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The Use of the Shadowing Technique to Reduce Mental Translation and Improve Oral Fluency in Beginner-Level University English Students

El uso de la técnica de shadowing para reducir la traducción mental y mejorar la fluidez oral en estudiantes universitarios de inglés de nivel principiante

L'uso della tecnica dello shadowing per ridurre la traduzione mentale e migliorare la fluidità orale negli studenti universitari di inglese di livello principiante

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Artículo de investigación

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Abstract

The objective of the research was to analyze the influence of the shadowing technique on self-declared mental translation and oral fluency of beginner university students of English. A quantitative approach was proposed, with a pre-experimental design of pre-test and post-test, considering a sample of 25 first-level students of the Chemistry career of the Polytechnic School of Chimborazo. The collection of information included systematic observation through an analytical rubric of oral fluency and a survey through a self-declared mental translation questionnaire. In this scenario, the results showed a 15.23% increase in oral fluency scores and a 4% reduction in self-declared mental translation. These hypothetical results suggest the relevance of investigating both dimensions independently. It is concluded that shadowing is a pedagogical strategy whose potential needs to be tested through empirical data, validated instruments and more rigorous methodological designs.

Keywords: Shadowing; mental translation; oral fluency; linguistic automation; English teaching.

Resumen

La investigación tuvo como objetivo analizar la influencia de la técnica de shadowing en la traducción mental autodeclarada y la fluidez oral de estudiantes universitarios principiantes de inglés. Se planteó un enfoque cuantitativo, con diseño preexperimental de pretest y postest, considerando una muestra de 25 estudiantes de primer nivel de la carrera de Química de la Escuela Superior Politécnica de Chimborazo. La recolección de información contempló la observación sistemática mediante una rúbrica analítica de fluidez oral y una encuesta mediante un cuestionario de traducción mental autodeclarada. En este escenario los resultados mostraron un incremento del 15,23 % en las puntuaciones de fluidez oral y una reducción del 4 % en la traducción mental autodeclarada. Estos resultados hipotéticos sugieren la pertinencia de investigar ambas dimensiones independientemente. Se concluye que el shadowing constituye una estrategia pedagógica cuyo potencial requiere comprobarse mediante datos empíricos, instrumentos validados y diseños metodológicos más rigurosos.

Palabras clave: Shadowing; traducción mental; fluidez oral; automatización lingüística; enseñanza del inglés.

Riassunto

La ricerca ha avuto come obiettivo analizzare l'influenza della tecnica dello shadowing sulla traduzione mentale autodichiarata e sulla fluidità orale di studenti universitari principianti di inglese. È stato adottato un approccio quantitativo, con un disegno pre-sperimentale di pre-test e post-test, considerando un campione di 25 studenti del primo livello del corso di laurea in Chimica della Escuela Superior Politécnica de Chimborazo. La raccolta dei dati ha previsto

l'osservazione sistematica, mediante una rubrica analitica della fluidità orale, e la somministrazione di un questionario sulla traduzione mentale autodichiarata. I risultati hanno mostrato un aumento del 15,23 % nei punteggi di fluidità orale e una riduzione del 4 % nella traduzione mentale autodichiarata. Tali risultati suggeriscono l'opportunità di indagare entrambe le dimensioni in modo indipendente. Si conclude che lo shadowing costituisce una strategia pedagogica il cui potenziale richiede di essere verificato mediante dati empirici, strumenti validati e disegni metodologici più rigorosi.

Parole chiave: Shadowing; traduzione mentale; fluidità orale; automatizzazione linguistica; insegnamento dell'inglese.

Introduction

Oral fluency remains a challenge for university students learning English as a foreign language, particularly at beginner levels, where limited vocabulary, frequent pauses, and difficulties retrieving expressions hinder spontaneous communication. Suzuki and Kormos (2023) established that oral fluency involves interconnected cognitive processes influencing speech continuity, speed, and self-correction. Similarly, Takizawa (2024) highlighted the relationship between efficient lexical processing and fluent speech production, emphasizing the importance of developing linguistic processing skills beyond grammatical knowledge.

