

Developing Sociopragmatic Competence in Learners of English as a Foreign Language Through the Linguistic Landscape

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Abstract

This study examines how engagement with the linguistic landscape (the visible presence of written language in public spaces) can help develop sociopragmatic competence among learners of English as a Foreign Language. Guided by the Integrated Model of Pragmatic Competence, this paper investigates whether the analysis and reformulation of public signage can strengthen learners' ability to interpret and produce contextually appropriate language. Fifty B2-level students enrolled in a Translation Studies programme at a public university in Madrid participated in an instructional intervention focused on politeness strategies, audience orientation, mitigation, and pragmatic intent (key areas of language instruction for Translator Education). A mixed-methods design combined pre- and post-intervention pragmatic tasks with learner reflections and instructor observations. The findings showed substantial improvement in learners' recognition and production of context-sensitive language, particularly in their use of politeness and mitigation strategies. Qualitative evidence also indicated increased empathy, audience perspective-taking, and awareness of language as social action. These findings suggest that LL-based pedagogy can integrate linguistic, sociopragmatic, and sociocognitive areas of pragmatic competence and provide an authentic, accessible resource for EFL and Translation Studies instruction.

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Introduction

Texts permeate our lives every day, appearing everywhere around us, on screens, walls, and public signs, and, thus, they shape how individuals move through, interpret, and interact with and within the environments in which they live (Macías-Borrego, 2025b). However, although these texts often recede into the usually unnoticed background of the everyday experience, they collectively do constitute what Gorter (2006a) defines as the Linguistic Landscape (LL), that is, the visible manifestation of written language in public spaces. Nevertheless, as Scollon and Scollon (2003) explain, attention to this semiotic environment is not arbitrary as it is dominated by a socially organised perception in which the cognitive focus tends to align with pragmatic salience (Backhaus, 2007; Macías-Borrego, 2025a). This fact explains why and how a pedestrian focuses on a crossing signal over a nearby advertisement display; thus, this act exemplifies socially situated cognition, which is a process mediated by cultural expectations, communicative norms, and immediate goals (Landry & Bourhis, 1997; Vandenbroucke, 2025).

In this light, the LL is not just a reflection of language use, it can be understood as a sociopragmatic environment in which cognition, interaction, and context do intersect (Tufi, 2025). Thus, public signs, whether locutionarily instructive (e.g., “Keep off the grass”) or perlocutionarily persuasive (e.g., “Buy local”), do encode assumptions about politeness, impoliteness, authority or shared cultural knowledge (Alba-Juez & Haugh, 2025; Kádár & Haugh, 2014). As a result, interpreting such messages requires more than linguistic decoding; it involves pragmatic reasoning, that is, the ability to infer the communicative intentions, social relationships, and cultural norms that underlie textual expression (Bell, 1995; Unger et al., 2024). The LL thus serves as an authentic and accessible domain to examine how language use, social cognition, and cultural meaning-making converge in everyday life (Cenoz & Gorter, 2024).

In the context of English as a Foreign Language (EFL), this sociopragmatic perspective can provide a productive framework to enhance and develop learners’ communicative competence. At intermediate to advanced language proficiency levels (B2 to C2 CEFR), learners should not only demonstrate grammatical accuracy but also possess the ability to employ language appropriately across diverse social contexts (Krompák, 2025). This ability, sociopragmatic competence, corresponds to the ability to recognise how linguistic forms, communicative functions, and social meanings do in fact co-construct interactional effectiveness (Leech, 2014). As a result, sociopragmatic competence cannot be developed only via decontextualised instruction; it emerges from exposure to authentic communicative situations that can engage both linguistic awareness and socially situated and grounded cognition, thus, favouring sociopragmatic competence development (Macías-Borrego, 2025b).

In this regard, the LL offers an innovative pedagogical resource as public signage encapsulates genuine instances of how linguistic choices perform social functions, which

help develop the understanding of politeness, how speakers can assert authority, or how they negotiate interpersonal distance. In this light, when learners analyse and reconstruct such signs, they do engage in sociocognitive reflection: inferring intentions, comparing cultural pragmatics, and internalising the principles that govern context-sensitive language use (Lu, 2020). This experiential engagement and involvement does allow learners to perceive language as a cognitive and a social act, which means understanding that language is both an instrument through which thought, identity, and interaction are negotiated (Barni, 2025).

Therefore, this study explores how the engagement with the LL can enhance EFL learners' sociopragmatic competence, with particular respect to politeness strategies and contextual appropriateness (Gorter, 2006b). This research, conducted within a B2-level EFL Translation Studies course, investigates how instructional signage (LL-based) can foster learners' sensitivity to the social and cognitive dimensions of communication. Additionally, as the study is anchored in the Integrated Model of Pragmatic Competence or IMPC (Mao & He, 2021), it also aims at exploring whether authentic public texts can help develop a deeper understanding of how cognition operates through sociopragmatic processes (Alba-Juez, 2021).

Literature Review

Linguistic Landscape as a Resource for Language Learning

The LL includes all visible presence of written language in public spaces, including public and private spaces signs, institutional notices, advertisements, and any other textual display (Gorter, 2006a; Landry & Bourhis, 1997). Thus, beyond representing linguistic diversity, LL reflects the different social practices, the (socio) cultural values, and the relationships between institutions and communities (Cenoz & Gorter, 2024; Scollon & Scollon, 2003). As these signs can combine linguistic choices with social meaning(s), their interpretation requires paying special attention to audience, communicative intention, and contextual expectations (Blommaert, 2013).

Recent research understands LL as an increasingly structured pedagogical resource rather than just an object of and for sociolinguistic analysis. According to recent LL research, LL-based activities can promote language awareness, enhance intercultural understanding, foster their critical engagement with language practices, and foster learner participation through various kinds of tasks, including observation, interpretation, and production tasks (Balseiro et al., 2026; Çermikli Ayvaz et al., 2026; Li & Yang, 2026; Romanowski, 2026; Solmaz, 2026; Yelenevskaya, 2026). However, although LL-based pedagogy has received increasing attention, not a lot of studies have yet examined how involvement with public texts may contribute specifically to learners' sociopragmatic development through measurable task performance.

Linguistic Landscape and Sociopragmatic Competence

Pragmatic competence involves the ability to understand and produce language appropriately according to communicative goals, social relationships, and contextual conditions (Leech, 2014). Sociopragmatic competence is specifically concerned with the interpretation of social meanings, including politeness, impoliteness, authority, distance, and culturally appropriate interactions (Culpeper, 2021; Kecskes, 2014). Thus, developing this competence requires more than knowing linguistic rules and forms; learners must understand why particular expressions are selected or preferred and how they should be interpreted by different audiences in different contexts.

In this regard, LL can provide an appropriate environment for this development as public signs require readers (decoders) to infer intentions, evaluate directness, and correlate linguistic choices to social contexts. Thus, interpreting and reformulating signs involves identifying communicative forces, considering audience expectations, and adapting language according to institutional and cultural conventions (Alba-Juez & Haugh, 2025; Tufi, 2025).

