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Paolo Della Putta*

Promoting learning and unlearning through textual enhancement in a closely related L1-L2 relationship

The results of a bidirectional study with Spanish-speaking students of Italian and Italian-speaking students of Spanish

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Abstract: This study investigates the differential effects of Textual Enhancement (TE) on the learning and unlearning of two syntactic properties of Spanish – the absence of the Pre-possessive Determiner Article (PPDA) and the presence of the Prepositional Accusative (PA) – which each pose specific acquisitional difficulties for Italian-speaking learners of Spanish (ISS) due to their asymmetrical relationships with corresponding L1 structures. 77 ISS were divided in two experimental groups: group A read 5 texts with TE on PA – the feature to be learned – and group B read the same 5 texts with TE on PPDA – the feature to be unlearned. The participants took a timed grammatical judgment task three times (before, five days after, and two months after the instructional treatment). The results are compared with those of Della Putta (2016), a symmetrical study to this, in which the same teaching intervention and experimental conditions were adopted with Spanish-speaking learners of Italian, whose task was to unlearn PA and to learn PPDA. The bidirectional comparison shows a similar, weak effect of TE, although in the present study, unlike in Della Putta (2016), unlearning did not seem to be more difficult than learning. These similarities and differences are discussed and theoretically motivated.

Keywords: Learning, unlearning, textual enhancement, L2 difficulty, closely-related languages

Abstract: Este estudio investiga los efectos diferenciales del Textual Enhancement (TE) en el aprendizaje y desaprendizaje de dos propiedades sintácticas del español – la ausencia del Artículo pre-posesivo (APP) y la presencia del Acusativo Preposicional (AP) – que plantean dificultades específicas de adquisición para los

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estudiantes italianos de español (EIE) debido a sus relaciones asimétricas con las correspondientes estructuras en la L1. 77 EIE se dividieron en dos grupos experimentales: el grupo A leyó 5 textos con TE sobre AP – la característica a ser aprendida – y el grupo B leyó los mismos 5 textos con TE sobre APP – la característica a ser desaprendida. Los participantes tomaron una tarea cronometrada de juicio gramatical tres veces (antes, cinco días después y dos meses después del tratamiento instructivo). Los resultados se comparan con los de Della Putta (2016), un estudio simétrico a este, en el que se adoptaron las mismas condiciones de intervención pedagógica y experimental con los estudiantes hispanohablantes de italiano, cuya tarea era desaprender AP y aprender APP. La comparación bidireccional muestra un efecto similar y débil del TE, aunque en el presente estudio, a diferencia de Della Putta (2016), el desaprendizaje no parece ser más difícil que el aprendizaje. Estas similitudes y diferencias son discutidas y teóricamente motivadas.

1 Introduction

The relationship between the effectiveness of form-focused instruction and the degree of complexity of L2 features has been investigated extensively in Second Language Acquisition (SLA) research (e.g. Spada and Tomita 2010; de Graaf and Housen 2009; Housen and Pierrard 2005); however, a clear and exhaustive explanation of how linguistic complexity and instruction interact is still to be found (DeKeyser 2016). One of the potential methodological biases of this line of research concerns the way one defines complexity. According to Spada and Tomita (2010: 266), linguistic complexity has been historically analysed from three different perspectives, often inconsistently mixed: 1) psycholinguistic complexity, measured in terms of early/late emergence of an L2 feature in learners' interlanguage, or of processability constraints posed by a L2 feature given the existence of developmental sequences (e.g. Pienemann 1998); 2) pedagogical complexity, as described anecdotally by students and teachers and 3) linguistic complexity, following the seminal work of Goldschneider and DeKeyser (2001), which examined inherent characteristics of the signifier such as its phonological perceptibility, syntactic complexity and morphophonological regularity. More recently, Pallotti (2015) has expanded on the linguistic dimension of complexity, proposing a construct operationalization which encompasses the number and variety of the discrete components of a structure, its perceptual salience and its input frequency, but which excludes other related but non-strictly-linguistic issues such as the cognitive costs of interlinguistic development and the developmental trajectory of the structure in question. According to Pallotti, complexity

should be considered as an “observable attribute” (Pallotti 2015: 127) of a linguistic element, which might or might not correlate with its acquisitional results. In fact, linguistic complexity alone does not suffice to account for the differential outcomes of non-instructed and instructed SLA: according to more recent lines of investigation, when designing a study in this intricate yet vitally important area of SLA, one should consider the broader construct of *difficulty* (Housen and Simoens 2016; Bulté and Housen 2012). What makes one structure more *difficult* than another is on the one hand its *linguistic complexity* as proposed by Pallotti but also individual factors which may vary between learners. Difficulty is therefore a bipartite construct, as learners’ and linguistic factors interact to create a more ecological, learner-centred perspective on SLA outcome variation and the efficacy of form-focused instruction. As Housen and Simoens (2016: 167) maintain, “individual learner differences are core ingredients of L2 learning difficulty; they constitute the difficulty that the learners themselves bring to L2 learning”; these include the learners’ previous linguistic knowledge (i.e. the characteristics of the L1 or of other known languages and their relationship to the L2), their cognitive abilities (e.g. language aptitude and working memory) and other socio-affective factors such as motivation or anxiety. Given a certain level of complexity of one L2 feature, learners’ factors are the variables that may exacerbate or alleviate the final difficulty of acquiring that particular feature.

Following these definitions of complexity and difficulty, this study sets out to bidirectionally replicate a study (Della Putta 2016, DP16 henceforth) that compared the effects of a Focus on Form (FonF) technique, Textual Enhancement (TE), on the *learning* and *unlearning* of two features of the Italian grammar by Spanish-speaking learners (SSL). These features are the Prepositional Accusative (PA) and the pre-possessive determiner article (PPDA), which display nonparallel distributive properties in the Italian-Spanish pairing.

In Spanish, PA is compulsory in SVO sentences in front of animated, specific and definite objects, its (non)appearance being dependent on a multi-dimensional bundle of factors related to the semantics of the direct object and the transitive verb, and to a number of discourse-related factors (see, e.g., Leonetti 2008, Guijarro-Fuentes 2011, Balasch 2011). In standard Italian, on the contrary, PA never appears in SVO sentences but may occur before first and second-person pronouns in dislocated positions (Iemmolo 2010)¹.

¹ In the present study, we opted to focus on the most prototypical, stable and frequent configuration of Spanish PA: its presence before a proper noun, i.e. an animate and specific human referent in a SVO sentence. In this particular case, some non-standard regional varieties of Italian show the presence of PA in SVO sentences, but the phenomenon occurs in Southern Italy only (Iemmolo 2010), and all our participants were born and raised in the north of the country.

