognate Awareness Questionnaire (3). In order to measure the overall cognate awareness of students' scores from the four questions of the questionnaire, these scores were summed. A paired-sample t-test revealed that there was a statistically significant increase in the overall cognate awareness score from the pre-test to the post-test (M = 10.54, SD = 3.57) to (M = 11.87, SD = 3.24), t (23) = -2.63, p < .01. The mean increase in the post-test score was -1.33 with a 95% confidence interval ranging from -2.38 to -.28, d=.53.

Following Otwinowska-Kasztelanic (2011), participants were categorized in low, medium, and high cognate awareness taking into account the scores from the first measure in the Cognate Awareness Auestionnaire. Questions 1 and 2 were categorized and labeled as follows: below 150 (low awareness), between 150-500 (medium awareness), and above 500 (high awareness) of the existing cognates in Basque-English and Spanish-English. Questions 3 and 4 were categorized and labeled as follows: 10 or 50, low awareness; 100, medium awareness; and 500 or 10000, high awareness (see Appendix B). Figure 2 shows the development of the overall cognate awareness for each category.

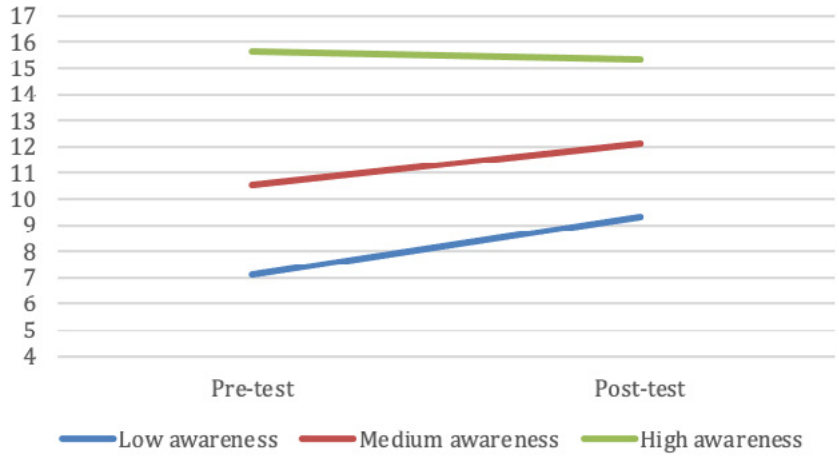

Figure 2. Development of the overall cognate awareness for each category.

Separate paired-samples t-tests were conducted considering the three categories. The paired-sample t-test with participants with low cognate awareness revealed that there was a statistically significant increase in the overall cognate awareness score from the pre-test to post-test (M = 7.11, SD = 1.36) to (M = 9.33, SD = 1.73), t (8) = -3.25, p < .01. The mean increase in the post-test score was -2.22 with a 95% confidence interval ranging from -3.79 to -.64, d=1.08.

The paired-samples t-test with participants with medium cognate awareness revealed that there was a marginally significant increase in the overall cognate awareness score from the pre-test to the post-test (M = 10.55, SD = 1.23) to (M = 12.11, SD = 2.36), t (8) = -1.03, p < .07. The mean increase in post-test score was -1.55 with a 95% confidence interval ranging from -3.32 to -.21, d=.67.

Finally, the paired-samples t-test with participants with high cognate awareness revealed that there was a small decrease in the overall cognate awareness score from the pre-test to the post-test (M = 15.66, SD = .81) to (M = 15.33, SD = 2.94), t (5) = .28, p < .78. The mean decrease in post-test score was .33 with a 95% confidence interval ranging from -2.68 to 3.35, d=1.15.

Additional analyses were conducted for Basque cognate awareness and Spanish cognate awareness. Scores from Questions 1 and 3 were summed for the cognate awareness in Basque and the scores from Questions 2 and 4 for the cognate awareness in Spanish.

The paired-samples t-test showed an increase in the overall cognate awareness in Basque from the pre-test to the post-test ($M = 3.95$, $SD = 1.92$) to ($M = 4.25$, $SD = 2.15$), $t\ (23) = -1.12$, $p < .27$, $d=.23$. The mean increase in the post-test score was -.29 with a 95% confidence interval ranging from -.82 to .24. In contrast, the paired-samples t-test for Spanish cognate awareness revealed that there was a statistically significant increase in from the pre-test to the post-test ($M = 6.58$, $SD = 1.92$) to ($M = 7.62$, $SD = 1.55$), $t\ (23) = -2.79$, $p < .01$. The mean increase in the post-test score was -1.04 with a 95% confidence interval ranging from -1.81 to -.26, $d=.56$.

4. Discussion and conclusions

The main goal of this research study consisted of exploring the ways in which a translanguaging-based intervention could affect L3 learners' morphological and cognate awareness. For that purpose, we used a variety of instruments including the Morphological Awareness Test, the Cognate Awareness Test, and the Cognate Awareness Questionnaire.

