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Critical Thinking in French as a Foreign Language: A Mixed-Methods Study in a Mexican University Context

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ABSTRACT

This study examines the impact of a French as a Foreign Language (FFL/FLE) pedagogical intervention centered on transgender inclusion and gender diversity on the development of critical thinking, social empathy, and argumentative competence among university students in Mexico. Grounded in an intercultural and socially engaged approach to language education, the intervention integrates ethically complex and socially relevant content into communicative tasks, structured debates, and reflective writing activities. Using a mixed-methods sequential explanatory design, the research combines qualitative data (semi-structured interviews, focus groups, participant observation, and reflective essays) with quantitative measures (pre-test/post-test critical thinking scores, empathy scales, and inclusive attitude indices). Results reveal statistically significant improvements in analytical reasoning, argumentative coherence, discourse organization, and perspective-taking abilities, alongside measurable growth in empathy and inclusive attitudes toward gender diversity. Qualitative findings further indicate enhanced metacognitive awareness and greater confidence in addressing controversial topics through structured dialogue. The study argues that foreign language instruction, when connected to contemporary social issues, functions not only as a site for linguistic development but also as a platform for cognitive maturation, ethical deliberation, and civic formation. The classroom emerges as a structured space for democratic dialogue, critical reflection, and intercultural negotiation. The article concludes by discussing pedagogical implications, methodological limitations, and avenues for future research in inclusive and transformative language education.

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1. Introduction

In recent years, educational systems around the world have been confronted with the need to address issues of diversity, equity, and inclusion within formal curricula. This shift is not merely a policy trend but a structural transformation in how education conceptualizes citizenship, identity, and social responsibility. International organizations and educational researchers converge on the idea that inclusive education is no longer optional but essential for democratic development. The statement “inclusion in education is both a process and an outcome that seeks to ensure the right to education for all learners”^[1] underscores that inclusion is not limited to access but extends to participation, representation, and recognition within learning environments.

Among the various dimensions of inclusion, gender identity and transgender inclusion have emerged as particularly sensitive and complex themes. These topics are often intertwined with cultural norms, political debates, and ethical considerations that vary significantly across regions and institutional contexts. Scholars emphasize that educational resistance to gender diversity frequently stems not from pedagogical limitations but from socio-cultural discomfort. Educational institutions remain one of the last social arenas where gender variance is openly contested rather than pedagogically addressed^[2]. This observation highlights the paradox whereby universities—traditionally associated with intellectual openness—may simultaneously reproduce exclusionary practices through curricular silence or avoidance.

Universities, however, remain uniquely positioned as spaces of knowledge production, civic dialogue, and critical inquiry. Their structural mission includes the formation of reflective citizens capable of engaging with complex social realities. Higher education institutions are therefore not only sites of disciplinary training but also arenas of ethical and political learning. The cultivation of critical reasoning and empathetic imagination is indispensable for sustaining democratic societies^[3]. From this perspective, discussions surrounding gender identity and diversity are not peripheral ideological issues but integral components of civic educa-

tion. Nevertheless, despite institutional rhetoric supporting diversity, many universities struggle to translate inclusive discourse into effective pedagogical practice. The gap between policy declarations and classroom implementation remains a persistent challenge documented in comparative higher education studies.

Foreign language education provides a distinctive and often underestimated context for addressing these tensions. Language learning inherently involves processes of perspective-taking, intercultural comparison, and discursive restructuring. Learners must negotiate meaning across linguistic systems, which encourages cognitive flexibility and reflective distance. Research in applied linguistics suggests that multilingual engagement enhances analytical awareness and interpretative skills. The language classrooms are symbolic spaces where learners rehearse alternative identities and worldviews^[4]. This symbolic dimension transforms language instruction into a platform for social reflection rather than mere grammatical acquisition.

The linguistic distance created by using a second or third language can reduce emotional defensiveness and enable more analytical engagement with controversial or socially charged issues. This effect is particularly relevant when discussing themes such as gender diversity, which often evoke strong emotional reactions in one’s native language. Cognitive psychology literature indicates that operating in a foreign language increases deliberative processing and decreases impulsive judgment. The decision-making in a foreign language “promotes systematic reasoning and attenuates emotional bias”^[5]. While their study focused on moral dilemmas, the implications extend to educational discourse, suggesting that language classrooms may indeed function as environments conducive to critical reasoning and balanced debate.