This asymmetry can be seen in the following examples:

- 1) Italian: a) *Aspetto* *Marco*
 Wait.1SG.PRES Marco
 ‘I wait/am waiting for Marco’ [-PA];
 b) *Aspetto* *l’* *autobus*
 Wait.1SG.PRES ART.SG.MASC bus
 ‘I wait/am waiting for the bus’ [-PA];
- 2) Spanish: a) *Espero* *a* *Marcos*
 Wait.1SG.PRES PREP Marcos
 ‘I wait/am waiting for Marcos’ [+PA];
 b) *Espero* *el* *bus*
 Wait.1SG.PRES ART.SG.MASC bus
 ‘I wait/am waiting for the bus’. [-PA]

In Spanish, PPDA never appears in front of a possessive article, whereas in standard Italian it is compulsory in front of all possessive determiners except for those preceding singular, unmodified nouns denoting family relationships²:

- 3) Italian: a) *Questa è* *la* *mia* *macchina*
 This be.1SG.PRES ART.SG.FEM. my car
 ‘This is my car’ [+PPDA];
 b) *Questa è* *mia* *madre*
 This be.1SG.PRES my mother
 ‘This is my mother’ [-PPDA]
- 4) Spanish: a) *Este es* *mi* *coche*
 This be.1SG.PRES my car
 ‘This is my car’ [-PPDA];
 b) *Esta es* *mi* *madre*
 This be.1SG.PRES my mother
 ‘This is my mother’ [-PPDA]

² It is worth mentioning that in standard Italian the absence of PPDA in front of nouns denoting family relationships presents a considerable degree of variance. For example, PPDA is present in front of diminutives as in, e.g., *la mia sorellina* (“the my little sister”). Similarly, if the possessive is followed by an adjective, the presence of PPDA is also mandatory: *il mio bel papà* (“the my beautiful daddy”). See Penello (2003) for a discussion.

In DP16, the data suggested (see Section 3 for details) that for SSL, unlearning PA was more difficult than learning PPDA: pre-empting the erroneous transfer of an L1 feature triggered by a bundle of syntactic, semantic and discursive factors when the very same factors occur in the same L2 phrasal context was a more difficult operation than adding to the interlanguage an L2 property that is absent in the L1. These results are in line with studies that put forward the idea that unlearning is more difficult than learning (cfr. Schwartz and Goad 2017: 237; Cuza et al. 2012: 635; Grüter et al. 2010: 129; Spada and Tomita 2010: 268; Gass and Mackey 2002: 255). Unlearning an L1 property or structure, in fact, means inhibiting its activation in L2 contexts that potentially but wrongly trigger it: learners are therefore required to perceive that a feature or property of their L1 is not one shared by the L2. This is a significant issue, as learners must notice the *presence of an absence*, i.e. the nonappearance of an L1 form in the L2 or of an L1 function or meaning that is not mapped on an L2 functor or construction. In this case learners have to rely on *indirect negative evidence* to correctly develop their interlanguage (Schwartz and Goad 2017; Pearl and Mis 2016; Gass and Mackey 2002). In the case of learning, by contrast, it is the *presence of a presence* that has to be noticed, i.e., the appearance, albeit with varying degrees of salience and frequency, of a new functor or of new functions or meanings in the L2 input. In this case, interlanguage development relies on *positive evidence* (Dekeyser 2016). The differential difficulty level of the learning/unlearning dichotomy has been explained in terms of a subset/superset relationship between different parameter settings (Gregg 1997; Wexler and Manzini 1997), and has been discussed in the context of “the logical problem of foreign language learning” (Bley-Vroman 1990). Assuming full transfer of L1 parameter settings to the L2 (Judy 2011; Schwartz and Sprouse 1996), learners will approach L2 acquisition with the full parameter settings of their L1, which creates the learnability problems mentioned above when an L1 parameter has a wider set of values than the same L2 parameter. Moreover, the similarity of the learners’ L1 to the L2 exacerbates these different degrees of difficulty: assumptions of similarity between the L1 and the L2 can create attentional breakdowns and, therefore, incorrect input analysis, leading learners to inappropriate and potentially fossilized form/meaning mappings (Jarvis and Pavlenko 2008: 149; Benazzo and Andorno 2017).

Despite the fairly large number of studies on unlearning in SLA (see Section 2 for a brief summary), there have been relatively few attempts to suggest concrete pedagogical solutions. DP16 is the only study, to the best of our knowledge, that has examined and compared the effects of one specific FonF technique, TE, on learning and unlearning. The methodology of DP16 is in line with recent recommendations that advocate a more accurate control of the experimental variables when addressing the acquisitional outcomes of FonF (Goo et al. 2015). These

considerations are the impetus for the present bidirectional replication study, with its two main objectives, as outlined below.

Firstly, we would like to ascertain if the findings of DP16 hold bidirectionally. In the present study, 77 Italian-speaking learners of Spanish (ISS) were tested on the same features as in DP16, which this time are in the opposite relationship due to L1-L2 asymmetries: ISS have to learn PA and unlearn PPDA. According to the results of DP16 and to the learning/unlearning dichotomy, the former operation should be easier than the latter and this, if confirmed, would validate the greater difficulty of unlearning in typologically similar L1-L2 contexts. Nevertheless, research has shown that learning direction matters in L2 acquisition, since passing from a less complex language to a more complex one is more challenging than vice versa: the degree of difficulty found in an L1x-L2y pairing might not be the same if the pairing is reversed (van Maastricht et al. 2018; Judy 2011; Steinel et al. 2007). On the basis of these remarks, in Section 2 we will propose a more fine-grained linguistic analysis of the features in question, considering not only the learning/unlearning dichotomy as a predictor of greater difficulty, but also other properties of PA and PPDA such as their L1-L2 asymmetric level of markedness and their belonging to different linguistic domains.

