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A Pilot Study About L2 Learning Through Code-Switching

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ABSTRACT

In this work we propose innovative multilingual methodologies for L2 educators to promote bilingual competence, crucially based on the use of code-switching. As in the translanguaging approach, the two languages in contact are viewed as integrated components of a unique repertoire. Indeed, in our opinion, language mixing should be encouraged rather than stigmatized, as it can serve as a valuable resource, especially for developing oral skills. In particular, we designed a specific training for English L1 learners of Italian as an L2. The first activity elicits Italian lexicon through guided storytelling and image-based descriptions. The second targets gender assignment in Italian nouns and agreement between nouns and their modifiers. A pilot study with six US students showed improvement and yielded positive feedback. Learners reported that the controlled use of English alongside Italian lowered anxiety and helped them focus on lexical development and grammatical patterns.

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In this work we propose innovative multilingual methodologies for L2 educators to promote bilingual competence, crucially based on the use of code-switching. As in the translanguaging approach, the two languages in contact are viewed as integrated components of a unique repertoire. Indeed, in our opinion, language mixing should be encouraged rather than stigmatized, as it can serve as a valuable resource, especially for developing oral skills. In particular, we designed a specific training for English L1 learners of Italian as an L2. The first activity elicits Italian lexicon through guided storytelling and image-based descriptions. The second targets gender assignment in Italian nouns and agreement between nouns and their modifiers. A pilot study with six US students showed improvement and yielded positive feedback. Learners reported that the controlled use of English alongside Italian lowered anxiety and helped them focus on lexical development and grammatical patterns.

KEYWORDS: Code-switching, L2 learning, Pluralistic approaches, Translanguaging, Lexicon, Gender agreement.

1. Introduction¹

Although multilingual competence and the ability to master two or more languages at a time bring about well documented cognitive advantages, their promotion becomes very limited when L2 acquisition takes place in formal contexts. In this work we will present a pilot protocol for L2 acquisition based on code-switching (CS), i.e. the alternation of two languages in the same discourse. Indeed, CS is a natural phenomenon that characterizes the informal speech of bilinguals, and we wish to explore its potential even in formal L2 teaching, where it is usually stigmatized.

Crucially, CS is observed since the earlier stages of spontaneous language acquisition in bilingual environments and can be regarded as a natural process: bilinguals are able to judge the grammaticality of a mixed sentence, and the source of their competence can be ascribed to their Internal Language (MacSwan 1999). Starting from this perspective, our work will consist in the elaboration of original material for L2 teaching activities, in the spirit of translanguaging (Vogel and García 2017), a pedagogical approach where the two languages in contact are considered compartments in a hierarchical relationship. In this stance, the practice of language mixing is to be encouraged rather than stigmatized, as it represents a useful resource for developing oral skills in a bilingual context.

This work proceeds as follows. First of all, we discuss the concept of code-switching and pluralistic approaches to education, in particular to L2 teaching; we examine the various typologies of CS which spontaneously arise in bilingual communities and consider which of them, in our opinion, are most suitable for L2 lexical learning.

Successively, we describe our pilot study, focusing on the materials and activities we have specially prepared, and their administration to a group of partic-

¹ This work is part of the co-funded PRIN 2022 project "Promoting Multilingual Competence in Different Contexts." The authors wish to thank *Lingua Ideale - Urbino* and the participants from Villanova University for their valuable contribution.

This paper is the result of the collaboration of the three authors in all respects. Nevertheless, Gloria Cocchi takes responsibility for Sections 1, 3, 5, 8, Tania Stortini for Sections 2, 6.2, 7.1, and Cristina Pierantozzi for Sections 4, 6.1, 7.2.

ipants (six students coming from the US who learn Italian as L2). In particular, our training consists of two parts. The first promotes the elicitation of the Italian lexicon through activities like storytelling and descriptions of images in a trans-languaging perspective, where the L1 of the learners is seen as a helping tool rather than a hindrance. The second is intended to make learners acquainted with the phenomena of gender assignment to Italian nouns and the agreement relation between the noun and its modifiers.

Finally, we describe in detail the promising results obtained from our training and discuss the implications that emerge, in view of further implementations to larger groups of participants.

2. Code-Switching as a natural phenomenon

Code-switching (CS) is defined as the alternation between two languages within the same discourse (inter-language CS), or even within the same sentence (intra-language CS). This process, typical of bilingual and multilingual communities, does not occur randomly, but responds to specific communicative and linguistic motivations.