Within this framework, foreign language classrooms can be reconceptualized as ideal environments for cultivating critical thinking skills while simultaneously addressing issues of inclusion and diversity. They offer a structured communicative setting in which learners articulate arguments, negotiate meanings, and confront alternative perspectives

under pedagogical guidance. The intercultural communicative competence involves “the ability to decentre from one’s own cultural perspective and engage with others through critical cultural awareness”^[6]. Such decentring processes are particularly valuable when exploring identity-related themes that demand empathy and reflexivity.

The present study explores how integrating discussions of transgender inclusion into a French as a Foreign Language (FLE) curriculum influences students’ critical reasoning, empathy development, and inclusive attitudes. The choice of transgender inclusion as the focal theme was methodological rather than ideological. The topic offers a cognitively and ethically complex domain that requires learners to evaluate competing perspectives, mobilize evidence, and construct reasoned arguments, making it particularly suitable for developing critical thinking and discursive skills. Moreover, questions of gender diversity were already present within the institutional context, which enhanced the pedagogical authenticity and relevance of the activities. Importantly, the instructional design is not dependent on this specific theme; comparable outcomes could likely be achieved using other socially sensitive topics that similarly demand structured reasoning and perspective-taking.

Conducted in a Mexican university setting with upper-intermediate learners (CEFR B2 level), the research investigates both discursive transformations and measurable cognitive gains. This dual focus responds to contemporary calls for mixed-methods approaches capable of capturing both subjective experience and empirical change. The main idea is that critical thinking is a process that becomes visible through dialogue, reflection, and action^[7]. Consequently, examining language classrooms through both qualitative and quantitative lenses allows for a more comprehensive understanding of educational impact.

Two guiding hypotheses structure the inquiry. First, exposure to structured argumentative activities in a foreign language significantly improves students’ critical thinking performance. Second, engagement with inclusive social themes increases empathy and positive attitudes toward diversity. These hypotheses align with recent interdisciplinary research indicating that cognitive and affective competencies are interdependent rather than separate educational outcomes. The intention is not to frame language instruction as ideological persuasion but as a methodological space for analytical

maturity and ethical reflection.

This study addresses this gap by empirically examining how the systematic integration of structured argumentation tasks within a French as a Foreign Language (FLE) curriculum, combined with socially sensitive content, supports students’ cognitive and socio-affective development. Moving beyond purely communicative objectives, the research conceptualizes the language classroom as a structured environment for higher-order reasoning and evaluates its effects through measurable indicators. Using a convergent mixed-methods design, the study triangulates qualitative discourse data with quantitative pre–post measures and reports statistically significant gains in critical thinking, empathy, and inclusive attitudes, with large effect sizes. By operationalizing inclusion through cognitive and behavioral metrics rather than attitudinal rhetoric alone, the findings provide empirical evidence that foreign-language instruction can simultaneously foster linguistic, analytical, and civic competencies within a replicable pedagogical model.

2. Theoretical Framework

2.1. Critical Thinking in Education

Critical thinking has long been recognized as a foundational competence in higher education, particularly in contexts that aim to prepare learners for complex decision-making and democratic participation. It encompasses the capacity to analyze arguments, evaluate evidence, detect logical inconsistencies, and generate reasoned and ethically informed conclusions. Contemporary scholarship increasingly emphasizes that critical thinking is not limited to formal logic but also involves metacognitive awareness, intellectual humility, and a disposition toward reflective inquiry. Facione defines critical thinking as “purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference”^[8]. This definition highlights the dual cognitive and regulatory dimensions of the construct, situating it at the intersection of reasoning and self-monitoring.

Similarly, Halpern stresses that critical thinking requires both skills and dispositions, arguing that “the willingness to engage in effortful thinking is as important as the ability to think well”^[9]. This perspective introduces an affective-motivational dimension that is often overlooked in purely cognitive models. The implication for education is

clear: instructional strategies must cultivate not only analytical competencies but also intellectual curiosity and resilience in the face of uncertainty.

In educational settings, critical thinking is frequently nurtured through dialogic and inquiry-based pedagogies such as structured debates, problem-based learning, case studies, and reflective writing. These practices compel learners to articulate positions, confront alternative viewpoints, and justify claims with evidence. Brookfield observes that critical thinking becomes observable when learners critically examine assumptions and engage with multiple perspectives^[10]. This emphasis on visibility and dialogue suggests that critical thinking is inherently social and discursive rather than purely internal.