Secondly, our aim is to further test the effects of TE, the FonF intervention considered here, on the learning and unlearning of grammar. TE is a relatively implicit and proactive FonF technique, which graphically enhances items in written L2 input (e.g. through underlining, bolding, colouring etc.) in order to increase the likelihood that the learner will pay more attention to them. Making forms perceptually more salient is a first attempt to make them (more) noticeable (Schmidt 2001), i.e., noticing at the level of attention (Godfroid et al. 2013). TE is thus potentially effective when applied on non-salient L2 features, the noticing of which is made difficult by the input available to the learner given the perceptive characteristics of the signifier or confounding L1-L2 relationships. In these cases, form-focused instruction is considered necessary by many scholars for the successful acquisition of L2 features (Goo et al. 2015; de Graaff and Housen 2009; R. Ellis 2006), and the asymmetrical relationship between Spanish and Italian as regards PA and PPDA may be a telling test case for this claim. There is no consensus, however, about the effectiveness of TE (Meguro 2017), which is thought to be mediated by various factors that have an impact on form-focused instruction in general (e.g. intensity of TE, type of target structure, type of learner), many of which have not been adequately controlled in past research designs (Han et al. 2008). Despite these inconsistencies, the relative unobtrusiveness of TE in the construction of meaning process makes it a valuable technique especially in closely related L1-L2 pairings, which are very common in European teaching contexts. TE favours the use of (textual) inter-comprehension strategies

(Benucci 2015; ten Thije and Zeevaert 2007) as it does not disrupt the ease with which learners of an L2 similar to their L1 approach L2 written texts and, at the same time, may help them to improve their grammatical accuracy. Furthermore, a strong L1-L2 inter-comprehension might be one of the mediating factors that ameliorate TE effectiveness, as it may pose a lighter cognitive load for learners as they simultaneously process meaning and (enhanced) forms. DP16 is so far the only study that has tested TE effectiveness between typologically related languages (cfr. the meta-analysis of TE studies by Martin and Leow 2017). Its results, despite the strong inter-comprehension, are rather disappointing, as they reveal very low effects in interlanguage development, as recapped in Section 3. With the present study, we wish to ascertain if this inefficacy is confirmed or if the new data suggest TE to be a useful FonF option to alleviate attentive breakdowns due to excessive assumptions of similarity between L1 and L2 structures, typical of learners whose L1 is similar to the L2.

2 Learning, unlearning and other dimensions of complexity of PA and PPDA

As seen in the previous section, the process of acquiring an L2 does not solely involve the interlinguistic addition and development of features and rules that are not present in the L1 or that are mapped differently in the L2. The acquisition of an L2 also involves reducing the negative interference of the learner's L1 and preempting the superfluous and erroneous addition of L1 rules and features to the L2. Numerous studies have investigated whether exposure to indirect negative evidence alone is sufficient to unlearn L1-based overgeneralization, or whether *direct negative evidence* (e.g. a correction provided by an interlocutor) is needed to limit the transfer of superfluous and incorrect L1 elements in particular L2 contexts. White and colleagues' findings support the second position. White 1991c showed that, even after long exposure to input and formal study of the language, English-speaking learners of French persisted in transferring the double-object dative construction (e.g., *John gave Mary the book*) that exists in English but not in French. The informants in White's study continued to produce double-object dative constructions, in line with their L1, and failed to judge as incorrect sentences in French constructed on this model. The fact that these learners had never encountered the double-object dative in the input was not in itself sufficient to make them realise that this construction is not possible in French. Two further studies by White (1991a, 1991b) investigated whether explicit negative evidence – in this case a correction by a teacher – could help French-speaking learners of English to limit

the verb movement parameter, which allows the movement of the verb within a sentence. In French, the following phrasal orders are permitted: subject (S), verb (V), adverb (A) and object (O), SVOA and ASVO, whereas in English only SVOA and ASVO are possible, SVAO being incorrect. White's findings support the hypothesis that without explicit teaching and correction it is unlikely that French native speakers will unlearn the SVAO syntactic order, as only the experimental groups who did receive specific information about the ungrammaticality of SVAO in English were able to limit its transfer. Izumi and Lakshmanan's 1998 study aimed to investigate whether direct negative evidence in the form of explicit correction and grammatical explanation, alongside the natural positive evidence supplied by the input, could help Japanese learners of English to limit the scope of one of their L1 rules, i.e. the passive construction, which can be direct (as in English) or indirect (absent in English), as in the following example:

- 5) *John-ga Tom-ni konpiuutaa-o tukawa-(r)are-ta.*
 John-NOM Tom-by computer-ACC use-PASSIVE-PAST
 Lit: *John was used his computer by Tom.
 'John was adversely affected by Tom's using his computer.'

The instructed subjects demonstrated an increasing ability not to accept or use in their interlanguage passive structures such as **I was eaten final cake by friend* to express unhappiness at seeing the last piece of cake eaten by a friend. The non-instructed subjects, on the other hand, continued to accept and produce this type of utterance, demonstrating that the *indirect negative evidence* of their ungrammaticality was not sufficient to preempt their use and their acceptance in English. Larrañaga et al. (2012) demonstrated that L1 English learners of L2 Spanish transfer the English satellite configuration of particular motion events (boundary crossing) regardless of their proficiency and length of exposure to the L2. The authors account for this persistent transfer-generated error in terms of lack of positive and direct negative evidence in learners' exposure to L2 input: the expression of manner of motion in Spanish has low salience, is rare and is hardly ever part of the syllabus. Similar conclusions have been reached in other studies (e.g. Cho and Slabakova 2017; Nossalik 2014; Yin and Kaiser 2001), which taken together indicate that learners need the help of direct negative evidence to learn to pre-empt the transfer of rules which are broader in their L1 than in the L2. Nevertheless, cases of successful unlearning have been reported in the literature. Yuan (2001) found that after only six months of generic instruction (i.e., not focusing specifically on the feature in question), French- and German-speaking learners of Chinese were able to limit the verb movement parameter of their L1. Yuan ascribes the difference from other scholars' findings to the structural and

typological differences between German, French and Chinese, which probably restrained the French- and German-speaking learners from transferring the SVAO order, grammatical in their L1s but ungrammatical in Chinese. Yuan's findings (but see also Gabriele 2009 for similar considerations) argue in favour of a broader picture in which the learning/unlearning dichotomy should not be considered the only factor responsible for the higher/lower difficulty of one structure in comparison with another. At least two other dimensions of complexity should be taken into account: the asymmetrical level of markedness (Eckman 1977) of a structure given L1-L2 differences and its linguistic nature, i.e., if it involves core, semantically vacuous syntactic properties only, or if it interfaces with other dimensions of language, such as semantics and/or pragmatics (Tsimpli 2014, Sorace 2011).