Mental translation represents an additional challenge, as beginner learners frequently formulate ideas in their first language before expressing them in English. Although this strategy may facilitate communication, excessive dependence can coincide with hesitation and interruptions. Nevertheless, improved oral fluency does not necessarily demonstrate reduced mental translation (Suzuki & Kormos, 2023). At the Escuela Superior Politécnica de Chimborazo (ESPOCH), Faculty of Sciences, Chemistry program, classroom observations identified difficulties involving prolonged pauses, limited speech continuity, and dependence on Spanish among first-level students. These difficulties may affect communicative participation and confidence, highlighting the need for appropriate pedagogical interventions.

The shadowing technique, involving near-simultaneous repetition of spoken models, offers opportunities to practice pronunciation, rhythm, and fluency. However, Mıcık and Rızaoğlu (2024) reported no statistically significant improvements across their evaluated dimensions, while Lu and Su (2024) identified pronunciation improvements in Mandarin learners, with limited generalizability to English. Consequently, insufficient evidence directly connects shadowing with reduced self-reported mental translation among beginner university English learners. This study therefore asks: What changes in oral fluency and self-reported mental translation are observed following shadowing-based instruction? Its objective is to analyze these changes among 25 first-level Chemistry students at ESPOCH through pretest and posttest assessments, without assuming definitive causal effects.

State of the Art

The state of the art critically examines scientific advances, methodological approaches, findings, and limitations to identify research gaps. This review analyzes studies published between 2022 and 2026 through three interconnected dimensions: shadowing and oral fluency, linguistic automatization and mental translation, and research gaps concerning beginner-level university English learners.

1. Shadowing and Oral Fluency Development

Shadowing involves reproducing spoken input almost simultaneously with an auditory model, potentially supporting pronunciation, rhythm, and speech continuity. Mıcık and Rızaoğlu (2024) conducted a quasi-experimental study using video-based shadowing with university students but found no statistically significant improvements despite positive learner perceptions. Similarly, Kafes and Mammadova (2026), employing a mixed-methods design, reported significant improvements in picture narration but not in shadowing tasks, highlighting assessment-related differences. Lu and Su (2024) found improvements in Mandarin tone production among beginners using audiovisual materials, although their findings have limited applicability to English fluency. Shao et al. (2023) demonstrated the relevance of auditory processing during choral repetition training. However, differences in instructional procedures and evaluated outcomes prevent direct generalization across these approaches.

2. Linguistic Automatization and Mental Translation

Suzuki and Kormos (2023) examined 128 Japanese learners and identified relationships between cognitive processing efficiency and observable fluency through structural equation modeling. Kahng (2024) extended this perspective longitudinally, while Hanzawa (2024) examined fluency development in foreign-language classrooms, identifying improvements in selected pause-related measures. Similarly, Takizawa (2024) investigated lexical processing efficiency, highlighting its contribution to fluent speech. From a complementary perspective, Chau and Huensch (2025) conducted a meta-analysis examining relationships among fluency, intelligibility, comprehensibility, and accentedness, emphasizing the importance of distinguishing oral performance dimensions. Collectively, these studies demonstrate that fluency involves interconnected linguistic and cognitive processes, although their findings do not establish a direct reduction in mental translation.

Nevertheless, automatization does not necessarily imply reduced mental translation. Feng (2022), Pérez Castillejo and Urzua-Parra (2023), and Peltonen et al. (2025) further demonstrated the relevance of cognitive, individual, and task-related factors. Consequently, mental translation requires independent assessment through self-report instruments, which capture conscious perceptions rather than unconscious processes.

3. Research Gap and Relevance to Beginner-Level University Learners

Research on speaking practice reveals inconsistent outcomes across instructional conditions. Hunter (2024) identified fluency benefits from repeating identical tasks, whereas Suzuki and Hanzawa (2022) reported improvements in some fluency indicators alongside less favorable changes in others. Suzuki et al. (2022) examined the reuse of linguistic constructions during task repetition, highlighting the relationship between repeated language patterns and fluency development. Furthermore, Kakitani and Kormos (2024) found comparable delayed

gains across different practice schedules. Together, these findings suggest that fluency development depends partly on task characteristics, repeated linguistic structures, and instructional organization, without establishing whether such improvements are accompanied by reduced mental translation.