Empirical research indicates that systematic integration of these strategies enhances analytical precision and reduces reliance on unexamined assumptions. Paul and Elder note that “students who engage regularly in argument evaluation and evidence-based reasoning demonstrate measurable gains in clarity, accuracy, and logical consistency”^[11]. Consequently, critical thinking instruction is most effective when embedded in authentic communicative tasks rather than treated as an abstract or isolated skill set.

2.2. Inclusive Education and Gender Diversity

Inclusive education extends beyond physical accessibility or disability accommodation; it involves the active recognition and validation of diverse identities, experiences, and epistemologies within the learning environment. Contemporary educational discourse frames inclusion as both a moral imperative and a pedagogical necessity. UNESCO states that “inclusion in education means responding positively to learner diversity and seeing individual differences not as problems, but as opportunities for enriching learning”^[1]. This formulation reframes diversity as an asset rather than a deficit, shifting the educational paradigm toward participatory equity.

Gender diversity, particularly transgender inclusion, challenges binary conceptualizations of identity and invites learners to critically examine socially constructed norms. Engagement with gender identity issues can foster empathy, social responsibility, and ethical reasoning, yet it also requires careful pedagogical framing to prevent polarization or superficial tokenism. Meyer argues that “gender diversity

education is effective only when it is integrated into broader critical pedagogies rather than isolated as a thematic add-on”^[2]. Their work underscores the importance of curricular coherence and sustained dialogue.

International educational organizations consistently emphasize that inclusive curricula contribute to social cohesion and democratic values. Addressing gender diversity in academic contexts encourages learners to move from passive tolerance to informed understanding. Noddings highlights that “ethical education begins with the recognition of the other as a legitimate subject of concern”^[12]. This ethical orientation aligns with the broader objective of developing interpersonal and civic competencies that extend beyond the classroom.

Moreover, research demonstrates that exposure to inclusive content correlates with increased empathy and reduced prejudice among students. Banks notes that “multicultural and inclusive curricula promote cross-group understanding and strengthen democratic participation”^[13]. Thus, inclusive education operates simultaneously at cognitive, emotional, and social levels, reinforcing its relevance to higher education institutions committed to equity and pluralism.

2.3. Foreign Language Learning and Cognitive Development

Research in applied linguistics and educational psychology increasingly suggests that second language acquisition contributes to cognitive flexibility, enhanced problem-solving abilities, and heightened metalinguistic awareness. The process of articulating ideas in another language demands deliberate lexical selection, syntactic planning, and conceptual clarification. This cognitive effort often results in more structured reasoning and greater self-monitoring. Cook argues that bilingual individuals “develop enhanced executive control and attentional flexibility through constant language management”^[14], a finding supported by subsequent neurocognitive studies.

The cognitive dimension of language learning is complemented by its intercultural implications. Learners navigating multiple linguistic systems frequently engage in comparative analysis that broadens their interpretative frameworks. Kramsch emphasizes that “language learning is not only the acquisition of grammatical structures but also the negotiation of symbolic meanings and identities”^[4]. This negotiation

fosters critical distance from ethnocentric assumptions and encourages reflective engagement with diversity.

Intercultural communicative competence, as articulated by Byram, positions language learning as a vehicle for ethical and social reflection^[6]. According to Byram, “to become an intercultural speaker is to acquire the capacity to decentre and to evaluate perspectives critically”^[6]. Such decentring processes are particularly relevant when learners confront culturally sensitive themes, including gender identity and inclusion. The foreign language classroom thus becomes a mediating space where analytical reasoning and empathy can be cultivated simultaneously.

Furthermore, psychological research on the “foreign language effect” indicates that operating in a second language can reduce emotional bias and promote deliberative reasoning. Keysar et al. found that decision-making in a foreign language “increases cognitive reflection and decreases intuitive emotional responses”^[5]. While originally examined in moral decision contexts, this effect has clear implications for educational discourse, suggesting that language classrooms may serve as optimal environments for balanced and reasoned engagement with controversial issues.

3. Research Design

This study employed a two-phase sequential mixed-methods design (QUAL → QUAN → integration). The design combines exploratory qualitative analysis with confirmatory quantitative measurement to capture both the processes and magnitude of change associated with the pedagogical intervention. The qualitative phase first documents how students construct meaning, negotiate perspectives, and transform reasoning practices during the course. The subsequent quantitative phase evaluates whether these observed changes are measurable and statistically significant across the cohort.