Gumperz (1982) defines CS as the alternating use of two languages in the same conversation, highlighting its sociolinguistic implications; in particular he focuses on its role in underlining the speakers' belonging to a particular linguistic community. One of the most studied examples of CS is in fact Spanglish (Stavans 2004, Rothman and Rell 2007 a.o.), a mixed variety that emerges from the contact between English and Spanish in the United States within the various communities of immigrants of Latin origin; we can see an example in (1), from Poplack (1980: 594):

- (1) *Si tú eres Puertorriqueño*, your father's a Puerto Rican, you should at least *de vez en cuando*, you know, *hablar español*
'If you are a Puerto Rican, your father's a Puerto Rican, you should at least from time to time, you know, speak Spanish'

The practice of CS has often been stigmatized in the past, as it was considered a sign of poor proficiency in one of the two languages or a compensatory strategy, as was the case with Spanglish speakers, who were deemed not fully proficient in English². In this and other immigration contexts, the practice of CS has also been regarded as a sign of poor integration with the host country, and not only linguistically.

Nowadays, many studies on bilingualism and language contact have instead re-evaluated this practice, highlighting how code-switching is a natural phenomenon that emerges spontaneously in the speech of bilinguals (MacSwan 1999, López 2020 a.o.). Indeed, CS even characterizes the early stages of language acquisition by bilingual children, as we can observe from the data reported in various works on early bilingualism (Cantone 2007, Gawlitzek-Maiwald and Tracy 1996: 914), as in the following examples:

- | | | | | |
|-----|---------------------|------------|---------------------|--------------------------|
| (2) | <i>jetz</i> | <i>uva</i> | <i>essen</i> | (CA 2;7.13) Germ/Ital |
| | now(G) | grapes(I) | eat(G) | |
| | 'Now I eat grapes' | | | |
| (3) | <i>il</i> | <i>a</i> | <i>gewonnen</i> | (Annika 3;03.24) Fr/Germ |
| | he(F) | has(F) | won(G) | |
| | 'He has won' | | | |
| (4) | <i>Ich</i> | <i>hab</i> | <i>geclimbed up</i> | (Hannan 2;4.8) Germ/Engl |
| | I(G) | have (G) | climbed up(E) | |
| | 'I have climbed up' | | | |

Indeed, bilinguals are able to judge the grammaticality of a mixed sentence, and this competence derives directly from their internal language (MacSwan 1999), as assumed in the so-called 'null hypothesis' on CS (Mahootian 1993, Chan 2003: 17): "Code-switching and pure languages are governed by the same set of constraints and principles in syntax, production and pragmatics".

Therefore, the mechanisms that allow us to provide grammaticality judgments on sentences belonging to our L1 allow bilingual speakers to do the same in a mixed-language sentence, when the two languages are part of their rep-

² See the discussion in Mernaugh (2017). See also: 'We speak Spanglish ¿y qué?' on <https://www.worldoutspoken.com/articles-blog/spanglish-its-who-we-are>.

ertoire. Indeed, code-switching proves to be a refined (either conscious or unconscious) linguistic and communicative skill, which characterizes bilingual or highly fluent speakers, regarding either grammar (Poplack 1980, Myers-Scotton 1993, MacSwan 1999, López 2020) or pragmatics (Gumperz 1982, Auer 1995).

To sum up, various studies on bilingualism have largely demonstrated that CS is better understood as an ability rather than a sign of vulnerability or deficiency: this ability is based on the same syntactic principles that are at work in monolingual communities and have been formalized in the Integrated Model of Bilingual Competence (see MacSwan 2017, López 2020). Hence it represents the latest development of an idea that, in its original tenet, stems from Cummins's (1981) Common Underlying Proficiency (see also Carbonara and Scibetta 2020: 29-31), and ultimately from Chomsky's (1965, 1995) concept of Universal Grammar.

3. Pluralistic approaches to L2 learning

Though CS is a phenomenon which characterizes balanced bilinguals, as seen above, it is also spontaneously exploited by L2 learners, in order to keep communication alive despite the lexical deficiencies they may have in the language they are acquiring. However, in formal L2 teaching environment, bi/multilingualism is generally seen as a drawback. Indeed, in many didactic approaches, crucially based on the communicative aspect of language, the use of L1 in class is strongly stigmatized (Wei and Martin 2009).

The situation has changed only in very recent years, thanks to a radical shift in perspective, known as the Multilingual turn (May 2014), which places linguistic and communicative plurilingual competence at the centre of language education. Important documents of the Council of Europe have recognised the holistic nature of plurilingualism in the school context (García 2009) and the need to guarantee equitable linguistic education to plurilingual learners with migrant backgrounds (Beacco *et al.* 2016, Candelier *et al.* 2013).