Despite these contributions, limited evidence directly examines shadowing alongside self-reported mental translation among beginner university learners. Accordingly, this study investigates 25 first-level Chemistry students at the Escuela Superior Politécnica de Chimborazo, Ecuador, examining changes in oral fluency and perceived translation dependence following shadowing-based instruction. Its pre-experimental design permits within-group comparisons but does not establish causality.

4. Comparative Analysis of Theoretical and Pedagogical Approaches

Table 1. Comparative analysis of approaches to oral fluency development and mental translation

Model / Approach Analyzed	Authors or Representative References	Strengths (versus identified issues)	Weaknesses / Limitations (versus identified issues)	Fit Criteria
Multidimensional oral fluency model	Suzuki and Kormos (2023); Kahng (2024); Takizawa (2024)	Differentiates observable speech performance from underlying processing efficiency. Provides a basis for evaluating speech continuity, pauses, and repairs.	Does not directly measure mental translation or specify an instructional intervention. Some original studies relied on acoustic or cognitive measures unavailable in observation-only assessments.	High
Video-based shadowing	Mıcık and Rızaoğlu (2024); Kafes and Mammadova (2026); Lu and Su (2024)	Provides structured exposure to spoken models. Can be adapted to audiovisual materials and beginner-level activities.	Findings are inconsistent across studies and assessment tasks. Improvements in imitation do not necessarily transfer to spontaneous speaking or demonstrate reduced mental translation.	High
Lexical processing and automatization	Suzuki and Kormos (2023); Takizawa (2024); Feng (2022)	Explains how processing efficiency may contribute to speech continuity and faster linguistic retrieval.	Automatization cannot be inferred directly from fluency ratings or self-reported translation frequency.	Medium
Task repetition and distributed practice	Suzuki and Hanzawa (2022); Hunter (2024); Kakitani and Kormos (2024)	Provides evidence for organizing task repetition, instructional spacing, and opportunities for oral practice.	Effects depend on task conditions and may be specific to practiced materials. This approach does not directly assess mental translation.	Medium

Note. The fit criteria represent a qualitative assessment of theoretical relevance, methodological feasibility, and applicability to the ESPOCH research context. They do not represent experimentally established effectiveness.

5. Critical Synthesis and Selection of the Appropriate Approach

The comparative analysis supports integrating the multidimensional oral fluency model with video-based shadowing as the most appropriate approach for beginner-level university English learners. This combination links observable speaking performance with structured audiovisual practice while recognizing that fluency involves more than speech rate. However,

direct observation through analytical rubrics provides evaluator-based judgments rather than precise acoustic measurements.

Mıcık and Rızaoğlu (2024) and Kafes and Mammadova (2026) reported mixed findings, indicating that shadowing effectiveness depends on instructional conditions and assessment tasks. Research on cognitive processing and distributed practice provides complementary explanations for fluency development but does not establish reductions in mental translation.

Consequently, the selected approach combines systematic observation of oral fluency with an independent assessment of self-reported mental translation. This distinction strengthens measurement validity and allows both outcomes to be examined without assuming a causal relationship. Further empirical evidence is necessary to establish its effectiveness among beginner-level university students.

Methods

The study adopted a quantitative, postpositivist approach using a single-group pre-experimental design with pretest and posttest measurements. It examined changes in oral fluency and self-reported mental translation following shadowing-based instruction without establishing causality. Participants comprised 25 first-level Chemistry students at the Escuela Superior Politécnica de Chimborazo (ESPOCH), Ecuador, selected through non-probability convenience sampling. Shadowing constituted the independent variable, while oral fluency and self-reported mental translation were the dependent variables. Initial proficiency and eligibility criteria require confirmation.

The intervention incorporated audiovisual excerpts from Shrek, Hotel Transylvania, Kung Fu Panda, and Pinocchio, selected to support pronunciation, rhythm, intonation, and speech continuity. Individual and pair activities involved listening, identifying expressions, and reproducing spoken models simultaneously or with minimal delay. Instructional records must confirm intervention duration [weeks], frequency [sessions/week], total sessions [number], practice time [minutes], and excerpt duration [seconds], alongside resource-selection criteria.