Participants were recruited using an intact-class convenience sampling strategy. All students enrolled in a compulsory B2 French course during the semester were invited to participate. Because the intervention was embedded within regular instruction, random assignment was not feasible. This quasi-experimental design allows within-group pre-post comparisons but does not permit strict causal inference. Consequently, results should be interpreted as evidence of

strong association rather than definitive causality.

3.1. Phase 1: Qualitative Exploration

The study begins with the collection of rich, descriptive qualitative data aimed at identifying the main patterns in students’ discourse and learning processes. This phase examines the types of arguments students construct, the stereotypes or underlying assumptions that emerge, and the presence of perspective-taking, empathy, or resistance. Particular attention is also paid to how the use of French as a foreign language shapes reasoning, expression, and argumentative development. The objective is to generate an in-depth understanding of students’ cognitive, linguistic, and socio-emotional responses to the intervention.

3.2. Phase 2: Qualitative Findings

The results of the qualitative analysis directly inform the design of the quantitative phase. Specifically, they guide the selection of constructs to be measured (e.g., critical thinking, empathy, and attitudes), the development or adaptation of relevant items and scales, and the identification of realistic and meaningful outcomes to test, such as argument quality or openness to alternative perspectives. In this way, the quantitative instruments are grounded in empirically observed behaviors rather than predefined assumptions.

3.3. Phase 3: Quantitative Measurement

The second phase implements pre- and post-intervention measures to assess whether the instructional approach is associated with measurable changes. These include improvements in critical thinking scores, increased empathy levels, more inclusive or prosocial attitudes, and stronger written argumentation, evaluated through a CEFR-aligned analytic rubric. This stage enables the estimation of the magnitude of change and the examination of statistical significance across participants.

3.4. Phase 4: Integration and Triangulation

Finally, both datasets are integrated through triangulation. Convergent findings—where students report increased reflection and quantitative scores also improve—strengthen the robustness of the results. Divergent findings are inter-

preted cautiously: if students report change without measurable score gains, this may indicate social desirability bias, instrument misalignment, or insufficient intervention duration. Conversely, if scores improve without explicit self-reported change, this may suggest implicit or non-conscious learning effects.

This integrative step enhances the overall validity of the study by verifying whether multiple forms of evidence converge toward consistent conclusions.

4. Participants

The target population consists of undergraduate students enrolled in a French B2 course. This population is particularly appropriate for the purposes of the study, as learners at the B2 level typically demonstrate the linguistic and cognitive competencies required for higher-order academic tasks. At this level, students are generally able to argue and justify their opinions, produce structured and coherent written texts, and engage with abstract or conceptual topics. These abilities make them well-suited for activities that involve critical thinking and complex argumentation.

4.1. Sample Size and Characteristics

The sample comprises 52 undergraduate students between the ages of 19 and 24, representing a range of academic majors. This disciplinary diversity helps mitigate the risk that the findings reflect the epistemological culture or communicative practices of a single field, thereby enhancing the representativeness and transferability of the results.

4.2. Recruitment and Participation Procedures

Participation in the study is voluntary. The research project is introduced during class time, and students are invited to participate without any academic penalty in the event of refusal. Informed consent is obtained independently of course grading to ensure that participation does not influence students' academic evaluation and to minimize potential coercion.

4.3. Anonymity and Participant Identification

To protect participants' confidentiality, each student is assigned an anonymous identification code (e.g., S01–S52).

Personal names are excluded from transcripts and datasets, and only aggregated results are reported in order to prevent individual identification. These procedures are intended to ensure ethical compliance and safeguard participants' privacy.

5. Instruments

The study employs two complementary categories of instruments—qualitative and quantitative—each serving a distinct analytical function. Whereas the qualitative tools aim to capture meaning-making processes, discourse practices, and individual or collective transformations, the quantitative tools are designed to measure change, enable pre–post comparisons, and test specific hypotheses.