2.1 Markedness and linguistic nature of PA and PPDA

Although the concept of markedness is so complex that some advise against using it at all as a general cover term (Haspelmath 2006), some of its subcomponents, such as the notion of the relative frequency or generality of a given property or structure across the world's languages (Eckman 1977) might prove useful to better analyse the different complexity level of PA and PPDA in the Italian-Spanish pairing. The general phenomenon of Differential Object Marking, to which PA belongs, can be observed in over 300 languages; it is common in many Romance languages (e.g., Spanish, Romanian, Catalan and Sardinian) and is widespread in other language families (Bantu, Sino Tibetan, etc.), cfr. Aissen (2003). Furthermore, as briefly mentioned in Section 1, PA is also found in standard Italian, although its presence is limited to first and second person pronouns in dislocate position (see Iemmolo 2010 for a discussion), as displayed in example (6):

- 6) *A te, non ti sopporto più*
 To you-ACC not you-ACC stand-1PS.PRES any longer
 "I cannot stand you any longer"

Following the same line of explanation, the adjectival behaviour of the possessive in Italian, which needs to be preceded by an article or a determiner, is very rare among Romance languages³ (Van Petghem 2012) and absent in Germanic languages such as English and German (Plank 1992). Even within Italian itself we

³ The peculiar case of Portuguese, a language that displays a wide variation of PPDA according to micro-contextual and diatopic variation is discussed in Brito (2017).

find the absence of PPDA when the possessive precedes singular, unmodified nouns denoting family relationships, as illustrated in example (1). Thus the presence of PA can be considered less marked than its absence, whereas the opposite holds for the presence of PPDA, which is more marked than its absence. It is known that L1 properties that are different from and more marked than L2 properties are less transferable and fossilizable than L1 properties that are different from and less marked than their L2 counterparts (Callies 2006; Han 2014). Regarding the linguistic characteristics of the two features in question, PA is an iconic marker which can disambiguate a possible semantic clash between SUBJ and OBJ in cases where the latter has animate and specific properties similar to SUBJ. PA plays an important role in semantic disambiguation, it has a logical value, and is a useful linguistic feature in clarifying a logical/semantic relation which is not obvious or is ambiguous (Iemmolo, 2010), as in the case of *busco a un amigo* – I am looking for a specific friend – and *busco un amigo* – not a known friend, but someone to keep me company, cfr. Leonetti (2004). As demonstrated in various studies (e.g. Iemmolo and Klump 2014), PA involves the syntax-semantic interface⁴, whereas PPDA is a purely syntactic phenomenon, whose presence or absence has no effect on the interpretation of the constituent. Even though there is some experimental counter-evidence (see, e.g. Özçelik 2018), it is generally accepted that linguistic phenomena that involve interfaces are acquired later (Tsimplici 2014) and with less accuracy (Chamorro and Sorace 2018) than purely syntactic phenomena. From our bidirectional point of view, PA and PPDA in the Spanish and Italian pairing display different levels of difficulty. Unlearning PA in SVO contexts (L1Spanish-L2Italian) involves passing from a less marked to a more marked configuration by ignoring a bundle of syntactic and semantic factors that, in Spanish, trigger its presence; furthermore, this is driven by indirect evidence solely. Learning PA in SVO contexts (L1Italian-L2Spanish) involves the opposite operation, i.e. passing to a less marked configuration at the syntactic-semantic interface through positive evidence. Learning PPDA means passing from a less marked to a more marked configuration, this time through positive evidence and in the syntactic domain only, whereas unlearning PPDA, on the other hand, means passing from a more marked to a less marked configuration in the syntactic domain through indirect negative evidence.

The SSI in DP16 were very reluctant to abandon PA, whereas they proved better able to introduce PPDA into their interlanguages, obtaining, however, very

⁴ And, in some cases, also a triple interface, i.e., a syntactic-semantic-pragmatic one. We have not considered this because it is not part of our experimental design, but see von Heusinger (2008) and Iemmolo and Klump (2014) for further details.

low scores in a timed grammatical judgement test in both structures, i.e., 4.08 points out of 10 for PA and 5.65 points out of 10 for PPDA (both scores calculated considering only the non-treated participants). The different results were ascribed to learning/unlearning asymmetries only, but, as suggested above, they might also be explained by markedness and intrinsic linguistic issues. In the next section we present in detail the methodology and the results of DP16.

3 The study to be replicated

In DP16, 66 beginner SSI, all university students temporarily living in Italy, participated in the study. Almost all of them (64 out of 68) knew some English and some had knowledge of other languages (four students knew German, two Russian, one Chinese and one Swedish). After following an Italian language course for two months, in which PA and PPDA were not explicitly taught or corrected by the teachers, the participants were randomly divided in two groups and received the instructional treatment, which involved reading five texts manipulated with TE. Group A (n=35) read texts enhanced for the absence (i.e. indirect negative evidence) of PA while Group B read the same texts enhanced for the presence (i.e. positive evidence) of PPDA. The treatment thus aimed at encouraging noticing at the level of attention only (Godfroid et al. 2013), since no metalinguistic explanation or other activities focusing on PA or PPDA were offered to the learners. TE was operationalized as in Table 1.

Table 1: Operationalization of TE on PPDA and PA in DP16

PPDA	PA
...il mio ragazzo...	...dopo pranzo saluto Franco...
	→

The students took a grammaticality judgement test three times: before, five days, and two months after the instructional treatment. Grammaticality judgements were elicited for target and non-target Italian sentences for the two structures in question with a timed test (a maximum of 6 seconds⁵ for each item response); the

⁵ We are aware that the decision to limit the response time to 6 seconds in DP16 was taken according to other studies' standards and not on the basis of an empirical investigation of how much time native speakers would require to perform the same task. For the sake of replicability, in the present study we kept the response limit to 6 seconds, but we enrolled 8 Spanish native

reaction times (RTs) to the stimuli were recorded and were also used as an independent variable for the evaluation of the difficulty of the target features.

Results confirmed the hypothesis that it is more difficult to unlearn PA than to learn PPDA – scores for the former structure were lower at all times. Furthermore, TE had no clear effect in helping the subjects to restructure their interlanguage: there was no significant difference between the grammaticality judgements of the instructed and the non-instructed groups for either PA or PPDA. However, TE had an effect on the time required for the processing of the test items, with the exception of the non-target PA sentences. This finding was interpreted as an effect of TE, which caused instructed learners to reflect longer before judging sentences. However, non-target PA sentences stood out as the most impervious to instruction, in that both treated and non-treated participants consistently and unhesitatingly judged them as grammatical at all times.

DP16 thus supports the hypothesis that TE has little effect on L2 acquisition and it also supports the idea that mere exposure to indirect negative evidence, even if enhanced, is not sufficient to help learners avoid the transfer of an L1 feature to incorrect L2 contexts.

4 The present study

This study aims at ascertaining whether DP16's findings are confirmed bidirectionally. Our research questions are:

RQ1: given the different linguistic nature of PA and PPDA, their asymmetrical levels of markedness and the different learning/unlearning operations their acquisition involve in the Spanish-Italian pairing, will this study demonstrate that the greater difficulty of one structure is due to the learning/unlearning dichotomy only?