In particular, with the advent of Translanguaging (Vogel and García 2017), a pedagogic approach aimed to overcome the limitations of a monoglossic vision of language education, the two languages in contact are considered as compart-

ments in a unique linguistic repertoire: “There are not two interdependent language systems that bilinguals shuttle between, but rather one semiotic system integrating various lexical, morphological, and grammatical linguistic features” (Vogel and García 2017: 5). Hence, this approach is meant to enhance and promote the learners’ ability to overcome linguistic and semiotic barriers, by means of the communicative and linguistic strategies that characterize plurilingual competence. As a consequence, the practice of language mixing is to be encouraged rather than stigmatized, as it represents a useful resource for developing oral skills in a bilingual context, in line also with Cummins (2007).³

Hence, the activities we propose for L2 learning are in line with this new vision of plurilingualism and crucially exploit the potentiality offered by code-switching, i.e. the alternation between L2 and the L1 of participants. A bilingual learner’s linguistic repertoire is indeed composed not only of L1 and L2, but also of all the phenomena which spontaneously arise in bilingual speech, among which CS. From a pragmatic perspective, the communicative strategies deployed by plurilingual competence are dynamic and bidirectional and rely on strategies absent in monolingual competence, namely, intercomprehension and intercultural communication.

³ One reviewer points out that translanguaging and code-switching are distinct concepts: the former generally refers to the speaker’s internal perspective while the latter to the speakers’ external perspective, focusing on linguistic aspects. Therefore, our approach is better analysed as a specific type of Focus on Form relying on code-switching, instead of a translanguaging based approach. In fact, while we overall agree with the goals of translanguaging pedagogy and the holistic vision of bilingualism which it is based upon, it is our strong opinion that the abolition of the concept of named languages, as well as of a technical term like code-switching (as in Vogel and García 2017), widely accepted by the scientific community, can prove counterproductive in designing an experimental protocol aimed at promoting bilingual competence. On the debate on code-switching vs. translanguaging see also Auer (2022), MacSwan (2017), MacSwan and Rolstad (2024), Treffers-Daller (2024).

4. Code-Switching typologies and strategies

The notion of code-switching permits the design of teaching materials that are oriented towards the psycholinguistic and sociolinguistic processes that underpin the learner's exposure to two languages. This is not a trivial matter, particularly when the material is intended for vocabulary and morphosyntax acquisition. Consequently, the contribution offered by research that focuses on grammatical aspects of CS becomes essential.

The current literature identifies two distinct processes that emerge from contact. The first is a sequential process in which the two languages alternate, as shown in (5):

- (5) *Andale pues* and do come again
'That's all right then, and do come again'
(Spanish/English; Gumperz and Hernández-Chaves 1971: 118, cit. in Muysken 2000: 5)

The second is a process in which the two languages participate asymmetrically in the construction of a mixed sentence, as shown in (6):

- (6) *na'iish-crash* *lá*
1:sg:pass out-crash EMPH
'I am about to pass out'
(Navajo/English; Canfield 1988: 219 cit. in Muysken 2000: 5)

Both processes ensure the structural and categorical neutrality of the switching point. The competence of bilingual speakers resides precisely in this ability: to seek out the features shared by the two languages and, in case common features cannot be identified, to overcome the obstacle by modifying the grammar of one of the two languages through morphosyntactic integration or borrowing. In this regard, Poplack (1980) speaks of *Equivalence*, Muysken (2000) of *Neutralization Strategies*, Clyne (2003) and Deuchar (2005) of *Congruence*, and Myers-Scotton (2002) of *Morphological Uniformity*. In the Minimalist Approach to CS (MacSwan 1999: 146), it is the feature-checking process that guides the speaker towards feature compatibility: "Nothing constrains code-switching apart from the requirement of the mixed grammars".

Among the various models developed to explain the regularities observed, the typological approach proposed by Muysken (2000) is particularly relevant in the design of a teaching methodology, as it offers a descriptive and a-theoretical typology. Furthermore, it enables us to select each time the best type of mixed input, taking into consideration not only formal aspects but also extra-linguistic factors that determine each time the preferred typology of CS, such as competence (Grosjean 2001).

In particular, Muysken (2000) identifies three main typologies of CS: insertion, illustrated in (5) above, alternation, exemplified in (6) above, and lexical congruence, that characterizes speakers with a very high level of fluency in the two languages. Among them, insertion seems to be the preferred one by L2 learners: one word or phrase in a language is inserted in a sentence expressed in the other language. The spontaneous use of this CS typology, especially in the first stages of L2 learning, is the main reason why we have decided to elaborate a specific training for L2 acquisition which is crucially based on insertion, which proves to be the most suitable typology of CS for the L2 level of our participants to the study.