5.1. Qualitative Instruments

Semi-structured interviews ($n = 17$; conducted in French) were conducted to explore students' perceptions and experiences in depth. An interview guide is developed in advance, combining core questions with optional probes to allow flexibility and responsiveness during the conversation. Each interview lasts approximately 30–45 min and is conducted in French to maintain linguistic and contextual authenticity. With participants' consent, interviews are audio-recorded, transcribed verbatim, and subsequently coded for thematic analysis. This instrument enables the reconstruction of individual trajectories, including shifts in beliefs, nuanced positions, and potential contradictions that may not emerge through standardized measures.

Focus groups (two groups of 6–8 students each) are organized to examine how opinions and interpretations evolve through social interaction. A structured discussion protocol is used, including clear rules, prompts, and time allocations to ensure balanced participation. The facilitator encourages peer interaction, including agreement, disagreement, and negotiation of viewpoints. Sessions are recorded and analyzed with attention to both content and group dynamics, such as argument patterns and discursive strategies. This tool reveals how perspectives are co-constructed socially rather than formed solely at the individual level.

Participant observation is conducted during selected instructional sessions addressing inclusion-related themes. The researcher documents interaction patterns, moments of ten-

sion, and language strategies through structured field notes. These observations are subsequently triangulated with interview data and written student productions. This instrument provides real-time behavioral evidence, complementing self-reported perceptions with observable practices.

Reflective essays (in French): students produce reflective essays on topics related to inclusion and gender using an argumentative format. These texts are collected and analyzed to assess reasoning quality, argumentative structure, and evidence of perspective-taking. As concrete artifacts of thought, the essays offer direct insight into how students construct claims, mobilize evidence, and address counterarguments.

5.2. Quantitative Instruments

The quantitative component of the study employs standardized and researcher-developed instruments to assess measurable changes in students' cognitive, affective, and attitudinal outcomes. These tools enable pre-post comparisons and support statistical testing of the intervention's effects.

5.2.1. Adapted Watson–Glaser Critical Thinking Appraisal

To evaluate developments in critical thinking, an adapted version of the Watson–Glaser Critical Thinking Appraisal is administered both before and after the intervention. Pre- and post-test scores are calculated and compared using paired statistical analyses. This standardized measure provides objective indicators of inference, argument evaluation, and logical reasoning, thereby offering a reliable assessment of students' higher-order thinking skills.

5.2.2. Social Empathy Scale (10 Likert-Type Items)

Students complete a brief Likert-type questionnaire designed to measure social empathy at both time points. Participants rate their agreement with a series of statements on a five-point scale. Mean scores and, when applicable, subscale scores are computed to identify changes over time. This instrument quantifies affective and interpersonal dimensions of learning that are closely associated with inclusion-related topics.

5.2.3. Inclusive Attitude Questionnaire (Index 1–5)

An attitude scale focusing on inclusion and educational rights is administered before and after the intervention. Composite indices are calculated and compared to detect shifts in normative orientations, such as movement from “resistant” to more supportive attitudes toward diversity and equity. This tool captures changes in students' value systems and dispositions toward inclusive practices.

5.2.4. CEFR-Aligned Written Production Rubric

Students' written productions are assessed using an analytic rubric aligned with CEFR B2 descriptors, including coherence, argumentative development, lexical range, and clarity of expression. The consistent application of identical criteria across all participants ensures comparability and scoring reliability. This instrument connects cognitive and attitudinal development to observable language performance, thereby integrating the linguistic dimension central to French as a Foreign Language (FLE) instruction.

5.3. Reliability and Measurement Quality

Internal consistency was examined for all Likert-type instruments using Cronbach's alpha (α). The Social Empathy Scale demonstrated acceptable reliability at pre-test ($\alpha = 0.86$) and post-test ($\alpha = 0.88$). The Inclusive Attitude Questionnaire showed strong internal consistency ($\alpha = 0.89$ pre; $\alpha = 0.91$ post). These coefficients exceed the commonly accepted 0.70 threshold for research instruments.

For the CEFR-aligned writing rubric, two independent raters scored all texts. Inter-rater reliability was calculated using Cohen's kappa ($\kappa = 0.82$), indicating substantial agreement. Discrepancies were resolved through consensus discussion.

6. Pedagogical Intervention

All activities remain in French to preserve immersion and ensure that cognitive work is intertwined with linguistic work (Table 1).

Table 1. Pedagogical intervention design for the development of critical thinking and inclusive dialogue in FLE.