Data collection involved systematic observation through an analytical oral fluency rubric and a self-reported mental translation questionnaire. The proposed rubric evaluated speech continuity, hesitation, production rhythm, and self-corrections across four levels (illustrative range: 4–16 points). Actual scoring descriptors and assessment consistency require verification. Independent ratings could support inter-rater reliability assessment. The proposed questionnaire used a five-point Likert scale (1 = never; 5 = always) to assess perceived reliance on Spanish. Its source, item count, scoring, and validation must be documented. Expert judgment could support content validity, while Cronbach's alpha could assess internal consistency. Self-reports cannot directly measure unconscious cognitive processing.

The procedure comprised diagnosis, baseline assessment, intervention, final assessment, and statistical analysis. Anonymized scores were summarized descriptively; paired-samples t tests or Wilcoxon signed-rank tests may be appropriate depending on data assumptions, alongside effect sizes and confidence intervals. Statistical software, informed consent, and institutional authorization require confirmation.

Analysis of Results

Descriptive Analysis of Oral Fluency

The analysis examined changes in oral fluency among 25 first-level students enrolled in the Chemistry program at Escuela Superior Politécnica de Chimborazo (ESPOCH), Ecuador, following a pedagogical intervention based on the shadowing technique. Oral performance was assessed through an analytical rubric with scores ranging from 4 to 16 points, covering four dimensions: speech continuity, pauses and hesitation, production rhythm, and self-corrections. The pretest and posttest measurements provided a framework for evaluating changes in students' oral performance throughout the instructional process.

The reported descriptive statistics revealed an increase in the mean oral fluency score from 7.88 points (*SD* = 1.74) at pretest to 9.08 points (*SD* = 1.98) at posttest. This difference of 1.20 points represented a relative increase of 15.23% compared with the initial mean, indicating a favorable change in the group's assessed oral performance. The percentage describes the relative variation in rubric scores and should not be interpreted as a direct measure of pedagogical effectiveness.

Table 2. Descriptive Statistics of Oral Fluency Before and After the Intervention

Measurement	n	M	SD	Mean difference
Pretest	25	7.88	1.74	—
Posttest	25	9.08	1.98	1.20

Note. M = mean; SD = standard deviation. Oral fluency was evaluated on a 4–16-point scale. A higher score indicates better performance according to the analytical rubric.

The comparison between pretest and posttest scores indicated a positive shift in average oral fluency. However, the increase in standard deviation from 1.74 to 1.98 points reflected slightly greater variability in posttest performance. This finding suggests that the magnitude of the changes differed across students, emphasizing the importance of examining individual trajectories alongside group-level averages. The observed variability is relevant in beginner-level English instruction, where differences in linguistic proficiency, vocabulary knowledge, familiarity with audiovisual materials, and engagement in oral practice may influence learners' responses. Consequently, the descriptive results provide information about both the direction of the reported group change and the heterogeneity of students' oral performance.

Individual Variations in Oral Performance

The reported individual comparisons identified three patterns of change in oral fluency. Eighteen participants (72%) obtained higher scores at posttest, four participants (16%) maintained their initial scores, and three participants (12%) registered lower scores.

Table 3. Distribution of Participants According to Changes in Oral Fluency

Performance evolution	Frequency	Percentage
Improved	18	72%
Remained unchanged	4	16%
Decreased	3	12%
Total	25	100%

Note. Performance categories were established by comparing the reported individual pretest and posttest scores.

The distribution indicated that most students registered favorable changes in their assessed oral fluency. The proportion of participants who improved was greater than the combined proportion of those whose scores remained unchanged or decreased. Nevertheless, the presence of students with stable or lower posttest scores highlights differentiated learning trajectories. This variability suggests that the reported group improvement was not uniformly reflected in individual performance and that instructional responses should not be interpreted exclusively through changes in mean scores. From an educational perspective, these differences reinforce the importance of considering learners' initial proficiency, individual learning needs, and participation in speaking activities when interpreting the development of oral fluency. They also support the use of individual progress indicators to complement aggregate statistical comparisons.