RQ2: what are the effects of TE on the acquisition of the target structures, as operationalized by accuracy levels on a timed grammaticality judgement test (GJT)? Will this study also find that TE has no real effect on the accuracy of grammaticality judgement?

speakers (NS) to ascertain if this limit was too high or too low. The average NS response time was 2.97 milliseconds, which, following Shiu et al's (2018) recommendations, should increase by 20 % for nonnative speakers to a maximum of 3.56 ms. Nevertheless, given the variable TE in our study, and given its non-applicability to NS, this time limit would probably have been misapplied to our research design. In any case, we note that in the present study only 631 (18,5%) out of 3.416 judgements given by nontreated participants were beyond the threshold of 3.56 ms.

RQ3: what are the effects of TE on learners' processing of target forms as operationalized by their RTs? Are the processing effects produced by TE similar to those seen in DP16?

4.1 Participants

The participants were 77 ISS enrolled in Spanish language courses held in two universities in Northern Italy. None of them speaks a Southern Italian dialect that permits the presence of PA in SVO sentences, and all of them declared a knowledge of English at different levels of proficiency. As in DP16, all the participants were absolute beginners⁶ in Spanish and the courses they attended were therefore at beginner-level and aimed to provide the language necessary for basic communication. The courses were of 60 hours over a period of 4 months. The teachers were informed of the aims of the experiment and agreed not to deal explicitly with PA or PPDA in Spanish, nor to correct learners' errors with these structures during the lessons. Students were divided into two experimental groups, A (n= 38) and B (n= 39).⁷

4.2 Instructional treatments and materials

As in DP16, after two months in the Spanish language course, the learners read five texts manipulated with TE during their normal classroom activities in five consecutive lessons. They read the texts individually and were asked to respond to multiple-choice and/or free response questions designed to test their reading comprehension. The texts were the Spanish translation of the ones used in DP16 and dealt with five topics that had been presented and discussed during the previous lessons (e.g. leisure time and food habits) and therefore contained lexical items that were readily comprehensible. Group A read the texts where TE was applied on PA, whereas group B read the same five texts but with TE applied on PPDA. TE was operationalized as in DP16, with examples given in Table 2. The

⁶ All the participants declared no previous knowledge of Spanish and failed to score enough points in an entry test to be placed in a post-beginners group. The same was true in DP16, where all the students enrolled had no knowledge of Italian.

⁷ The main and only difference between the two studies is that the subjects in DP16 were in a study-abroad context (studying Italian in Italy) while in this study the learners were studying in a study-at-home context (studying Spanish in Italy). We will return to this distinction later in the article.

texts read by the two groups were identical, the only difference being the phenomenon highlighted by TE. The mean length of the texts was 449 words and the average number of TEs per text was 9,5 for PA and 10,2 for PPDA.

Table 2: Operationalization of TE on PPDA and PA in this article

PPDA	PA
...este es mi coche →	...yo ayudo a Marta

4.3 Procedures and data collection

A timed Grammaticality Judgement Test (GJT) was used to measure participants' implicit knowledge of PA and PPDA. A timed GJT is thought to minimize the influence of explicit knowledge as it does not allow recourse to metalinguistic information (Ellis R. 2006). In this study RTs were also taken to measure the cognitive resource load used by the participants during the GJTs (Mackey and Gass 2005: 63). The trial was a self-paced one: participants sat in front of a 13" computer monitor on which a sequence of 70 sentences appeared. Each sentence remained on the screen for six seconds and was followed by a two-second pause. All the sentences were randomized by the DMDX programme. Learners were asked to judge the grammatical correctness of each sentence as rapidly as possible by pressing one of two buttons (True/False). Three types of items were included: ten practice items in Italian aimed at familiarising participants with the procedure and 60 Spanish experimental items, of which 40 were fillers and 20 were target items. All sentences were short (maximum six words), and only included known grammatical and lexical features. Particular attention was given to the 20 target items, which were of similar length and whose lexicon and grammar were carefully controlled so as not to include unknown words or structures. Experimental sentences were divided as follows: five items were labelled as -PA, i.e. ungrammatical sentences in Spanish, displaying no *a* in front of the animate direct object; five items labelled as +PA, i.e. grammatical sentences in Spanish, displaying *a* in front of the animate direct object; five items labelled as +PPDA, i.e. ungrammatical sentences in Spanish, displaying the article in front of the possessive determiner, and five items labelled as -PPDA, i.e. grammatical sentences in Spanish without an article in front of the possessive determiner. In table 3 examples of the experimental items are given. All the experimental sentences are reported in the Appendix.

Table 3: Experimental items

-PA	+PA	+PPDA	-PPDA
Marco ha conocido Silvia	Aldo ha encontrado a Maria	La mi casa es bonita	Tu vestido es blanco

Participants were tested three times: a pre-test before the treatment, a post-test five days afterwards, and a delayed post-test administered two months after the treatment. GJTs were scored with one point for each correct response, and zero for incorrect responses (Gutiérrez 2013). RTs are expressed in milliseconds (ms). Answers given in less than 750 ms and answers varying more than 2.5 SDs from the mean of the same participant in each experimental condition were excluded, which led to the rejection of four responses.

5 Data analysis and results

To analyze the data, we use a mixed-design repeated measures MANCOVA with *group* as the between-subjects independent variable and *time* as the within-subjects independent variable. The dependent variables considered in our analysis are the accuracy in the GJT of the four experimental sentences (i.e., +PA, -PA, +PPDA, and -PPDA) and the RTs recorded during the judgement of these stimuli. We first present the results of the GJT analysis and then the RT results.

5.1 GJT accuracy scores

The descriptive data is reported in Table 4.

Table 4: Descriptive statistics of GJT scores

<i>-PA sentences (ungrammatical in Spanish, e.g. Ana ha conocido Silvia)</i>				
	Group A (treated, n = 38)		Group B (non-treated, n = 39)	
	m	SD	m	SD
Pre-test	2.1	.92	2.2	1.11
Post-test	2.5	1.08	2.3	1.1
Delayed post-test	3	1.07	2.8	.83
<i>+PA sentences (grammatical in Spanish, e.g. Nora saluda a Flavio)</i>				

Table 4: (continued)

	Group A (treated, n = 38)		Group B (non-treated, n = 39)	
	m	SD	m	SD
Pre-test	2.9	1.16	3.3	1.08
Post-test	3.6	1.08	3.5	1
Delayed post-test	4.1	.75	4	.73
<i>-PPDA sentences (grammatical in Spanish, e.g., tu guitarra es negra)</i>				
	Group A (non-treated, n = 38)		Group B (treated, n = 30)	
	m	SD	m	SD
Pre-test	3.2	.65	3.4	.81
Post-test	3.8	.63	4.2	.66
Delayed post-test	4.2	.62	4.5	.58
<i>+PPDA sentences (ungrammatical in Spanish, e.g., el mi teléfono es nuevo)</i>				
	Group A (non-treated, n = 38)		Group B (treated, n = 30)	
	m	SD	m	SD
Pre-test	2.2	1.4	2.6	.93
Post-test	3	1.1	3.4	1.04
Delayed post-test	3.7	.61	4	.64

Note. GJT scores range from 0 to 5.