We found that the intervention influenced the use of morphological strategies, as students obtained significantly better results in both the overall score of the morpheme identification task and the word derivation task. To the best of our knowledge, no other study has developed a similar intervention to examine students' morphological and cognate awareness in tertiary education. Most of the existing research in this field has focused on interventions in compulsory education, which have demonstrated positive results (Cenoz et al., 2022; Leonet et al., 2020 ; Lyster et al., 2013). However, there remains a noticeable gap in research regarding interventions specifically designed for tertiary education contexts. This highlights the importance of further investigation in this area to address the research gap.

Additionally, our results showed that students identified most marked items -words with a prefix, or a prefix and a suffix- more easily, and that this was particularly striking in the case of the prefixes "ad" and "ac". According to Bowers and Kirby (2010), the explicit instruction of word structure knowledge facilitates the recognition of the base in multi-morphemic words. Given that these prefixes were not common in Spanish and Basque, our results led us to think that students could have acquired them during the intervention.

Yet, we found that students did not improve significantly when it came to deriving words. As Carlisle (2000) explained, creating new meaning by adding affixes to a base requires knowledge of grammatical rules and the meanings of the suffixes, while relational knowledge is enough to complete the decomposing tasks. According to our results, students showed to have difficulties when inflectional knowledge of morphology was required in

the task. This led us to think that although students were capable of using both strategies properly, markedness and the grammatical specification required by the word formation task might have influenced our results (RQ1).

In addition, we found that students did not find it easier to decompose morphemes in the case of cognate words just because they were cognate words. This is probably because students of this age have enough metalinguistic awareness and cognitive ability to identify morphemes regardless of whether they are cognates or not.

As for the second research question, we found that our intervention led to an overall increase in the students' cognate awareness. As the results of the test showed, the effect of the intervention was more prominent on students with a lower cognate awareness before the intervention. These results are interesting because the perception of language distance is considered a relevant factor in cross-linguistic influence (Cenoz et al., 2001; Orcasitas-Vicandi, 2019, 2020, 2022). Thus, the cross-linguistic identifications explained in the intervention may have decreased the perception of language distance between the language pairs, and students may have developed a more solid awareness of their own resources as multilinguals (RQ2).

Concerning the results obtained in the Cognate Awareness Questionnaire, students perceived more lexical similarities between English and Spanish than between English and Basque, and the intervention boosted this perception between the first language pair. Moreover, we found that our intervention also positively influenced students' cognate identification and meaning deduction. Our results showed that students improved significantly in both tasks, which agrees with the results obtained in previous studies conducted with adults in other contexts and typologically distant languages such as English and Polish (Otwinowska, 2016).

In order to identify the factors affecting cognate awareness (RQ3), we considered the items within the Cognates in Context task (3.3). We found some slight evidence in favour of orthographic and semantic transparency, as some opaque and ambiguous words were the items the least guessed by the participants. However, we also found that participants guessed some orthographically and semantically opaque words. Thus, in contrast to Vanhove and Berthele (2015), we cannot conclude that orthographic transparency is a determinant factor in recognizing cognate words in L3 writing. These findings may be explained as related to the linguistic trajectory of our participants. In this sense, our participants -university students with a long language learning experience- were able to use other cognitive and metacognitive strategies together with their linguistic knowledge in the L1 or L2 to guess the meaning of these orthographically and semantically opaque cognate words.

This intervention led us to draw some implications for the use of pedagogical translanguaging in ESP contexts. In this way, our results indicated that pedagogical translanguaging boosts students' awareness of their linguistic resources as multilinguals, and that this might be beneficial for the learning of English. Yet, in order to take advantage

of this potential role of translanguaging (Fang & Liu, 2020), lecturers should reflect upon the fact that translanguaging helps to improve students' content comprehension while increasing classroom interaction and awareness on language (Wei, 2021; Marshall, 2020; Van Viegen & Zappa-Hollman, 2020; Creese & Blackledge, 2010). In this sense, training courses could make university teachers overcome monolingual ideologies while considering the benefits of translanguaging (Doiz & Lasagabaster, 2017; García & Wei, 2014).

Yet, the study reported here has some limitations because the intervention was carried out in a specific context and with a limited time and number of students. We were limited to administering the test only in an experimental group and were unable to compare the results with a control group. Additionally, we were also unable to conduct a delayed post-test due to the pre-established length of the course. In spite of these limitations, the findings from this study support those obtained in other research studies in multilingual school contexts (Leonet et al., 2020; Arteagoitia & Howard, 2015; Lyster et al., 2013; Dressler et al., 2011), and they show that vocabulary instruction adopting a translanguaging perspective can be positive also in university settings.

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