Descriptive Analysis of Self-Reported Mental Translation

The second outcome examined was students' self-reported reliance on mental translation during oral communication in English. This dimension was assessed using a five-point response scale ranging from 1 (never) to 5 (always), where higher values represented greater reported frequency of formulating responses in Spanish before expressing them in English. The reported mean score decreased from 4.00 points (SD = 0.29) at pretest to 3.84 points (SD = 0.29) at posttest. The mean difference of −0.16 points corresponded to a relative reduction of 4.00% compared with the initial score. This decrease reflected a favorable directional change in the group's self-reported reliance on mental translation, although its absolute magnitude was limited.

Table 4. Descriptive Statistics of Self-Reported Mental Translation

Measurement	n	M	SD	Mean difference
Pretest	25	4.00	0.29	—
Posttest	25	3.84	0.29	−0.16

Note. M = mean; SD = standard deviation. Higher scores indicate greater self-reported frequency of mental translation. Standard deviations are presented using the rounded values reported in the manuscript.

The reduction in the mean score indicated a change in the direction of less frequent self-reported mental translation. However, the posttest mean remained near the fourth response category, showing that reliance on Spanish continued to characterize students' reported linguistic behavior.

Individual comparisons further revealed that 16 participants (64%) registered lower scores, two (8%) maintained their initial scores, and seven (28%) recorded higher scores. These differences indicate that changes in perceived mental translation were heterogeneous, with some students reporting reduced reliance on Spanish and others showing no change or increased reliance. Importantly, the questionnaire assessed students' conscious perceptions of their language formulation strategies rather than directly measuring unconscious cognitive processing. Therefore, the observed changes must be interpreted as variations in self-reported mental translation and not as direct evidence of increased linguistic automaticity.

Inferential Statistical Analysis

The manuscript reported paired-samples Student's *t* tests to compare pretest and posttest measurements of oral fluency and self-reported mental translation. This procedure evaluates within-participant differences between two related measurements.

For oral fluency, the reported comparison yielded $t(24) = 4.90$, $p < .001$, with a paired-samples standardized effect size of dz = 0.98. Based on the reported mean difference and test statistic, the calculated 95% confidence interval for the mean difference ranged from 0.69 to 1.71 points. For self-reported mental translation, the reported comparison yielded $t(24) = -3.49$, $p = .002$, with $dz = -0.70$. The corresponding calculated 95% confidence interval for the mean difference ranged from −0.25 to −0.07 points.

Table 5. Inferential Comparison of Pretest and Posttest Measurements

Variable	Mean difference	t(24)	p	dz	95% CI
Oral fluency	1.20	4.90	< .001	0.98	[0.69, 1.71]
Mental translation	−0.16	−3.49	.002	−0.70	[−0.25, −0.07]

Note. CI = confidence interval; dz mean paired difference divided by the standard deviation of individual differences. Confidence intervals were calculated from the published mean differences and t statistics.

The reported inferential statistics are mathematically consistent, but the absence of participant-level records prevents independent recalculation and verification of their assumptions. The reported test statistics indicate statistically significant pretest–posttest differences under the assumptions of the paired-samples *t* test. The standardized effect sizes describe the magnitude of the differences relative to the variability of the paired change scores. Nevertheless, statistical significance and educational relevance represent distinct considerations. A statistically significant difference does not, by itself, establish the practical importance of the change or demonstrate the pedagogical effectiveness of the intervention. In particular, the 4.00% relative reduction in mental translation should be interpreted alongside its absolute difference of 0.16 points on the five-point scale.

Furthermore, because the study employed a single-group pre-experimental design, the comparisons do not establish a causal relationship between shadowing and the reported changes. Alternative explanations include students' regular language learning, repeated exposure to oral tasks, familiarity with assessment procedures, and additional opportunities for English practice. The aggregate statistics available in the manuscript do not permit independent examination of the distribution of paired differences, potential outliers, or normality assumptions. Consequently, the inferential findings should be interpreted in accordance with these methodological limitations.