5. Test design and participants

5.1. Design and phases of the study

The present study was conceived as a small-scale pilot investigation aimed at testing the potential of an approach based on code-switching to foster L2 lexical and grammatical learning. It is designed as a within-subject structure: each participant was tested before and after the training, thus allowing a direct comparison of individual progress.

The intervention consisted of three consecutive phases (pre-training, training, and post-training), all conducted within the same week. Each phase was carefully planned to assess, reinforce and measure the development of participants' lexical and morphosyntactic competence in Italian.

Phase 1. Pre-training assessment

This phase aimed to establish the participants' baseline competence in Italian vocabulary and issues concerning gender agreement between a noun and its modifiers. Three instruments were used:

1. The Peabody Picture Vocabulary Test (PPVT) in its Italian version (Stella, Pizzoli, and Tressoldi 2020), in order to assess receptive vocabulary.
2. The LexITA test (Amenta, Badan, and Brysbaert 2021), which measures the ability to discern written Italian words from non-words.
3. A task on gender assignment and gender agreement, specifically designed for this study.

Phase 2. Training

The core of the study consisted in two complementary activities, both adopting a perspective in which English, the L1 of the speakers, served as a cognitive and affective support to Italian L2 acquisition.

Part I – Lexicon elicitation through bilingual storytelling: use of illustrated short stories mixing an English text with Italian target words, in order to elicit vocabulary recognition and inference.

Part II – Gender assignment and gender agreement: presentation of bilingual texts and cloze exercises on article–noun–adjective concord.

The training was conducted in a 90-minute session led by two researchers.

Phase 3. Post-training assessment

Immediately after the training, participants completed LexITA again and the grammatical tasks used in the pre-training, with items reordered, in order to measure immediate gains in vocabulary recognition and morphosyntactic awareness. Informal qualitative feedback was also collected through a short oral discussion that aimed to capture learners' reactions to the code-switching experience, including aspects such as anxiety reduction, engagement and enjoyment.

This three-phase design allows both quantitative comparison between pre- and post-training performance and qualitative analysis of learners' reactions and strategies, offering a comprehensive picture of how code-switching can facilitate early-stage L2 learning.

5.2. Participants

The participants in our pilot training were six US university students (mean age: 20), who attended a study abroad program at the University of Urbino during the fall semester 2024 (from September to December). All participants were native speakers of English and had no knowledge of Italian before the beginning of the program.⁴

During their stay, they attended a university-level Italian language course. The training described in this study was carried out during the last week of the course as an integrated activity. At that stage, all learners had reached an estimated A2 level on the CEFR scale, according to their course results and oral proficiency.

Participants volunteered to take part in the study and provided informed consent. The activity was presented as an optional learning opportunity and had no influence on students' grades. The first part of the training was attended by all students, while the second part was completed by only five of them.

6. Materials

6.1. Pre-training materials

Peabody Picture Vocabulary Test

The Peabody Picture Vocabulary Test (PPVT) was originally designed to measure verbal intelligence and language comprehension in English L1 speakers, and it assesses receptive oral vocabulary (Dunn and Dunn 1959, 1997, 2007).

Although it was primarily intended for young children acquiring their L1, the test can also be administered to older participants, at different levels of education. It has further been used with learners acquiring English as L2. Several studies have employed the PPVT in various countries (Goriot *et al.* 2021),

⁴ All participants had English as their L1. One of them is heritage bilingual English-Spanish. In what follows we will discuss the differences in performance that may emerge for this reason.

including Belgium (Buyl and Housen 2014), Finland (Merisuo-Storm 2007), France (Cohen 2016), Germany (Steinlen and Piske 2013), the Netherlands (Goriot *et al.* 2018), Norway (Dahl and Vulchanova 2014), and Spain (Jimenez Catalan and Terrazas Gallego 2005).

The test was adapted into Italian as the Peabody Picture Vocabulary Test – Revised (PPVT-R) by Stella, Pizzoli, and Tressoldi (2000). The PPVT-R is primarily designed to assess receptive vocabulary in standard Italian. It functions as a learning test, as it provides an indication of the extent to which Italian vocabulary has been acquired.

The PPVT-R consists of 175 items organized in decreasing order of frequency, corresponding to an assumed increase in difficulty. In each trial, the participant is asked to select, out of four, the picture that best represents the word orally pronounced by the researcher. Items include verbs, adjectives and nouns belonging to 20 content categories, such as animals, actions and emotions. According to the instruction manual, the ‘basal’ set is the first set (i.e. a sequence of 8 words) in which the participant makes at most one error. Once the basal set is established, the main testing phase begins. The test continues until the participant makes more than 6 errors within a sequence of 8 words, which marks the ‘ceiling’ set and the end of the assessment.