-PA sentences are constructed according to the L1 model, which is ungrammatical in the L2, and should be judged as wrong on the basis of positive evidence. For these sentences, the mixed-design MANOVA shows that the only factor responsible for the variation in the results is the within-subjects variable *time*: $F(2, 150) = 21, p < .001, \eta^2_p = .219$. In fact, neither the between-subject variable *group* nor *group*time* interaction had a significant impact on GJTs variation (p always $> .05$). For -PA the treated group improved slightly more than the non-treated one (.9 vs. .6 points), but these gains are not statistically significant and are probably due to exposure to input rather than to the effect of TE.

Regarding +PA sentences, which should be judged as correct in the L2 on the basis of positive evidence, the mixed-design MANOVA shows a significant effect of the within-subject variable *time* only: $F(2, 150) = 23.7, p < .001, \eta^2_p = .241$. Treated participants improved by 1.2 point, whereas the non-treated group gained .7 points. Despite this difference, the scores of the two groups in the delayed post-test are very close: 4.1 points for group A and 4 points for group B.

For -PPDA sentences, which should be judged as correct in the L2 on the basis of indirect negative evidence, the mixed-design MANOVA shows a significant effect for the *time* factor, $F(2, 150) = 70.9, p < .001, \eta^2_p = .48$ and a weaker effect of the between-subjects variable *group*, $F(1, 75) = 9.6, p = .003, \eta^2_p = .114$, on the GJT variations. Furthermore, the non-interaction of *time*group* indicates that although group B slightly outperformed group A in the post-test, this competence gap narrows and the effects of the treatment fade over time. The two groups achieved comparable results over the two months, regardless of the treatment. Analysis reveals no evidence for a clear and appreciable effect of TE on -PPDA.

For +PPDA sentences, which should be judged as ungrammatical against the L1 model and on the basis of indirect negative evidence, the lack of influence of the TE is shown by the mixed-factor MANOVA, which reveals *time* to be the strongest variable responsible for the GJT variations, $F(2, 150) = 56.5, p < .001, \eta^2_p = .463$. The between-subjects variable *group* also has an effect, $F(1, 75) = 4.41, p = .038, \eta^2_p = .056$, but with a small effect size. The two groups achieved comparable improvements over the two months, regardless of the treatment. Analysis reveals no evidence for an appreciable effect of TE on +PPDA.

5.1.2 Comparison with results obtained in DP16

The present study and DP16 converge in finding no discernible effects of TE on learners' performance. Despite the typological proximity of Spanish and Italian, which facilitates comprehension and should thus free more attentional resources for form processing, TE failed to alter the natural development of learners' interlanguage, and did not bring about any significant restructuring of participants' representations of PPDA and PA.

DP16 GJT data suggested that unlearning was more difficult than learning: non-treated participants, the only ones considered in this analysis in order to rule out the potential effects of TE, always had better accuracy on PPDA, the feature to be learned, than on PA, the feature to be unlearned. The present study does not confirm these results. A paired samples t-test was conducted to compare the GJT scores that non-treated participants achieved for PA, calculated here as a single variable by adding +PA and -PA scores, and on PPDA, also calculated by adding +PPDA and -PPDA scores. The results summarized in table 5 show that in this study the ISS have more accurate GJTs for PPDA, the feature to be unlearned, than on PA, the feature to be learned, in the post-test and in the delayed post-test.

Table 5: Descriptive statistics of PA and PPDA results scored by non-treated participants

	PA		PPDA	
	m	SD	m	SD
Pre-test	5.5	1.9	5.4	1.7
Post-test	5.8	1.3	6.8	1
Delayed post-test	6.8	1.7	7.9	1.5

Note. GJT scores range from 0 to 10.

In the pre-test, the slight difference in favour of PA does not have statistical significance ($p > .05$). On the other hand, the differences in favour of PPDA in the post- and delayed post-test are statistically significant (p always $< .05$). The GJT data of this study thus does not confirm that unlearning is more difficult than learning.

5.2 Allocation of cognitive resources: RT results

This section will discuss whether TE had an effect on participants' RTs, which might be taken as evidence for the allocation of more or fewer cognitive resources in parsing the target items.

In table 6 the descriptive statistics are shown.

Table 6: Descriptive statistics of RTs

<i>PA sentences (ungrammatical in Spanish, e.g. Ana ha conocido Silvia)</i>				
	Group A (treated, n = 38)		Group B (non-treated, n = 39)	
	m	SD	m	SD
Pre-test	2,898.7	654.2	2,708.3	640.5
Post-test	3,300.7	686.8	2,601.05	635.3
Delayed post-test	2,894.9	646.1	2,409.6	618.3
<i>+PA sentences (grammatical in Spanish, e.g. Nora saluda a Flavio)</i>				
	Group A (treated, n = 38)		Group B (non-treated, n = 39)	
	m	SD	m	SD
Pre-test	2,968.7	647.6	2,841.4	532.4
Post-test	3,186.3	566.11	2,593.4	446.7
Delayed post-test	2,878.6	498	2,534.4	407.7

Table 6: (continued)

<i>-PPDA sentences (grammatical in Spanish, e.g., tu guitarra es negra)</i>				
	Group A (non-treated, n = 38)		Group B (treated, n = 39)	
	m	SD	m	SD
Pre-test	3,101.1	571.8	2,837.2	657.1
Post-test	2,961.1	622.3	3,256	499.7
Delayed post-test	2,639.3	496	2,759.8	450
<i>+PPDA sentences (ungrammatical in Spanish, e.g., el mi teléfono es nuevo)</i>				
	Group A (non-treated, n = 38)		Group B (treated, n = 39)	
	m	SD	m	SD
Pre-test	3,296.4	632.8	3,127.9	494.1
Post-test	2,815.2	608.2	2,671.5	501.4
Delayed post-test	2,772.5	760	2,594.8	772.7

Note. RTs values range from 0 to 6,000 ms.

Regarding *-PA* sentences, the mixed-design MANOVA shows positive effects of *time*, $F(2, 150) = 282.5$, $p < .001$, $\eta^2_p = .28$, of *group*time* interaction, $F(2, 150) = 22.5$, $p < .001$, $\eta^2_p = .23$ and, less strongly, of the within-groups variable *group*, $F(1, 75) = 6.9$, $p = .01$, $\eta^2_p = .08$. The RTs of the treated group (A) slowed down after the treatment and remained significantly longer than the non-treated group (B) in the delayed post-test. Group B, on the other hand, constantly speeded up their RTs – an effect that could be interpreted as being caused by the learners' automatization of the structure and their better acquaintance with the GJT test.