Following the Integrated Model of Pragmatic Competence (IMPC) perspective developed by Mao and He (2021), pragmatic performance emerges through and from the interaction of linguistic representations, pragmatic effects, contextual inference, and sociocultural knowledge. As a result, LL-based instructional tasks may support the learners' ability to coordinate these resources by requiring them to move between linguistic form, intended meaning, and socially appropriate use. Nevertheless, previous studies have rarely examined this process through structured pretest–posttest pragmatic tasks.

Instructional Signage, Pragmatic Learning, and Translation Studies

Instructional signage can provide a particularly suitable form of LL material because signs are concise, they have a specific purpose, and can be highly dependent on audience interpretation (Macías-Borrego, 2025b). In this regard, interpreting speech acts as directives, warnings or institutional notices requires balancing clarity, authority, politeness, and interpersonal sensitivity. Thus, analysing and reformulating such messages encourages learners to examine how small linguistic choices influence the perceived tone, social relationships, and communicative effectiveness (Tufi, 2025).

This focus is especially relevant to Translation Studies (TS); a successful translation requires pragmatic equivalence rather than literal reproduction (Macías-Borrego, 2025a). As a result, translators need to consider how messages function within particular cultural and institutional contexts and, at the same time, how linguistic choices affect readers' interpretations (Gonçalves et al., 2025). Therefore, working with public signage can provide opportunities for learners to develop both pragmatic awareness and sensitivity to culturally appropriate communication. However, despite these specific

connections, limited research has investigated LL-based instruction through systematic assessment of changes in learners' sociopragmatic performance.

Sociopragmatic Awareness and Translation Studies

For TS, pragmatic and sociopragmatic competence are essential as these two competences are key in achieving communicative equivalence across languages and cultures (Alba-Juez & Mackenzie, 2015). Translators need to consider linguistic meaning but also need to contemplate socially embedded intentions, thus, making sure that translated texts do preserve pragmatic force and remain appropriate for target audiences (Baker, 2018; House, 2010). This is particularly relevant to LL, where expressions of politeness, impoliteness, obligation, and authority do vary across different cultural contexts. In this regard, a literal translation of a directive may fail pragmatically should it conflict with target-culture expectations of formality or interpersonal relations (Katan, 2014). Translation therefore involves sociopragmatic reasoning: identifying communicative purposes and reconstructing them in culturally appropriate forms (Macías-Borrego, 2025b).

Recent LL research confirms that effective translations of public texts do, in fact, involve more than formal linguistic equivalence. Aldhahri and Shoaib (2026) demonstrate that bilingual signage strategies can influence communicative clarity, cultural continuity, pragmatic consistency, and target-audience adequacy. Their findings underline the need that translators have to coordinate linguistic accuracy with communicative functions, cultural meanings, visual organisation, and readers' practical needs. Thus, public sign translation is a valuable context for developing sociopragmatic awareness as translation choices may directly influence how audiences interpret and respond to translated messages (Szabó & Brown, 2025).

Therefore, integrating LL-based tasks into TS classrooms can support the development of sociopragmatic competence by requiring learners to analyse and adapt authentic texts. Through such activities, learners do negotiate linguistic equivalence, pragmatic appropriateness, and cultural expectations, while developing awareness of how meaning is shaped by social context (Dannerer & Soukup, 2025; Pym, 2014). These processes, as a result, contribute not only to enhancing pragmatic competence but also to intercultural sociocognition, thus preparing future translators to manage context-dependent communication (Barni, 2025; Gonçalves et al., 2025).

However, despite an increasing interest in LL pedagogy, recent research has mostly examined language awareness, multilingual practices, intercultural competence, critical literacy, learner efficacy, and teacher education (Balseiro et al., 2026; Çermikli Ayvaz et al., 2026; Li & Yang, 2026; Romanowski, 2026; Stroud & Mpendukana, 2009; Yelenevskaya, 2026). In comparison, less attention has been given to the systematic development of sociopragmatic performance through structured pre- and post-

intervention tasks which require learners to recognise pragmatic form–function relationships, adapt directives to specific audiences, and reformulate public messages. Furthermore, limited research has examined these processes among TS students through the interactional perspective proposed by the IMPC. We address this gap by combining task-based assessment, learners’ reflection, and classroom observations to examine how LL-based instruction can be associated with context-sensitive pragmatic interpretation and production (Willis, 1996).

Methodology

As demonstrated by canonical research, developing sociopragmatic competence in second language learners requires exposure to authentic, socially embedded language (Riddiford & Holmes, 2015). In this regard, the LL gives access to naturally occurring, contextually situated language input, which enables learners to observe how social norms, interpersonal relationships, and behavioural expectations are encoded through language (Cenoz & Gorter, 2006). From a sociocognitive perspective, involvement with the LL encapsulates interaction between learners’ attention, interpretation, and pragmatic reasoning within socially meaningful environments (Yumul-Florendo & Muth, 2022).

Therefore, public texts, particularly instructional signage, can function as linguistic and cognitive resources (Macías-Borrego, 2025b)¹. These can be understood as examples of signs that regulate behaviour and express institutional authority illustrating pragmatic negotiations between directness and mitigation, politeness and imposition, and solidarity and distance (Gorter et al., 2021). Analysing such texts allows learners to examine how language performs social actions, cultivates inferential reasoning, and helps reflect on cultural expectations.

For this study we employed a mixed-methods design to investigate how engagement with instructional signage contributes to EFL learners’ sociopragmatic competence. The analysis was conducted in a B2-level Translation Studies course, and it primarily examined how EFL learners develop awareness of politeness strategies, contextual appropriateness, and socially appropriate language through the analysis, discussion, and reconstruction of authentic and fabricated signs in LL-based pedagogy. Thus, this study explores how interaction with LL supports pragmatic adaptability and socially situated cognition, helping learners understand language as a communicative practice and a socially embedded cognitive activity.

¹ Although the present intervention employed the same pedagogical method described in Macías-Borrego (2025b), it involved a separate cohort, independently collected data, and a distinct empirical analysis. There is no overlap in participants, assessment results, qualitative data, or reported findings between the two publications.

Research Design

This study employed an embedded mixed-methods, one-group pretest–posttest intervention design. The quantitative strand examined changes in pragmatic task performance, while the embedded qualitative strand was used to interpret the reasoning and classroom processes accompanying those changes. In this light, the assessment used a mixed response format; the instrument was adapted from Gibert-Escofet et al. (2021). The complete study instrument, item-level classification, answer keys, scoring procedures, and productive-response rubric are provided in Supplementary File 1.

The form and function recognition and contextual-adaptation sections each contained 18 selected-response items scored dichotomously. The productive-reformulation section contained 18 open-ended tasks in which learners rewrote public or institutional signs for specified audiences and contexts. These responses were evaluated using a pre-established 0–2 analytic rubric addressing preservation of communicative purpose, pragmatic appropriateness, directness or mitigation, register, concision, and audience orientation.