However, as mentioned above, the PPVT was not originally developed for L2 learners. Its application to this population may therefore present certain limitations. In particular, potential interactions between the participants’ L1 and L2 (or other languages known by them) could affect performance and influence the results, as will be discussed later on.

6.1.1 LexITA

For the measurement of English L2 vocabulary knowledge, Lemhöfer and Broersma (2012) proposed a simple and brief yes/no vocabulary test called LexTALE (*Lexical Test for Advanced Learners of English*).

LexTALE has become a widely used measure in research settings. It is a five-minute vocabulary test that serves as a valid predictor of English vocabulary knowledge and, potentially, of general English proficiency. LexTALE is free, available online, quick to administer, and easy to implement as a lexical decision task in experimental software, or even in paper format, and it provides a reliable

measure of English vocabulary knowledge among intermediate to highly proficient L2 learners.

Building on LexTALE, Amenta, Badan, and Brysbaert (2021) developed LexITA, the Italian adaptation of LexTALE. This written test consists of 90 items, including 60 real Italian words and 30 non-words.⁵ Participants are asked to identify which items they believe are existing Italian words. Scoring follows a penalization system: one point is awarded for each correct response, two points are subtracted for each incorrect response, and no points are assigned for omissions.

6.1.2 Gender Assignment and Agreement Task

The tasks on gender assignment and gender agreement (between the noun and its modifiers, articles and adjectives) were specifically designed to investigate the participants' competence in gender-related issues in Italian. Only singular nouns were considered in order to avoid potential interference from plural morphology. Whenever possible, lexical items that also appeared in the Peabody test or in the LexITA test were included to ensure lexical consistency and comparability across tasks.

Each task included an equal number of target items and fillers. Target items consisted in binary choices for gender assignment, and multiple choices for article-noun-adjective gender agreement. Fillers consisted of binary or multiple-choice items testing subject-verb agreement. The inclusion of fillers also reduced predictability and discouraged participants from focusing exclusively on gender-related cues during the pre-training task.

6.2. Training materials

The training was structured in two parts. The first part was designed to elicit the participants' lexical knowledge of Italian, while the second focused on the assignment of grammatical gender to Italian nouns, and gender agreement between nouns, articles and adjectives. In both activities, CS was employed in a

⁵ Non-words are constructed so as to comply with Italian phonology and phonotactics.

controlled and systematic way. English was maintained as the matrix language for instructions and for the narrative frame, whereas Italian appeared in selected lexical and narrative parts that were the target of the training. This setup helped participants focus on the Italian forms while relying on the English scaffold for global comprehension. The number and placement of switches were planned in advance and kept stable throughout the lesson, with the aim of reducing uncertainty and affective load while making the Italian items as salient as possible.

6.2.1 Lexicon elicitation

A set of Italian words was selected as the lexical focus of the activity. The set included mainly nouns, with a smaller number of adjectives and verbs, and largely overlapped with the items included in the LexITA and PPVT-R tests.

The training input was built around short illustrated stories. Draft stories were generated using ChatGPT (OpenAI) under a Pro subscription, accessed via the web interface. The prompting protocol specified the intended proficiency level of the narratives (A2) and required that each story include exactly one set of 10 Italian target words (plus fillers) inserted verbatim and left untranslated within an otherwise English narrative frame. Each story was then revised by the authors to ensure coherence, appropriateness, and alignment with the intended lexical targets, and to remove any accidental translations or cues that could reduce the need for lexical inference.

Illustrations were also generated with AI tools (ChatGPT) and were designed to match the narrative content. For each story, the image prompt included the corresponding list of target words and requested a scene that made those items visually identifiable. All illustrations were then manually screened to ensure an unambiguous correspondence between each image and the intended referents of the Italian target nouns.

During the training phase, participants were first presented with an illustration, as in Figure 1.

Then the trainers read the story aloud, and participants subsequently read it again on their own. The Italian target words appeared in capital letters and could occur more than once when required. Some additional Italian words in capital letters were included as fillers and were not considered target items. The story associated with the image presented in Figure 1 is reported in (7).



Figure 1. *AI-generated illustration used in the training activity*

- (7) A CONIGLIO PELOSO is running in the garden. Near the CONIGLIO there is a basket full of purple and sweet PRUGNE. On the table nearby, an old, used FRUSTA has been placed near a small CUCCHIAIO. The hot BOL-LITORE is slowly smoking.
A white CICOGNA is flying above the SCOGLIERA in the garden. The CONIGLIO stops near a PRUGNA and starts to SBUCCIARLA calmly. The leaves of the ALBERO are moving in the wind.

No direct translations of the Italian words were ever provided. Instead, participants were asked to infer the meaning of unfamiliar items from the narrative and pictorial context. Proposed meanings were then compared and discussed collectively in order to verify shared interpretations.