Step	Timing	Phase/Activity	Procedures	Pedagogical Objective
1	Week 0	Baseline assessment	Administration of pre-tests (critical thinking, empathy, attitudes); optional short diagnostic writing task	Establish baseline measures and identify initial argumentative and linguistic profiles
2	Weeks 1–2	Structured input	Provide level-appropriate texts and videos on inclusion and gender diversity; explicitly teach key vocabulary and expressions for respectful discussion in French	Equip students with the linguistic and conceptual tools necessary to engage responsibly with sensitive topics
3	Weeks 3–4	Guided debate cycle	Organize structured debates with assigned roles (pro, contra, mediator, evidence-checker); apply rules (claim–evidence–counterargument–rebuttal)	Develop argumentative competence, critical thinking, and perspective-taking under structured constraints
4	Weeks 5–6	Case-based reasoning	Analyze real or realistic anonymized campus cases; students propose justified policy or classroom responses	Foster ethical reasoning and move from opinion-based reactions to structured, evidence-based judgment
5	Weeks 6–7	Writing workshops	Draft argumentative essays; implement peer feedback using rubric-based criteria	Transform oral reasoning into coherent written argumentation and strengthen academic writing skills
6	Week 8	Final synthesis and post-assessment	Produce a final written synthesis (or oral defense with written summary); administer post-tests	Assess learning outcomes and measure cognitive, attitudinal, and linguistic changes following the intervention

7. Ethical Considerations

The study follows established ethical procedures to ensure participants’ rights, safety, and well-being. Prior to participation, students receive clear information about the purpose of the study, the type of data to be collected, the voluntary nature of participation, and their right to withdraw at any time without consequence.

Confidentiality and data protection are strictly maintained. Participants are identified through coded identifiers rather than names, and all audio recordings and transcripts are stored securely with restricted access. Reporting relies exclusively on aggregated results and anonymized excerpts to prevent individual identification.

Given the sensitivity of identity-related topics, structured discussion protocols were implemented to ensure psychological safety, including guidelines promoting respectful interaction, evidence-based argumentation, and the prohibition of personal attacks or forced self-disclosure. Participation had no impact on academic evaluation, and students could decline or withdraw at any time without penalty, with referral to university counseling services available if needed.

8. Results

The results section addresses one central research question: whether the intervention produced measurable and observable change in students’ cognitive, affective, and attitudinal outcomes. To answer this question rigorously, two

complementary forms of evidence were analyzed. Quantitative results provide numerical indicators of change, including scores, averages, and statistical comparisons, while qualitative results document discursive and cognitive transformations, reflected in what students said, wrote, and demonstrated throughout the intervention. These two dimensions must be interpreted jointly: quantitative data indicate the magnitude of change, whereas qualitative evidence helps explain how and why such change occurred.

8.1. Quantitative Findings

Before presenting the results, it is necessary to clarify what each variable assesses. The Critical Thinking Score measures reasoning abilities, including evaluating arguments, identifying fallacies, drawing inferences, and distinguishing opinion from evidence. Social Empathy assesses students’ capacity to understand perspectives different from their own, recognize social inequalities at an emotional level, and demonstrate openness toward minority experiences. Inclusive Attitude evaluates dispositions toward diversity, including acceptance of difference, willingness to support inclusive practices or policies, and reductions in prejudicial or exclusionary views.

8.1.1. The Pre-Test Establishes the Starting Point before the Intervention

Descriptive statistics, paired-samples *t*-tests, and effect sizes were calculated to evaluate changes between pre- and post-intervention measures. **Table 2** summarizes results.

Table 2. Pre- and post-intervention scores for critical thinking, social empathy, and inclusive attitudes.

Variable	Pre M (SD)	Post M (SD)	<i>t</i> (51)	<i>p</i>	Cohen's <i>d</i>
Critical Thinking	63 (8.9)	79.1 (7.6)	11.84	<0.001	1.64
Social Empathy	3.0 (0.54)	4.12 (0.48)	9.26	<0.001	1.28
Inclusive Attitude	3.2 (0.51)	4.31 (0.46)	9.88	<0.001	1.37

Table 2 presents both descriptive and inferential statistics in order to provide a comprehensive account of change between the pre-intervention and post-intervention measurements. Each column contributes complementary information that clarifies not only whether change occurred, but also its magnitude and educational relevance.