Thus, we opted for a mixed-methods approach in order to research and understand the measurable outcomes and the experiential dimensions of sociopragmatic development. This design does integrate linguistic analysis (Granger, 2012; McEnery & Hardie, 2012) with sociopragmatic inquiry, while focusing on how learners interpret, evaluate, and reformulate authentic language in context. The intervention was carried out during the spring semester of the 2024–2025 academic year and it comprised six weekly two-hour (120-minute effective) sessions, resulting, thus, in a total duration of 12 hours. The mixed-methods design consisted of the following two complementary components:

- The quantitative part of the research design examined changes in learners' pragmatic performance between the pre- and post-intervention assessments (Supplementary File 1).
- The qualitative strand was embedded within the intervention and was used to contextualise and explain the quantitative findings. Integration occurred during the interpretation of the results, when patterns identified in the pragmatic test were compared with evidence from learner reflections and classroom observations. The study therefore did not treat the quantitative and qualitative components as independent investigations; rather, the two forms of evidence were used complementarily to develop a more comprehensive account of sociopragmatic development.

This mixed design allowed for a comprehensive understanding of how learners internalise sociopragmatic knowledge through cognitive engagement with authentic linguistic stimuli (Cohen et al., 2017; Creswell, 2014). Thus, integration was conducted by comparing the direction and content of the quantitative and qualitative findings. Improvements in pragmatic test performance were considered alongside learners' explanations of their choices and the instructor's observations of classroom behaviour.

For example, increased performance in form and function recognition was compared with reflective comments concerning directness and mitigation, while increased contextual-adaptation scores were considered alongside evidence of audience perspective-taking and discussion of institutional roles. Triangulation was therefore used to assess whether different sources produced convergent, complementary, or divergent evidence.

Quantitative improvement was not treated as proof of the cognitive processes described in the qualitative data. Rather, the qualitative sources were used to propose plausible interpretations of how learners approached the tasks and how their pragmatic reasoning appeared to change during the intervention.

Participants

The study involved 50 consenting undergraduate students enrolled in a compulsory B2-level English course within the Translation Studies programme at Rey Juan Carlos University in Madrid, Spain. The study was conducted during the spring semester of 2025. English was both the target language of the course and the medium of instruction, and it was the only language used during classroom activities, explanations, group discussions, written reflections, and assessment tasks. All the participants completed both tests, and none withdrew consent.

English was a compulsory component of the Translation Studies programme. Participants' B2 proficiency had been established through the university's language-screening procedures before admission. Their proficiency was not formally reassessed immediately before the intervention because no additional institutional screening was conducted before the third year of the programme. The B2 classification should therefore be understood as an institutional entry-level classification rather than as a proficiency measure administered specifically for this study.

Although enrolment in the English course was compulsory, participation in the research and the use of students' data were voluntary. Participants provided informed consent, and their responses were anonymised before analysis. Detailed demographic and linguistic-background distributions are not reported in accordance with restrictions established by the university ethics committee. This limitation prevents subgroup comparisons but protects participant confidentiality.

Data Collection

To establish a baseline for this research and compare it to the outcome measures, all participants completed pre- and post-tests assessing their ability to identify and interpret pragmatic features such as politeness strategies, indirectness, and formality (Bardovi-Harlig, 2010; Kecskes, 2021). The post-test was administered after the LL-based intervention and measured improvement in learners' ability to recognise pragmatic

intentions and to adapt language use contextually. These tests measured sociopragmatic cognition as the ability to connect linguistic forms with inferred social meanings and were complemented with instructor observations, which were focused on classroom discourse, paying special attention to instances where students showed context-sensitive language use, negotiated formality collaboratively, or spontaneously corrected peers' pragmatic formulations.

Testing Pragmatic Competence

To assess learners' sociopragmatic competence a 54-item task-based pragmatic test was administered before and after the instructional intervention to all 50 consenting participants in the intervention. The complete assessment instrument, including Forms A and B, the item-level content-domain classification, answer keys, scoring procedures, and assessment rubric, is provided in Supplementary File 1. We targeted the sociopragmatic phenomena addressed during the course, focusing thus on politeness, mitigation, audience orientation, and contextual appropriateness in public and institutional settings.

At the level of response and demand, the assessment instrument comprised three task categories: form and function recognition, contextual adaptation, and productive reformulation. Each category contained 18 items. Form and function recognition assessed learners' ability to identify how linguistic choices conveyed pragmatic effects such as directness, mitigation, politeness, authority, and interpersonal stance. Contextual adaptation assessed their ability to select or adjust language according to audience, setting, social relationship, and communicative purpose. Productive reformulation required learners to rewrite public or institutional signs in concise, natural, and contextually appropriate English.

For interpretive purposes, the three task categories were aligned with overlapping operations described in the Integrated Model of Pragmatic Competence (IMPC; Mao & He, 2021). Productive reformulation was primarily associated with coordinating linguistic form and pragmatic intent; form and function recognition involved mapping linguistic choices onto their pragmatic effects; and contextual adaptation involved integrating linguistic representations with audience-related and sociocultural information. These alignments were not exclusive, because successful performance in each category required interaction among linguistic, semantic, pragmatic, and contextual resources. The categories were therefore treated as task-performance indicators rather than as independent or validated IMPC subscales, and no separate latent measures of linguistic, sociopragmatic, or sociocognitive competence were calculated.

The form and function recognition and contextual-adaptation items were selected-response tasks scored dichotomously as correct or incorrect. Productive-reformulation responses were scored by the instructor using a pre-established 0–2 analytic rubric. A

score of 0 indicated a pragmatically inappropriate response or failure to address the communicative task; a score of 1 indicated a partially appropriate response with limitations in pragmatic force, mitigation, audience orientation, register, or contextual fit; and a score of 2 indicated a contextually appropriate response that preserved the communicative purpose while demonstrating suitable pragmatic force, register, concision, and audience awareness.

The same rubric was applied at both assessment points. Because all productive responses were scored by a single instructor, inter-rater reliability could not be calculated. Raw scores for each task category and for overall pragmatic-test performance were converted into percentages to facilitate comparison between the pretest and posttest, as reported in Tables 1 and 2. Sample items included:

1. Form and function recognition:
Which sign is more appropriate for a hospital corridor?
a) Do not enter.
b) Please do not enter.
2. Productive reformulation: Rewrite the following sign to sound appropriate for a public library: Silence.
3. Productive reformulation: Rewrite the following sign for a university online noticeboard: LATE WORK NOT ACCEPTED.

The same instrument was administered at pretest and posttest, with the item order varied to reduce familiarity effects.

Instructional Signage Analysis

The instructional intervention centred on both authentic and fabricated signage drawn from the LL created specifically for this intervention (a simulated environment flooded with signage was created in the classroom space – following Macías-Borrego, 2025a). In this regard, the instructional corpus comprised 30 signs selected by the instructor before the intervention. The corpus included both authentic and purpose-designed instructional signage displayed within a simulated classroom linguistic landscape following Macías-Borrego (2025a). Students engaged in structured tasks involving the analysis, interpretation, and recontextualisation of signs that performed communicative functions such as requests, warnings, and instructions (Gorter et al., 2021; Leech, 2014). These tasks promoted awareness of how pragmatic meaning arises through contextual inference—a key component of sociocognitive development (House, 2010; Taguchi, 2015).

For interpretive purposes, the task-performance categories were aligned with overlapping operations described in the Integrated Model of Pragmatic Competence. Productive reformulation was primarily associated with the coordination of linguistic form and pragmatic intent; form and function recognition was associated with the

interpretation of pragmatic effects arising from linguistic choices; and contextual adaptation was associated with the integration of language with audience, setting, and sociocultural knowledge. Thus, these categories were not treated as independent or validated IMPC subscales. Each task required interaction among linguistic, semantic, pragmatic, and contextual resources. Therefore, it should be noted that the numerical values reported in Figure 2 represent performance on the study's task-based indicators and not direct measurements of hypothetical cognitive submodules.