An immediate post-training task followed, in which participants completed the LexITA test again. To ensure genuine lexical understanding rather than simple memorization, participants were encouraged to provide explanations of the Italian words, suggest synonyms, or offer equivalent English translations.

The Peabody test was not re-administered in the post-training stage, as it is very time-consuming, and it is designed specifically to assess baseline lexical

proficiency, as discussed above. Indeed, in the Peabody test, the critical interval is defined by two boundaries, the “basal” level and the “ceiling” level. While the basal level was uniform across all participants, we experienced many difficulties in setting the ceiling level. This was due to the presence of lexical items, which, though probably difficult for an Italian L1 learner, could easily be inferred by L2 learners because of their similarity to English forms (e.g., *elicottero*, ‘helicopter’; *barriera*, ‘barrier’; *paracadute*, ‘parachute’). As a result, it was not possible to establish an appropriate ceiling level. Participants often reached very good scores because, within a set of eight words which were considered rather difficult and uncommon for a child learning Italian as his L1 (Stella, Pizzoli, and Tressoldi 2020), there might be some cognate words which L2 learners easily recognized; the presence of such cognate words is even higher for the bilingual English-Spanish speaker.

This is the reason why we decided not to administer the PPVT-R again in the post-training activities, since it did not offer any meaningful contribution to the development of the proposed tasks. However, some Peabody items were included in the second phase of the training, allowing indirect assessment of their acquisition in the corresponding post-training test.

6.2.2 Gender Assignment and Gender Agreement

The second part of the training consisted in a reflection on gender assignment to Italian nouns and gender agreement between nouns and their modifiers, articles and adjectives. Since English is a genderless language, English speakers often show difficulties in learning the gender of nouns in Italian and other gendered languages, unless they are already familiar with gender issues in other languages (as is the case with our bilingual participant).

In order to make participants better acquainted with this phenomenon, a short PowerPoint presentation was shown before the activity, illustrating the different strategies for gender assignment in Italian. Both Italian and English were used alternatively throughout the presentation.

After the presentation, students were shown some mixed-language texts, in which Italian and English languages co-occurred. They were asked to use contextual information and the support of the English words to infer the meaning of unfamiliar Italian items. The participants’ L1 was therefore used as a facilitat-

ing tool, allowing them to focus on Italian lexical and morphosyntactic features without struggling to understand the overall text meaning. A part of a text used for this activity is reported in (8) below:

- (8) Yesterday afternoon, Elena and Matteo decided to take a long PASSEGGIATA through the streets of Urbino.
They started in the old CENTRO, walking along an ancient STRADA with historic CASE and a shiny pavement.

The last part of the training involved a reflection on gender agreement. Students were presented with another code-switched text, specular to the previous one in the use of the two languages, illustrated in (9) below. They were asked to fill in the blanks by selecting the correct Italian articles or adjectives, ensuring gender agreement. In the first phase, students completed the task without referring to the previous version of the text. In the second phase, they were allowed to consult it in order to check and confirm their answers:

- (9) Ieri pomeriggio, Elena e Matteo hanno deciso di fare una WALK _____(lungo/lunga/lunghe/lunghi) per le strade di Urbino.
Hanno iniziato dal CENTER _____(vecchie/vecchio/vecchia/vecchi), camminando lungo una STREET _____ (antico/antica/antichi/antiche), con _____(le/i/gli/la) HOUSES storiche e un marciapiede elegante.

Again, an immediate post-training test followed. Students repeated the tasks on gender assignment and gender agreement, but the items and fillers were presented in a different order from the pre-training test.

7. Results

7.1. LexITA

As stated before, LexITA includes 90 letter strings that may or may not correspond to existing Italian words. Participants are asked to identify the real words, and incorrect responses are penalized through a scoring system that subtracts points for wrong answers.

LexITA results show an increase in all participants' receptive lexical knowledge after the training, as illustrated in Figure 2.