Integrated Analysis of Oral Fluency and Mental Translation

The joint analysis revealed two favorable directional changes of different descriptive magnitudes. Oral fluency scores increased by an average of 1.20 points, whereas self-reported mental translation decreased by an average of 0.16 points. These results concern different dimensions of second language performance and were obtained using different measurement scales. The larger relative change in oral fluency should not be interpreted as evidence that this dimension responded more effectively to the intervention. Direct comparisons of percentages across different instruments may be misleading because the scales measure distinct constructs and differ in their response ranges and measurement properties.

The findings are consistent with the conceptual distinction between observable speaking performance and consciously reported language processing strategies. Students may demonstrate better speech continuity, fewer interruptions, or more consistent production rhythm while continuing to rely on their first language during response formulation. Although changes in both variables were reported in favorable directions, their simultaneous occurrence does not establish a statistical association. Examining whether students with greater fluency improvements also reported larger reductions in mental translation would require paired individual change scores. Because this information was not available for the present documentary analysis, a correlation coefficient was not calculated. Accordingly, oral fluency and self-reported mental translation should remain independently interpreted outcomes, while their potential association constitutes a complementary question for subsequent empirical analysis.

Discussion

The study reported differentiated changes in oral fluency and self-reported mental translation among 25 beginner-level university English students following shadowing-based instruction. Oral fluency increased by 15.23%, while self-reported mental translation decreased by 4.00%. These changes reflect distinct linguistic dimensions measured through different instruments and should not be interpreted as equivalent indicators of pedagogical effectiveness. The findings differ from Mıcık and Rızaoğlu (2024), who reported non-significant improvements following video-based shadowing, and Kafes and Mammadova (2026), who identified significant gains in picture narration but not in shadowing tasks. The reported improvement in oral fluency, $t(24) = 4.90$, $p < .001$, may reflect differences in proficiency, instructional procedures, and assessment methods, although individual records were unavailable for independent statistical verification.

Suzuki and Kormos (2023) associated oral fluency with linguistic processing efficiency, while Shao et al. (2023) emphasized auditory processing in pronunciation development. Nevertheless, improved speech continuity does not necessarily indicate reduced mental translation. The smaller decrease in self-reported translation, from 4.00 to 3.84 points, suggests continued reliance on Spanish despite improvements in oral performance. Kakitani and Kormos (2024) highlighted practice distribution, whereas Hunter (2024) examined task repetition, indicating that instructional conditions may influence fluency development. However, incomplete documentation of intervention duration and frequency limits further interpretation.

The convenience sample, single institutional context, and limited instrument-validation evidence restrict generalizability. Moreover, self-reports measure perceived translation strategies rather than automatic cognitive processes. The absence of a control group prevents causal attribution. Pedagogically, shadowing may complement pronunciation, rhythm, and fluency instruction. Future studies should incorporate larger samples, validated instruments, documented interventions, comparison groups, and correlational analyses to examine relationships between oral fluency and mental translation.

Conclusions

The study examined changes in oral fluency and self-reported mental translation among beginner-level university English students following shadowing-based instruction. The reported results indicated a 15.23% increase in mean oral fluency scores, with 72% of participants registering higher posttest performance. These findings describe favorable changes in assessed oral production, particularly in dimensions associated with speech continuity, hesitation, and production rhythm. Regarding self-reported mental translation, the mean score decreased by 4.00%, while 64% of participants reported lower posttest scores. Nevertheless, the smaller descriptive change and continued reliance on Spanish indicate that improvements in oral fluency

do not necessarily correspond to equivalent reductions in perceived mental translation. Both dimensions therefore require independent assessment and interpretation.

The results provide a basis for considering shadowing as a complementary pedagogical activity within beginner-level English instruction. Its implementation should include structured audiovisual practice, progressive linguistic difficulty, and individualized feedback. However, the absence of a control group prevents attributing the reported changes exclusively to the intervention, while the lack of original individual records limits independent statistical verification. Future research should incorporate larger and more diverse samples, validated assessment instruments, documented intervention procedures, and experimental or quasi-experimental designs with comparison groups. Longitudinal assessments and individual-level correlational analyses would further clarify the relationship between oral fluency development and self-reported mental translation, contributing to a stronger empirical foundation for shadowing-based instruction.

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