Instructional Intervention

The LL-based intervention was implemented over six weeks in an EFL B2-level TS course during the spring semester of 2024-2025 academic year. Every week a two-hour session (120 minutes) was dedicated to LL-based activities, which were integrated into the existing syllabus, thus resulting in a total of 12 hours of LL-based instruction. Each session was designed following a consistent pedagogical sequence:

1. Noticing and interpretation: Learners examined authentic and fabricated instructional signage from public spaces (e.g., libraries, hospitals, transport systems). The initial sociopragmatic discussion focused on tone, directness, modality, and implied social relations.
2. Sociopragmatic analysis: Learners worked in small groups to identify politeness and impoliteness strategies, mitigation devices in use, and audience orientation; learners compared English signage norms with those of their L1.
3. Reconstruction and translation: Learners reworked and translated signs to enrich pragmatic appropriateness for specific contexts; this section mirrored the productive tasks assessed in the post-test.
4. Metapragmatic reflection: A whole-class discussion (including the instructor feedback) encouraged a metapragmatic reflection on how linguistic form portrayed social meaning.

Thus, the various tasks in the sequence progressed from recognition-based activities to productive rewriting and translation tasks, which aligns with the increase observed in contextual adaptation and rewriting performance (see Table 2). To achieve the set goal, the instructor guided analysis but emphasised peer negotiation of pragmatic choices.

Written Reflections

The participants completed three written reflections along the six-week intervention (in weeks 2, 4, and 6) resulting in a total of 150 texts. The reflections were submitted online (via Virtual Campus) in English and provided a longitudinal record of learners' development of sociopragmatic and metapragmatic awareness.

Learners were given prompts which had been specifically designed to elicit explanations of learners' pragmatic reasoning and not as general evaluations of the activities. Therefore, the prompts focused on relationships among linguistic forms, communicative

intentions, politeness and impoliteness, audience, and social contexts. Typical prompts included:

1. What pragmatic choices did you notice in today's signage tasks?
2. How did the audience or context influence your reformulation?
3. Did your perception of politeness or tone change? Why?

Learners were encouraged to refer to specific features of the signs they had analysed or reformulated, including modal verbs, politeness markers, indirectness, and justification clauses, and to relate these features to contextual variables such as setting, power relations, and intended readership. The reflections therefore provided insight into how learners articulated their understanding of language as a socially situated and cognitively mediated form of communication (Bardovi-Harlig & Dörnyei, 1998; Hawkins, 2013).

The reflections were analysed as qualitative evidence of learners' decision-making processes, particularly their developing sensitivity to mitigation, audience perspective, empathy, and contextual appropriateness. They were not assigned numerical competence scores and were not treated as independent evidence of intervention effectiveness. Instead, they were used to interpret and contextualise the changes observed in pragmatic-test performance and are reported in Section 4.2.

Instructor Observations

The instructor maintained open field notes during each of the six intervention sessions. The notes were not based on a predetermined frequency checklist. Instead, they documented classroom events relevant to the development of pragmatic awareness, including students' negotiation of tone and formality, discussion of audience expectations, peer suggestions, spontaneous reformulations, self-correction, and transfer of pragmatic reasoning to oral and written classroom interaction. The analysis followed a primarily deductive approach based on the study's three qualitative areas of interest, while allowing additional patterns to be recorded when they emerged from the reflections and field notes. All 150 reflections and the field notes from the six sessions were included in the analysis.

The field notes were produced during the sessions by the instructor, who was also the researcher and intervention facilitator. These notes were used as a supplementary qualitative source and not as an independent or objective measure of behavioural frequency (as they could potentially be affected by observer expectations and the instructor's dual role).

Data Analysis

Quantitative analysis

Pretest and posttest scores were expressed as percentages derived from aggregated task performance and were treated as continuous measures. Because the two scores

represented repeated observations from the same participants, the data were analysed using descriptive statistics and a paired-samples t test (Tabachnick & Fidell, 2013).

The original participant-level dataset was unavailable during manuscript revision; consequently, the statistical assumptions underlying the original analysis could not be independently re-examined. The inferential results reported in this manuscript were therefore taken from the original analysis. The magnitude of the pretest-to-posttest change was expressed using Cohen's d_z , an effect-size measure for paired-samples designs, calculated from the paired-samples test statistic using the formula $d_z = t/\sqrt{n}$. A 95% confidence interval was also reported for the mean difference.

The quantitative analysis examined changes in learners' ability to interpret and produce contextually appropriate linguistic choices. Scores were calculated for the three task-performance categories (form and function recognition, contextual adaptation, and productive reformulation) as well as for overall (socio) pragmatic-test performance. These results were interpreted as observable and overlapping indicators of sociopragmatic task performance rather than as psychometrically independent measures of the internal submodules proposed by Mao and He (2021).

Qualitative analysis

Written reflections and instructor observations were analysed through thematic analysis (Braun & Clarke, 2006). Themes were coded for evidence of:

- heightened awareness of sociopragmatic norms,
- increased ability to infer social meaning from linguistic cues, and
- development of context-sensitive reasoning in communication.

Following Flick (2018), triangulation was used to examine convergence, complementarity, and divergence among the qualitative and quantitative sources; it did not eliminate the potential influence of researcher interpretation. In this light and to this end, the reflections and field notes were coded manually by the instructor-researcher; no qualitative-analysis software was used. Because the qualitative analysis was completed by a single coder, no inter-coder agreement statistic was calculated. Recurring patterns were identified across the reflections and observational notes, and representative extracts were selected to illustrate those patterns. The resulting themes should therefore be interpreted as an instructor-researcher analysis rather than as independently verified coding outcomes.

Methodological Limitations

This research offers valuable insights into how LL and LL-based pedagogical interventions in EFL mediate sociopragmatic and cognitive development, however, several limitations should be acknowledged. On the one hand, the sample size ($n = 50$) and single-institution context limit possible exercises of generalisability (Cohen et al.,

2017). Additionally, the study is primarily focused on politeness and formality as pragmatic targets; in this regard, future work needs to explore other sociopragmatic features such as humour, irony, or stance taking (Jucker et al., 2018).

Results

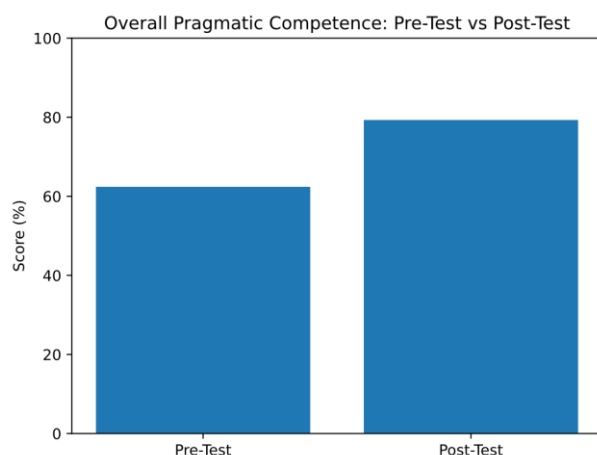
Quantitative and qualitative findings indicated that students improved their sociopragmatic task performance and increasingly viewed language as a socially situated practice. Qualitative evidence further suggested greater attention to audience, context, and interpersonal meaning. Together, these findings indicate that learners developed not only greater ability to recognise and apply pragmatic strategies but also a deeper understanding of language as a means of negotiating meaning, politeness, and identity within specific communities. This highlights the pedagogical potential of integrating real-world signage into EFL and Translation Studies instruction by connecting linguistic knowledge with its practical social application.