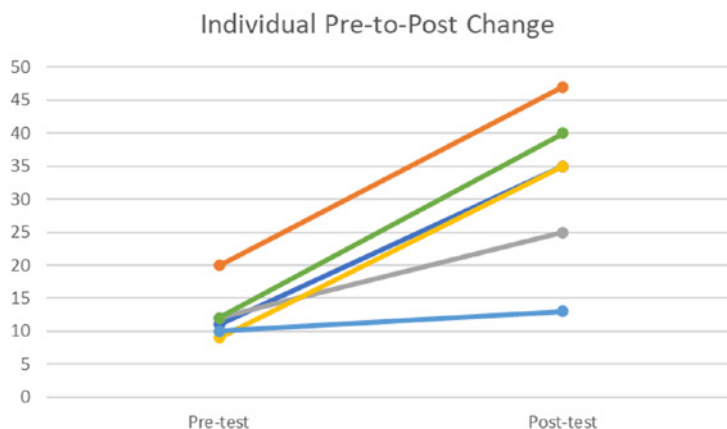


Figure 2. *Individual Pre-to-Post Change in LexITA Scores*

In Figure 2, each line represents one participant's performance before and after the training. The upward trajectories indicate individual gains in Italian lexical knowledge as a result of the code-switching based intervention, with all participants showing improvement to varying degrees. The bilingual speaker, whose initial level of Italian receptive lexical knowledge was expectedly higher than the others due to the presence of Italian-Spanish cognate words (20 points), also registers a substantial improvement (47 points), thus confirming the validity of this activity also for individuals who are familiar with a language typologically similar to Italian.

Descriptive statistics show that mean performance increases from 12.3 points in the pre-test ($SD = 3.9$) to 32.5 points in the post-test ($SD = 12.0$). The average gain across participants is 20.2 points ($SD = 10.0$), with individual improvements ranging from 3 to 28 points, as shown in Figure 3.

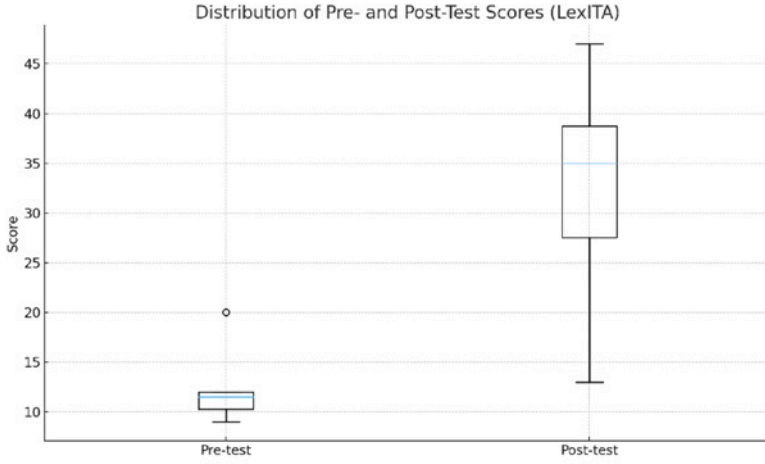


Figure 3. *Pre- and Post-Test Score Distribution*

Figure 3 further illustrates that all participants performed better after the training. The box plot shows the median and range of participants' scores before and after the training, highlighting the overall increase in both central tendency and variability.

Given the small sample size ($n=6$), parametric assumptions are difficult to assess in a reliable way. For this reason, we report both a paired-samples t-test and a non-parametric signed-rank test. The paired-samples t-test indicates a statistically reliable increase, $t(5) = 4.93$, $p = .004$, with a large effect (Cohen's $d_z = 2.01$) and a 95% confidence interval for the mean difference of 9.64 to 30.69, indicating a consistent and meaningful learning effect across participants. A non-parametric Wilcoxon signed-rank test yields convergent results, $W = 21$, $p = .016$.

7.2. *Gender Assignment and Agreement Tasks*

The tasks on gender assignment (Task 1) and gender agreement (Task 2) were designed to assess participants' ability to assign gender to Italian nouns and recognize agreement patterns between nouns and their modifiers. Since English does not encode grammatical gender, these tasks aimed to measure whether the

training increased the learners' awareness and accuracy in identifying grammatical gender in Italian through morphological, semantic and syntactic cues.

Only five out of six students completed this part of the study. One participant did not complete the post-training test and was therefore excluded from the analysis reported in this section.

Task 1 focused specifically on gender assignment, testing whether participants could identify the correct grammatical gender of nouns based on their morphological form or semantic properties. In the pre-training test, participants performed rather well on nouns with transparent morphological endings and on those whose gender could be inferred semantically. In contrast, nouns with opaque or irregular endings yielded the highest number of errors, confirming that learners initially relied primarily on surface morphology rather than on agreement cues. Results are reported in Table 1.

Table 1. Error rates in gender assignment before and after training (Task 1)

Phase	Participants	Items	Total responses	Total errors	Error rate
Pre-Test	5	59	295	83	28,14%
Post-Test	5	59	295	62	21,02%

After the training, a general reduction in errors was observed across all noun types. Overall mean error rate decreased from approximately 28% at the pre-test to 21% at the post-test. The comparison between the two proportions revealed a statistically significant decrease in error rate from the pre-test to the post-test, indicating an improvement in gender assignment accuracy in the expected direction. The error rate of the bilingual participant was 11.86% in the pre-test, expectedly lower with respect to the other participants due to his familiarity with gender issues in Spanish. His error rate shifts to 8.47% in the post-test and, interestingly, most of the errors that persist are due to transfer from Spanish (e.g. * *la miele* 'the honey', caused by feminine gender in the Spanish cognate word *la miel*).