Similar results are found for *+PA* sentences: the mixed-design MANOVA shows positive effects of *time*, $F(2, 150) = 13.1$, $p < .001$, $\eta^2_p = .15$, of *group*time* interaction, $F(2, 150) = 14.15$, $p < .001$, $\eta^2_p = .16$ and of *group*, $F(1, 75) = 10.8$, $p = .002$, $\eta^2_p = .13$. RTs for group A (treated) slowed down after the treatment and remained significantly longer than group B's in the delayed-post test.

TE effects in slowing down the treated group's RTs are found also for *-PPDA* sentences: the mixed-design MANOVA shows positive effects of *time*, $F(2, 150) = 21.25$, $p < .001$, $\eta^2_p = .22$ and of *group*time* interaction, $F(2, 150) = 10.7$, $p < .001$, $\eta^2_p = .12$, but not of the between-subjects variable *group* ($p > .05$). The treated group (B) had slower RTs after the treatment but speeded them up in the delayed post-test, reaching RT values similar to those for group A, while the non-treated group constantly speeded up their RTs.

For +PPDA sentences the analysis revealed no significant differences between the two groups, and the mixed-design MANOVA shows positive effects of *time* only, $F(2, 150) = 19.2$, $p < .001$, $\eta^2_p = .2$; for these sentences TE showed no effects in altering the RTs.

5.2.1 Comparison with DP16

The present study is in line with DP16 in suggesting a processing effect for TE, which led learners to invest more cognitive resources when judging three out of four experimental items. The RT variations recorded for the sub-conditions of the feature to be learned, i.e. –PA and +PA, are comparable to those of the twin features –PPDA and +PPDA in DP16: in every condition the treated group had slower RTs in the post-test whereas the non-treated group steadily speeded up over time. This suggests that the TE forced the subjects in both studies to invest more cognitive resources when processing these sentences. The TE had two different effects on the sub-conditions of PPDA, the feature to be unlearned: for –PPDA sentences, the treated group had slower RTs in the post-test, which is in line with DP16, where the treated group also slowed down its RTs; as far as +PPDA sentences are concerned, the present study shows the same effects of TE as DP16 did for +PA, i.e. no appreciable effect on the RTs. Both studies concur in suggesting that rejecting the L1 model solely on the basis of *indirect negative evidence* is extremely difficult and that this task is impervious to TE treatment from both a representational and a processing point of view. One notable difference between the two studies is that the RTs are globally slower in DP16: ISS always answered faster than SSI, both for the features to be learned and for the features to be unlearned. This might suggest that, at least as far as PA and PPDA are concerned, switching from Italian to Spanish requires fewer cognitive resources and is thus easier than switching from Spanish to Italian.

6 Discussion and conclusions

The aim of this study was to bidirectionally replicate DP16 to see whether its findings were generalizable also with ISS. Specifically, DP16 indicated that a feature to unlearn (PA) was more difficult than one to learn (PPDA), and that TE produced an observable effect only on the processing and not on the accuracy of the target structures. Retaining the same two features as the experimental target, but adding the linguistic analysis of PA and PPDA from a bidirectional point of view, this study aimed to find out whether these differing levels of difficulty

appeared in the same way with PPDA (feature to unlearn for ISS) and PA (feature to learn), and whether the effects of TE were similar to those in DP16. According to the findings, our three research question can be answered as follows.

RQ1: This study does not confirm the conclusions of DP16, i.e. that unlearning is more difficult than learning; indeed, it seems to support the opposite hypothesis. The ISS found it easier to inhibit the activation of PPDA than to add PA to their interlanguage. In passing from Spanish to Italian, the SSI in DP16 were very reluctant to abandon PA, probably because, as discussed in Section 2, it is a rather unmarked usage and it carries a semantic value. In the current study, the ISS found it easy to abandon the pre-possessive article as a structure that is marked and basically redundant from a semantic point of view in that it carries no differences such as those seen above for PA. This is further demonstrated by a comparison of the GJT results scored by non-treated participants in the two studies: the most difficult operation was unlearning an unmarked feature at the syntactic-semantic interface, as untreated SSI scored on PA only 4.08 out of 10 points in the delayed post-test. The second most difficult learning task seemed to be learning a purely syntactic marked feature (PPDA for SSI), since untreated SSI scored 5.65 out of 10 points. The learning of an unmarked feature at the syntactic-semantic interface (PA for ISS) reaches 6.8 out of 10 points, whereas unlearning an unmarked property of Italian (PPDA for ISS), fundamentally useless from the learners' semantic point of view in light of its purely syntactic nature, was the operation that learners carried out with more ease, achieving 7.9 points out of 10. These findings are in line with those of the study by Bailini (2016), which analyses two longitudinal written corpora – CORESPI (*CORpus del Español de los Italianos*) and CORITE (*CORpus del Italiano de los Españoles*) – with the aim of shedding light on the mental processes and the interlingual outcomes that result from the learning of these two closely-related languages. Indeed, Bailini reports that in SSI's interlanguage, the erroneous addition of PA is very persistent and occurs even in advanced learners' output (Bailini 2016: 213). ISS, on the other hand, abandon PPDA with ease, starting from low competence levels and reaching a very low error rate (around 2%) at advanced competence levels (Bailini 2016: 162). The results of DP16 and of the present study, if considered together, do not support the view that unlearning is more difficult than learning, at least with closely related L1 and L2 and with a target structure that is less marked than the one in the L1. Although space limitations prevent us from expanding further on this, these considerations confirm that the construct of difficulty is intricate (N. Ellis 2016; DeKeyser 2016) and multidimensional, and suggest that the higher degree of complexity of one structure given its higher level of markedness and its linguistic nature might not be affected by the different mental operations that underpin learning and unlearning.

These results might perhaps be explained in non-linguistic terms, considering the fact that all the ISS in this study are learning Spanish as their L3 or even L4. All of them had formally studied English for at least eight years, and some had also studied French or German. These three languages all have a lack of PPDA but do not require PA in SVO contexts, and one can therefore hypothesise that the operation of inhibiting the presence of the pre-possessive definite article is one that these learners have previously learned and were able to apply to the unlearning of PPDA for L2 Spanish as well. The same cannot be said of PA, which had never previously been encountered in the three foreign languages formally studied. It is accepted that previously studied foreign languages can have a considerable effect, both positive and negative, during the learning of an L3: learners of an L3 which has formal resemblances to a previously learned L2 can successfully exploit those similarities and transfer analogous L2 features, rather than the L1 differences, to the L3 (De Angelis 2007: 22–26). However, although this hypothesis offers an explanation for this study, from a bidirectional point of view it does not clarify the conflicting results compared with DP16. In fact, 64 of the 68 subjects in that study said they had a knowledge of English (as well as a few cases of other languages) and this explanation should therefore have similar validity for those participants: they should have learned from their previous L2 experience to inhibit PA but not to add PPDA. Nevertheless, in DP16 the inhibition of PA was more difficult than the addition of PPDA; this explanation thus cannot be taken as completely satisfactory.