Quantitative Findings

Pre- and post- test scores are expressed as percentages and thus analysed using descriptive statistics and a paired-samples *t* test. The magnitude of change was reported using Cohen's d_z , calculated as $t/\sqrt{n}$, together with a 95% confidence interval for the mean difference. In this light, analysis of pre- and post-test data showed clear and statistically significant improvements in participants' pragmatic performance following the instructional signage intervention. The mean pretest score was 62.4% ($SD = 9.8$), increasing to 79.3% ($SD = 8.5$) in the post-test. The mean improvement of 16.9 percentage points was statistically significant, $t(49) = 11.42$, $p < .001$, 95% CI [13.93, 19.87], and was associated with a large paired-samples effect size, Cohen's $d_z = 1.62^2$, as illustrated in Figure 1.

Figure 1

Overall Pragmatic-Test Performance at Pretest and Posttest



² Based on the reported paired-samples test statistic, the standard deviation of the difference scores was 10.46.

In this light, the largest improvements were observed in tasks requiring the identification of politeness strategies, mitigation of directives, and interpretation of social nuance. The largest improvement was observed in the pragmatic form and function recognition component. Mean performance on this component increased from 38% at pretest to 82% at posttest. The component required learners to identify how alternative linguistic formulations conveyed differences in directness, mitigation, authority, and interpersonal stance. For example, one task contrasted *Do not enter* with *Please do not enter* and required learners to consider how the addition of the politeness marker modified the interpersonal force of the directive. The component-level improvement suggests increased sensitivity to form and function relationships across the relevant test items.

Table 1*Overall Pragmatic-Test Performance and Pragmatic Form and Function Recognition*

Test	Overall Mean Score (%)	Overall Test SD	Politeness Recognition (%)
Pretest	62.4	9.8	38
Posttest	79.3	8.5	82

Note. *SD* = standard deviation.

Additionally, some productive tasks also revealed significant advancement. These tasks show the break of the initial tendency to produce literal or excessively formal renditions of public signage, such as translating “*Mind the gap*” as “*Be careful of the separation between the platform and the train*”. After the intervention learners showed more idiomatic and socially appropriate formulations, these include: “*Watch your step*”, which shows a complex sociopragmatic thought: an increased awareness of audience expectations and the pragmatic function of language beyond grammatical correctness. This reflects a surface-level linguistic improvement and a cognitive reorientation towards understanding language as action within social contexts.

Table 2*Pretest and Posttest Results Showing Improvements in Pragmatic Competence.*

Measure	Pretest Mean (%)	Posttest Mean (%)	SD Pretest	SD Posttest	Improvement %
Overall Pragmatic Competence: Pretest and posttest	62.4	79.3	9.8	8.5	+16.9
Form and Function Recognition	38	82	12.1	10.3	+44
Contextual Adaptation	45	81	11.7	9.6	+36
Productive Reformulation	50	83	13.2	9.9	+33

Note. *SD* = standard deviation.

The quantitative data also indicated a large paired-samples effect size, Cohen’s $d_z = 1.62$; this shows that the improvement was substantial, at least, in relation to the variability of participants’ change scores. These numerical variations, when paired with qualitative records, reveal how learners’ attention, empathy, and perspective-taking were engaged and developed throughout the course, thus providing a richer understanding of the processes that underlie sociopragmatic competence development.

Qualitative Findings

The qualitative analysis, consisting of students' written reflections, classroom discussions, and instructor observations, offers a systematic view of learners' sociopragmatic development. Initially, learners approached LL tasks in a textual corrective manner. As a result, early reflections often considered the aim of the exercises to be "fixing mistakes" or "making the English sound right," emphasising form over social function. Over the course and thanks to the intervention, these reflections showed a more relational and interpretive focus, demonstrating involvement with social meaning and pragmatic reasoning.

For example, one learner reflected on a public sign reading "*Don't litter*":

"I used to think a sign like 'Don't litter' was neutral, but now I see it's not. It sounds direct and even aggressive depending on who says it. I changed it to 'Please keep the area clean' because it feels more respectful" (Student 32).

Another student, when revising a library sign stating "*Silence, please*", wrote:

"In Spanish, we often use imperatives directly, but in English, they sound too strong. I added 'We appreciate your cooperation' because it shows gratitude and softens the command" (Student 13).

As can be inferred, these examples do illustrate learners' growing awareness of mitigation strategies and their understanding that pragmatic choices can regulate social interactions, maintain interpersonal harmony, and communicate respect. In the same light, the reflective journals further highlighted the development of empathic and perspective-taking skills. In this regard, one student explained:

"When I translated the hospital sign 'Wash your hands before entering', I imagined how a patient or a visitor might feel. Using 'Please wash your hands before entering' felt more human, like a reminder rather than an order" (Student 11).

This pattern is consistent with learners engaging in sociocognitive processes such as simulating communicative interactions and anticipating potential reader responses, which have been demonstrated to be key elements of distributed cognition in language use (Atkinson, 2014; Tomasello, 2019).

Table 3

Examples from Student Reflections Showing Shifts in Pragmatic Reasoning and Social Awareness after the Instructional Signage Intervention

Example Sign	Illustrative Early-Intervention Pattern in Students' Responses	Illustrative Later-Intervention Pattern in Students' Responses	Observed Pragmatic Change across the Intervention
"Don't litter"	Literal recognition of grammatical correctness	"Please keep the area clean"	Use of mitigated request, social politeness
"Silence, please"	Imperative, formal	"We appreciate your cooperation"	Added gratitude, softened directive
"Wash your hands before entering"	Direct instruction	"Please wash your hands before entering"	Perspective-taking, empathetic framing

Instructor Observations

Instructor observations provided a significant yet additional insight into the behavioural manifestation of sociopragmatic development. In early sessions, learners' contributions were often literal and grammar rule-focused; as a result, the intervention prioritised grammatical accuracy over pragmatic appropriateness. As the intervention continued and progressed, however, a notable shift was observed: learners began to engage in metapragmatic discussions, comparing possible alternatives to specific outputs and reasoning collaboratively about possible audience perceptions and social roles involved. For instance, when analysing the following two signs "*Authorized personnel only*" versus "*Staff access only, thank you*", a number of learners debated how phrasing affected tone and implied hierarchy in either sign, concluding, therefore, that the second sign "felt less authoritarian and invited cooperation."

The observational notes also noted an increase in peer-to-peer scaffolding. Learners frequently offered suggestions to classmates regarding tone, politeness, or degree of formality in revision tasks, proving that pragmatic understanding was being socially constructed within the classroom environment. Moreover, spontaneous self-correction became more common: learners adjusted their own phrasing mid-discussion to better align with perceived social rules, reflecting, as a result, an internalisation of sociopragmatic principles.