Task 2 extended the assessment of gender processing by introducing adjectives in addition to articles and nouns, thus requiring consistent gender agree-

ment across all elements within the noun phrase. Table 2 reports the total number of errors and error percentages at the pre-test and post-test for Task 2.

Table 2. *Error rates in the determiner–noun–adjective agreement task (Task 2)*

Phase	Participants	Items	Total responses	Total errors	Error rate
Pre-Test	5	16	80	25	31,25%
Post-Test	5	16	80	19	23,75%

After the training, the overall mean error rate decreased from approximately 31% in the pre-test to 23% in the post-test. The error rate of the bilingual participant was 37,5% in the pre-test and decreased to 18% in the post-test. Also in this task, most of the errors that persisted were due to transfer from Spanish (e.g. * *la latte* ‘the milk’, caused by feminine gender in the Spanish equivalent *la leche* or * *il analisi* ‘the analysis’, caused by masculine gender in the Spanish cognate word *el análisis*).

Given the very small sample size, the analysis for Task 1 and Task 2 is presented descriptively, as this provides the most appropriate and informative account of performance in the present pilot study.

8. Discussion and conclusive remarks

The results obtained in the post-training test provide evidence, within the limits of a pilot study, that CS-based activities may prove effective in supporting the acquisition of Italian lexical items and gender-related issues. The clear upward shift in post-test LexITA scores suggests that even a short intervention can enhance the learners’ receptive vocabulary and their confidence in word recognition. An analogous result emerges from the post-training administration of the two tasks concerning gender assignment and gender agreement. Specifically, the reduction in error rates after the CS-based training suggests an increased attention to gender morphology and agreement cues in Italian on the part of our participants. It has also been interesting to compare the performance of the bilingual participant

with that of the rest of the group. As expected, his initial receptive competence in Italian lexicon and gender related issues was higher; nonetheless, he also showed a significant improvement after the intervention, which was comparable, in relative terms, to the improvement registered by other participants.

As a final part of our activity, we asked students to provide qualitative feedback on this code-switching experience, which proves to be extremely valuable to us in view of future implementations to larger groups of Italian L2 learners.

Overall, participants greatly appreciated our training, which they found original and different from what they had previously experienced in L2 classes. In particular they enjoyed the colourful and extravagant images generated by AI, which enhance curiosity and imagination, and the use of code-switched texts, where the presence of English alongside Italian reduces anxiety, allows learners to understand easily the general meaning of the text and concentrate better on the Italian lexicon and the grammatical aspects which represent the main focus of the activity.

However, though the results obtained have been encouraging and we have drawn very useful indications for future work from this pilot study, we must also acknowledge its limitations. The most evident is the low number of participants, a fact that indicates how a larger sample is required in order to detect the full extent of the effects of this new methodology based on the use of code-switching. We will be able to provide more data and more definitive conclusions in future work, as the process of data collection is still going on.⁶ Another limitation of this pilot study is due to the fact that the whole activity, with the exclusion of the sole pre-training test, has been administered in only one session, owing to the scarce available time on the part of our participants. It is our firm intention, in the future, to administer the two parts of the training (lexical acquisition and gender agreement issues) in two separate sessions, with a longer time and more activities devoted to each part. In this way, students will be able to concentrate only on one topic at a time, and this will certainly favour the retention over time of what they have acquired. Last but not least, for future work we will also

⁶ The data collected until now, whose analysis is still in progress, are very promising in this regard: see Stortini, Cocchi and Pierantozzi (2026a, 2026b).

include in our protocol a control group, i.e. a group of students who attend the same Italian L2 classes as the experimental group but do not participate in our training. Hence, a comparison between the results obtained in pre- and post-tests (administered to everybody) by the two groups will better underline the contribution offered by our training.

Finally, this pilot work also suggests some indications for future studies, besides overcoming its limitations. For instance, it would be interesting to analyse in greater detail the impact of the participants' competence in another Romance language (as was the case with our English-Spanish bilingual) or in a non-Romance gendered language (e.g. German), as well as to expand data collection to participants of different age and socio-economic backgrounds.

Overall, we are however satisfied with the students' response to the proposed activities and with the results obtained, which suggest not only that the L1 of the learners should not always be excluded from L2 classes, but also that it may be functional to the acquisition and consolidation of some aspects of L2, and in particular for learning lexical items and other issues strictly connected to lexicon, such as gender assignment to L2 nouns.

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