RQ2: This study globally confirms the findings in DP16: TE has no effect in helping ISS restructure the use of PA and PPDA in their interlanguage, and fails to substantially alter the natural development of the participants' interlanguage.

RQ3: This study found processing effects for TE similar to those in DP16. In the post-test, treated participants paused longer after seeing the target structures, with the difference reaching statistical significance in all cases except for +PPDA, which, as noted in DP16 for the twin feature +PA, was the feature that proved most resistant to learning. Since TE works solely at the attentional level (i.e. it does not provide the learner with any metalinguistic explanations) and since no explicit explanation of the two phenomena was given, these longer RTs may be indicative of an increase in attentional noticing, which occurred most clearly in the immediate post-test. However, greater selective attention did not seem to be sufficient to modify the developmental trajectory of the four features, and this is in line with DP16. DP16's conclusion that greater selective attention (measured in terms of longer RT in judging the items) does not necessarily correspond to an improvement in accuracy and learning is therefore confirmed. Since TE works only at the attentional level of noticing (Godfroid et al., 2013), even in similar language pairings it would seem necessary to supplement it with more explicit

FonF interventions in order to facilitate and speed up learners' restructuring of their interlanguage, as suggested by other authors (cfr. Martin and Leow 2017; Cintrón-Valentin and Ellis N. 2016). Similar discrepancies between increased attention and non-increased accuracy were found by Winke (2013), and this strengthens Sharwood-Smith's (2011) recommendations about the empirical need to validate the relationship between externally increased selective attention and SLA outcomes. Another point of convergence of DP16 and the present study lies in the fact that ignoring the L1 model in the restructuring process on the basis of indirect negative evidence only is an extremely difficult task and one that seems impervious to TE from both a representational and processing point of view. Nevertheless, as noted in the previous section, RTs in this study are globally faster than those in DP16; this finding may be interpreted as reflecting the lower cognitive load for ISS involved in judging the test items and therefore the lesser difficulty for these subjects compared with the SSI in the earlier experiment (Housen and Simoens 2016).

Furthermore, both studies converge in suggesting that TE is ineffective in helping learners unlearn a superfluous L1 feature, thus supporting the idea that in this case interlanguage development might be fostered by a stronger and more intrusive pedagogical intervention. Obviously, we cannot say if these conclusions would remain valid for other operational applications of TE, which can take different forms, and whether TE might have had different effects on more advanced learners. Future studies might investigate these aspects.

Finally, both studies indicate that it is more difficult to give a negative judgement to a rule that is well-entrenched in the L1 than to give a positive judgement to a new rule of the L2 being learned. Both the SSI and the ISS found it more difficult to judge as incorrect sentences constructed on the model of their L1 than to judge as correct those constructed on the L2 model. The reliance on the L1 model is possibly one of the aspects that most hinders the correct restructuring of interlanguage for learners of a L2 which is closely related to the L1, and reducing this dependence seems an arduous task (Ringbom and Jarvis 2009). In these learning cases, teachers should therefore be aware of the potential need for more intrusive and proactive FonF interventions, such as explicit correction and contrastive analysis of L1-L2 features whose differences are difficult to notice and learn in order to help learners abandon the L1 model and correctly restructure their interlanguage according to the L2 properties.

This study's main limitation is the lack of complete symmetry with DP16. The SSI were studying Italian in Italy, and thus in a study-abroad context, while the ISS were studying Spanish in Italy, a study-at-home context. The SSI were clearly exposed to a far greater input than the ISS, and, at a theoretical level, this could have had a favourable influence on their improvement in the language (Llanes

2011). However, we observed that the ISS displayed greater improvement overall than the SSI. We would therefore maintain that the different learning contexts do not explain this discrepancy, although we are aware that a completely bidirectional replication of DP16 would need to be carried out in a study-abroad context.

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Appendix

Target items used in the experiment.

Table 1: *Experimental items for -PA*

Test	Post-test	Delayed post-test
Marco ha conocido Silvia	Silvia conoce Marco	Anna ha conocido Silvia
Carlo saluda Anna	Anna ha saludado Paolo	Fabio ha encontrado Marco
Paolo ha querido Laura	Fabio ha encontrado Laura	Elena saluda Lara
Pietro ha encontrado Elena	Elena ha besado Pietro	Pietro besa Laura
Lara besa Fabio	Carlo quiere Laura	Paolo ha querido Anna

Note. These sentences are ungrammatical in Spanish and follow the Italian model.

Table 2: *Experimental items for +PA*

Test	Post-test	Delayed post-test
Ciro ha querido a Lidia	Lidia ha encontrado a Flavio	Enzo ha querido a Linda
Aldo ha encontrado a Maria	Linda ha saludado a Ciro	Lucio ha encontrado a Ciro
Flavio ha conocido a Linda	Maria ha besado a Lucio	Lidia ha conocido a Maria
Lucio saluda a Lucia	Aldo conoce a Lucia	Nora saluda a Flavio
Enzo besa a Nora	Nora quiere a Enzo	Aldo besa a Lucia

Note. These sentences are grammatical in Spanish.

Table 3: *Experimental items for +PPDA*

Test	Post-test	Delayed post-test
La mi casa es bonita	El tu libro es bonito	El tu coche es bonito
El mi libro es negro	El mi barco es nuevo	El mi teléfono es nuevo
El tu barco es blanco	La tu casa es pequeña	El tu barco es negro
El tu coche es nuevo	El mi teléfono es negro	La mi casa es blanca
El tu teléfono es pequeño	El mi coche es blanco	El tu coche es pequeño

Note. These sentences are ungrammatical in Spanish and follow the Italian model.

Table 4: *Experimental items for -PPDA*

Test	Post-test	Delayed post-test
Tu vestido es blanco	Mi bicicleta es bonita	Tu bolso es bonito
Mi agenda es nueva	Mi vestido es negro	Mi vestido es nuevo
Tu bicicleta es pequeña	Tu agenda es blanca	Tu guitarra es negra
Mi bolso es negro	Tu bolso es nuevo	Mi agenda es pequeña
Mi guitarra es bonita	Tu guitarra es pequeña	Tu bicicleta es blanca

Note. These sentences are grammatical in Spanish.