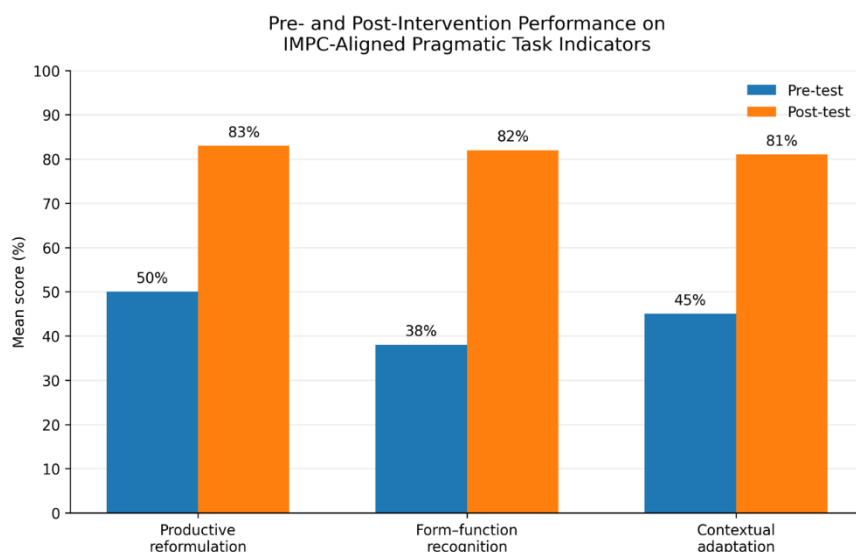
Finally, the instructor observed a general turn in communicative behaviour in the classroom. By the end of the intervention, learners began transferring the acquired sociopragmatic skills to other spoken interactions and written assignments; this indicates that sociopragmatic awareness had permeated broader communicative habits. As a result, learners' discussions were characterised by explicit references to tone, indirectness, register, and audience orientation, which illustrates the integration of metapragmatic awareness into cognitive and behavioural routines.

IMPC-Aligned Interpretation of Pragmatic Task Performance

The findings also show significant improvements in the three key categories analysed: productive reformulation, form–function recognition, and contextual adaptation; the three categories were interpreted in light of the IMPC. It should be noted that these key categories were interpreted as overlapping indicators of learners’ ability to coordinate linguistic form, pragmatic force, audience expectations, and sociocultural context and not as independent IMPC dimensions or validated subscales. To clarify the different categories we shall say that productive reformulation involved expressing communicative intentions appropriately, form–function recognition involved interpreting directness, mitigation, politeness, and interpersonal stance, and, thirdly, contextual adaptation involved selecting appropriate language for specific audiences, settings, and purposes. Together, the quantitative gains and qualitative evidence suggest improved coordination of linguistic, pragmatic, and contextual information, consistent with IMPC principles, although the study did not directly measure its proposed cognitive submodules.

Figure 2

Pre- and Post-Intervention Performance on IMPC-Aligned (Task Indicators)



As can be inferred, values presented in Figure 2 represent participants’ mean scores on the three task-based components of the pragmatic test, not independent IMPC subscales. Productive reformulation primarily reflects the coordination and externalisation of linguistic form and pragmatic intent; form and function recognition reflects the identification of pragmatic effects associated with linguistic choices; and contextual adaptation reflects the integration of linguistic representations with audience, setting, and sociocultural knowledge. The three indicators are theoretically overlapping, consistent with the IMPC’s emphasis on dynamic interaction among linguistic, pragmatic, and contextual systems.

Productive Reformulation of Linguistic Form and Pragmatic Intent

The linguistic dimension of the IMPC involves the ability to produce grammatically correct, contextually appropriate language forms. In this light, productive rewriting performance increased from 50% in the pretest to 83% in the post-test. This component required that learners elaborate linguistically acceptable forms while making sure that the resulting directive fulfilled an appropriate communicative purpose. Therefore, the task involved linguistic knowledge beyond grammatical production as learners had to coordinate lexical and syntactic choices with pragmatic force, audience expectations, and contextual constraints.

This pattern is compatible with the IMPC's account of language use as interaction among linguistic representations, semantic interpretation, pragmatic inference, and sociocultural information. For example, initial literal formulations such as "Be careful of the separation between the platform and the train" were replaced by more conventional expressions such as "Watch your step." The improvement reflects greater ability to externalise linguistic representations in forms that were both idiomatic and pragmatically functional. Productive rewriting should therefore be understood as an overlapping linguistic-pragmatic performance indicator rather than as a pure measure of grammatical or linguistic competence, as Table 4 illustrates learners' progress in linguistic accuracy and production through pre- and post-tests.

Table 4

Pretest and Posttest Results Reflecting Improvement in the Linguistic Dimension of Pragmatic Competence

Measure	Pretest Mean (%)	Posttest Mean (%)	SD Pretest	SD Posttest	Improvement %
Overall Pragmatic Competence	62.4	79.3	9.8	8.5	+16.9
Productive Reformulation of Signage	50	83	13.2	9.9	+33

The quantitative results show substantial gains in producing linguistically accurate and idiomatic forms. For example, initial translations of "*Mind the gap*" were literal ("*Be careful of the separation between the platform and the train*"), whereas post-intervention responses, such as "*Watch your step*", display pragmatically appropriate and natural language, demonstrating alignment of linguistic form with communicative intent.

Sociopragmatic Form and Function Recognition

The sociopragmatic dimension concerns learners' ability to adapt language according to social norms, politeness strategies, and audience expectations. Table 5 highlights the evolution of students' understanding in this area.

Table 5*Student Reflections Showing Development in the Sociopragmatic Dimension*

Example Sign	Pre-Intervention Response	Post-Intervention Response	Sociopragmatic Change
"Don't litter"	Literal / neutral	"Please keep the area clean"	Application of mitigated request and politeness
"Silence, please"	Imperative, formal	"We appreciate your cooperation"	Inclusion of gratitude to soften directive
"Wash your hands before entering"	Direct instruction	"Please wash your hands before entering"	Perspective-taking, empathetic framing

The performance in politeness-strategy recognition represents the largest gain among the assessed task components. These tasks required learners to identify how alternative linguistic forms conveyed different degrees of directness, mitigation, authority, and interpersonal stance. Therefore, this increase indicates greater sensitivity to the relationship between linguistic form and pragmatic effect.

In an IMPC context, this performance should be interpreted as supporting evidence of increasingly effective interaction between two key areas: semantic interpretation and pragmatic inference. As a result, learners did not only decode the literal meaning of given expressions such as "Do not enter" and "Please do not enter"; on the contrary, they increasingly recognised how the addition of a politeness marker can alter the interpersonal force of the directive. This interpretation does not imply that form and function recognition constitutes an independent IMPC subsystem; it represents an observable performance outcome that arises from coordinated linguistic and (meta) pragmatic processing.

Thus, it can be stated that the reported reflections help illustrate learners' ability to interpret social meaning and adapt language to context. For example, one of the learners noted: "I changed 'Don't litter' to 'Please keep the area clean' because it feels more respectful" (Student 32). This example indicates an internalisation of politeness strategies, audience sensitivity, and social appropriateness, all of which are core aspects of sociopragmatic competence.

Context-Sensitive Sociopragmatic Adaptation

The sociocognitive dimension of the IMPC involves learners' ability to infer intentions, adopt perspectives, and simulate interactions, integrating linguistic knowledge with social reasoning.

Mean contextual-adaptation performance increased from 45% at pretest to 81% at posttest, as reported in Table 2 and Figure 2. These tasks required learners to evaluate the audience, institutional setting, social relationship, and communicative purpose before selecting or producing an appropriate directive. The improvement therefore provides

evidence that learners became better able to integrate linguistic choices with contextual and sociocultural information.

This component is especially relevant to the external aspect of pragmatic competence described in the IMPC, according to which successful communication depends on interaction between organism-internal linguistic and pragmatic systems and organism-external sociocultural contexts. Learners increasingly recognised that the same propositional content could require different formulations in a hospital, library, university, or public-transport setting. Qualitative reflections indicating increased consideration of reader reactions, respect, and interpersonal consequences further support this interpretation.

Contextual adaptation nevertheless also required linguistic production and pragmatic inference. It should therefore be treated as a primary indicator of context-sensitive performance rather than as a separate numerical measure of sociocognitive competence.

Table 6

Illustrative Changes in Classroom Pragmatic Behaviour Recorded in the Instructor's Field Notes

Observed Behaviour	Illustrative Early Session Pattern	Illustrative Later Session Pattern	Sociocognitive Interpretation
Metapragmatic Discussion	Learners' comments generally focused on correctness	Learners compared tone, authority, audience and mitigation	Learners reason about social meaning collaboratively
Peer Scaffolding	Peers' suggestions mainly concerned grammar	Observed as learners proposed audience-sensitive alternatives	General agreement that knowledge is constructed socially; perspective-taking
Spontaneous Self-Correction	Few spontaneous pragmatic revisions were noted	Observed as learners sometimes reformulated wording during discussion	Internalisation of pragmatic norms
Transfer to Other Tasks	Little evidence registered of transfer to other classroom tasks	Examples of sociopragmatic reasoning being applied to spoken interactions and written assignments were documented in later sessions.	Generalisation of sociocognitive strategies

The observational notes highlighted students' engagement in distributed cognitive processes, such as debating the tone of "*Authorized personnel only*" versus "*Staff access only, thank you*", imagining potential reader reactions, and collaboratively negotiating politeness strategies. Reflective journals also indicate the emergence of empathic reasoning:

"Using 'Please wash your hands before entering' felt more human, like a reminder rather than an order." (Student 11).

These behaviours exemplify the sociocognitive aspect of pragmatic competence, in which learners actively integrate linguistic knowledge with social reasoning and perspective-taking.

Integrated Sociopragmatic Competence

The three performance indicators should not be interpreted as autonomous abilities. Productive reformulation depended on recognising communicative force and contextual appropriateness; form and function recognition required linguistic, semantic, and pragmatic analysis; and contextual adaptation involved both the selection of appropriate forms and inference about audience expectations. Improvement across the three components therefore supports an integrated interpretation of sociopragmatic development.

From an IMPC perspective, the intervention appears to have strengthened learners' ability to coordinate linguistic representations, pragmatic effects, audience awareness, and sociocultural information during language use. Quantitative gains demonstrated improved task performance, while learner reflections and instructor observations illuminated the inferential, metapragmatic, and socially situated processes accompanying this improvement. The findings are therefore consistent with the interactional principles of the IMPC, although the study did not directly measure or validate the model's hypothesised cognitive submodules.

The three task indicators captured overlapping aspects of sociopragmatic performance:

1. Productive reformulation involved coordinating linguistic form, pragmatic intent, register, and audience orientation.
2. Form and function recognition involved sensitivity to directness, mitigation, politeness, authority, and interpersonal stance.
3. Contextual adaptation involved selecting language appropriate to audience, setting, institutional role, and sociocultural expectations. These aspects were analytically distinguishable but were not treated as independent competences or validated IMPC subscales.

Collectively, these findings suggest that LL-based pedagogy strengthens sociopragmatic competence by connecting linguistic forms with pragmatic functions, audience perspective, and sociocultural context.

Discussion

The findings indicated improvement in form and function recognition, contextual adaptation, and productive reformulation. Learners also moved from evaluating signs mainly for grammatical correctness to considering audience, politeness, authority, interpersonal stance, and reader response. This supports the view of the linguistic landscape as a sociolinguistic, cognitive, and pedagogical environment in which language,

thought, and social interaction converge (Gorter & Cenoz, 2025). Public signs form a semiotic ecology in which communicative intentions and social expectations are negotiated (Lee, 2025; Tufi, 2025). However, the gains should not be attributed to exposure alone. They appear to have been associated with the structured processes of noticing, comparing, discussing, reformulating, and reflecting on linguistic choices (Culpeper, 2021).

The largest improvement occurred in form and function recognition, including sensitivity to directness, mitigation, politeness, authority, and interpersonal stance. Because signs express identifiable purposes through relatively concise language, they allowed learners to compare how small linguistic changes affected pragmatic force. Reading signage therefore became an act of social interpretation involving what was communicated, how, to whom, and in what setting. This is consistent with geosemiotics and socially grounded approaches to public discourse (Barni, 2025; Martena & Marten, 2025; Scollon & Scollon, 2003). The findings also reinforce the principle that appropriateness cannot be reduced to memorising polite expressions, since it depends on audience, institutional purpose, social distance, and communicative risk (Culpeper, 2021; Kasper & Rose, 2002; Taguchi & Barón, 2024). Learners' descriptions of signs as respectful, aggressive, cooperative, or authoritarian further suggested a shift toward context-sensitive pragmatic reasoning (Kecskes, 2014).

Improvement in contextual adaptation suggests greater attention to setting, institutional role, audience, social distance, and communicative purpose. Learners were repeatedly required to anticipate how different readers might interpret a sign and to adapt it accordingly. This process may have supported sociocognitive agency by encouraging them to model reader perspectives, anticipate reactions, and adjust their language (Atkinson, 2019). Their increasing references to empathy and reader response are compatible with shared intentionality and mental simulation in communication (Alba-Juez, 2021; Tomasello, 2019). Peer discussion and instructor feedback also contributed to this process by allowing learners to compare interpretations and justify alternative formulations matching recent research (Figueras-Bates, 2025). Nevertheless, because the observational evidence came from open field notes rather than systematic behavioural counts, apparent transfer should be interpreted as a qualitative pattern rather than a quantified outcome.

Improvement in productive reformulation indicates that learners became more able to produce concise, idiomatic, and contextually appropriate alternatives to literal or excessively formal wording. This category required learners to coordinate linguistic form, pragmatic intention, audience expectations, and sociocultural context. The movement toward more conventional formulations supports previous work connecting linguistic-landscape materials with idiomatic production and socially situated language use (Piller, 2011; Sánchez Fortuna, 2025). It is particularly relevant to Translation Studies

because formal equivalence does not necessarily preserve directness, politeness, register, or communicative force (Przymus & Solmaz, 2025). Reformulating signs therefore provided practice in pragmatic equivalence and culturally responsive translation (Gonçalves et al., 2025).

These findings are compatible with the Integrated Model of Pragmatic Competence (Mao & He, 2021), but the three categories were task-performance indicators rather than validated IMPC subscales. Form and function recognition involved linguistic interpretation and pragmatic inference; contextual adaptation required integration of language with audience and setting; and productive reformulation required these processes to be expressed through an appropriate linguistic form. The categories therefore involved overlapping linguistic, pragmatic, cognitive, and sociocultural resources.

The study did not directly validate the cognitive architecture of the IMPC, and the results do not establish a definitive causal relationship. They nevertheless suggest that carefully structured linguistic-landscape activities can connect linguistic form, pragmatic function, audience expectations, and social reasoning (Alba-Juez & Haugh, 2025; Gorter & Cenoz, 2025; Lee, 2025; Macías-Borrego, 2025b; Tufi, 2025).

Linguistic-landscape materials can provide accessible pragmatic input where learners have limited opportunities to use English outside the classroom. Their value depends on structured engagement: learners should identify linguistic features, compare alternatives, relate them to audience and context, reformulate or translate the text, and explain their decisions.

Thus, instructors should avoid treating indirectness or the addition of *please* as universally appropriate. Direct wording may be necessary in emergencies or safety-related contexts. Instruction should instead emphasise the relationship among linguistic form, purpose, audience, and setting. In Translation Studies, signs can support pragmatic equivalence by requiring learners to preserve communicative purpose while adapting register, directness, politeness, and cultural meaning. Reflective prompts can also make learners' reasoning visible and help distinguish context-sensitive choices from mechanical application of politeness formulas (Alba-Juez & Haugh, 2025; Lee, 2025; Macías-Borrego, 2025b).

The one-group pretest–posttest design did not include a comparison group, so the observed gains cannot be attributed exclusively to the intervention. Regular instruction, maturation, and assessment familiarity may also have contributed. The same 54-item instrument was used at both assessment points with a different item order, creating possible practice effects. Productive responses were scored by the instructor without a second rater, and the instructor also delivered the intervention, recorded field notes, and

conducted the qualitative analysis. This increased the possibility of expectancy and interpretive bias.

Participants' B2 classification was based on institutional screening before university entry rather than an assessment administered immediately before the study. Detailed demographic information could not be reported because of ethics restrictions. The study was also limited to 50 students, one Translation Studies programme, one institution, and a six-week intervention. Its findings should therefore not be generalised automatically to other populations or communicative settings. Finally, the alignment between the task categories and IMPC processes was theoretically motivated rather than based on a validated multidimensional assessment.

Future studies should include matched comparison groups, delayed posttests, and genuinely parallel assessment forms. Additional measures could include role plays, discourse-completion tasks, translation assignments, interviews, stimulated recall, and external evaluations. Multiple scorers and qualitative coders should be used to establish inter-rater and inter-coder agreement. Structured observations would also be necessary for behavioural-frequency claims. Research across proficiency levels, institutions, languages, and disciplines could examine whether the findings extend to other contexts and pragmatic phenomena, including refusals, apologies, humour, irony, disagreement, stance, and digital communication. Finally, future research could develop and validate an IMPC-informed assessment with clearly defined constructs, multiple items per construct, transparent scoring procedures, reliability analysis, and formal validation.

Conclusion

This mixed-methods study examined whether linguistic landscape-based instruction was associated with changes in EFL learners' sociopragmatic task performance and metapragmatic reasoning. Through classroom integration of authentic signage, learners analysed and reconstructed real-world communicative artefacts, which was associated with measurable gains in pragmatic performance and a reconceptualisation of language as a socially embedded cognitive system. On the one hand, quantitative and qualitative evidence indicated that contextual engagement and reflection deepened learners' ability to infer speaker intentions, evaluate politeness strategies, and adapt language to audience and context. These outcomes reflected the development of sociopragmatic cognition and sociocognitive agency, whereby learners thought and acted through social interaction. Pedagogically, these findings validated situating language learning in authentic sociocultural environments, in which meaning was jointly constructed. Therefore, public signage provided naturally occurring examples of pragmatic decision-making (expressing authority, politeness, and cooperation), allowing learners to experience how linguistic forms enacted social relationships. Such engagement helped activate perspective-taking, inference, and empathy, thus fostering the internalisation of pragmatic norms through situated practice rather than abstract instruction. In EFL-

specific contexts, LL-based activities have promoted pragmatic awareness at intermediate to advanced levels, helping learners navigate appropriateness, tone, and register. The tasks involving the collection and reinterpretation of public signs encouraged pragmatic and metapragmatic reflection on how linguistic choices encode cultural values and power relations, therefore, cultivating critical language awareness. In TS, LL-based pedagogy allowed students to mediate between pragmatic systems by developing sensitivity to politeness, directness, and interpersonal stance. Analysing and adapting signage for different audiences strengthened pragmatic equivalence and cultural adaptation skills essential for effective translation. Subsequently, this study also argued that language cognition is inherently social and pragmatic; as a result, pragmatic competence was developed in the target group through participation in the semiotic practices of a community. When connected to the LL-based interaction, the group functioned as a distributed cognitive system in which meaning was co-constructed amongst learners, instructor, texts, and the shared environment. However, key limitations included the study's small and context-specific sample, which restricted generalisability. In this regard, future research needs to test LL-based instruction across diverse contexts, proficiency levels, and pragmatic phenomena (e.g., humour, irony, indirectness) to assess broader applicability. Thus, the LL proved to be a powerful tool to explore the intersections of language, culture, and cognition. When integrated into EFL pedagogy, it enabled learners to think pragmatically, act socially, and interpret context-based and context-dependent meaning. Therefore, the findings suggest that sociopragmatic development through LL analysis represents both a pedagogical innovation and a perspective on how human understanding is grounded in social and semiotic interaction.

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Microsoft Copilot was used in a limited capacity to assist with proofreading and minor language editing of the final manuscript. The tool was not used to generate research content, analyse data, or develop the study's arguments. All conceptualization, analysis, and final writing decisions remain the responsibility of the author. I hereby, as the author, declare that I independently reviewed and verified all sources, numerical information, interpretations, and final wording and assume full responsibility for the manuscript.

Ethics Declarations

World Medical Association (WMA) Declaration of Helsinki–Ethical Principles for Medical Research Involving Human Participants

This study was conducted in accordance with the ethical principles outlined in the World Medical Association (WMA) Declaration of Helsinki for research involving human participants. All participants provided informed consent prior to participation, and participation was voluntary and anonymous, as instructed by the URJC University Ethical Committee. Publication granted by the URJC Ethics in Research Committee (internal reference number: 071120257612025 [date of approval: 08/01/2025]).

Competing Interests

The author declares that there are no competing interests regarding the publication of this manuscript.

Data Availability

The complete 54-item pragmatic test, item-level classification, scoring key, and productive-response rubric are provided in Supplementary File 1. The original participant-level quantitative dataset is no longer available for reanalysis or sharing. Any remaining anonymised qualitative materials are subject to the confidentiality requirements established by the Rey Juan Carlos University Ethics in Research Committee.

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