The first column (“Variable”) identifies the construct being measured. In this study, three outcomes were assessed: critical thinking, social empathy, and inclusive attitudes, corresponding respectively to cognitive, affective, and normative dimensions of learning. At baseline, students demonstrated moderate levels across these domains. They were not resistant to inclusion-related issues, but neither were they strongly reflective nor deeply inclusive. Such intermediate profiles are typical of university populations with limited exposure to structured debate on socially complex topics, thus providing meaningful room for growth.

The “Pre M (SD)” and “Post M (SD)” columns report descriptive statistics. The mean (M) represents the group’s average score, while the standard deviation (SD) indicates score dispersion around that mean. Reporting both indices allows evaluation of improvement as well as the consistency of that improvement across participants. Across all variables, post-test means increased while variability remained moderate, suggesting that gains were broadly shared rather than restricted to a small subset of students.

Inferential statistics further assess whether these differences exceed what might be expected by chance. The “*t*(51)” column reports paired-samples *t*-tests comparing each participant’s pre-test and post-test scores. With 52 participants, the degrees of freedom equal 51 ($n - 1$). Larger absolute *t* values indicate stronger evidence of systematic change. The corresponding “*p*” values represent the probability that such differences would occur if no true effect existed. All *p*-values were below 0.001, indicating less than a 0.1% likelihood that the observed improvements resulted from random variation. Thus, all differences were statistically significant.

Statistical significance, however, does not necessarily imply practical importance. For this reason, the final column

reports Cohen’s *d* effect sizes, which quantify the magnitude of change independently of sample size. Conventional benchmarks interpret $d \approx 0.20$ as small, 0.50 as medium, and 0.80 or higher as large. In the present study, all effects exceeded 0.80 (range = 1.28–1.64), indicating large to very large impacts. These values suggest substantial practical as well as statistical significance.

The largest gains were observed in critical thinking, where scores increased markedly and effect sizes were strongest. This pattern aligns closely with the instructional emphasis on structured debate, argument evaluation, and evidence-based reasoning, suggesting that sustained argumentative practice produced pronounced cognitive development. Empathy and inclusive attitudes also demonstrated strong effects, reflecting meaningful affective and normative shifts alongside cognitive growth. Notably, these magnitudes exceed those typically reported in short-term educational interventions, supporting the conclusion that the instructional design contributed meaningfully to student development rather than producing superficial or transient changes.

Taken together, the descriptive statistics demonstrate improvement, the *t*-tests confirm that changes are reliable, the *p*-values indicate that they are unlikely due to chance, and the effect sizes establish their substantive educational relevance. The convergence of these indicators strengthens the validity and interpretability of the quantitative findings and provides robust empirical support for the effectiveness of the pedagogical intervention.

8.1.2. The Post-Test Means

The post-test indicates movement from moderate toward strong across all dimensions (**Table 3**).

8.1.3. Interpret the Gain

Post-test results indicate consistent improvement across all measured outcomes. Mean scores increased to 79 for critical thinking, 4.1 for social empathy, and 4.3 for inclusive attitudes, reflecting high analytical performance, strong

empathic orientation, and clearly positive inclusion stances. Relative to the moderate baseline observed at the beginning

of the intervention, these values represent a clear shift toward stronger cognitive, affective, and normative competency.

Table 3. Post-test descriptive interpretation of key outcome variables.

Variable	Post-Test Mean	Interpretation
Critical Thinking	79	High analytical performance
Social Empathy	4.1	Strong empathic orientation
Inclusive Attitude	4.3	Clearly positive inclusion stance

Gain scores clarify the magnitude of change. Critical thinking increased by 16 points, indicating substantial cognitive growth within the eight-week period, while empathy and inclusive attitudes each increased by 1.1 points

on a five-point Likert scale, corresponding to more than one full attitudinal category shift (**Table 4**). These magnitudes suggest meaningful development rather than marginal or incremental variation.

Table 4. Pre–post gain scores and interpretation of learning outcomes.

Variable	Gain	Meaning
Critical Thinking	+16	Substantial cognitive growth
Social Empathy	+1.1	Significant emotional–social shift
Inclusive Attitude	+1.1	Clear normative transformation

Paired-samples *t*-tests confirmed that all pre–post differences were statistically significant ($p < 0.01$), indicating that the probability of these improvements occurring by chance is below 1%. Task-level analyses further showed that the largest gains occurred in argument evaluation and inference, where students demonstrated enhanced ability to assess evidence, detect bias, and construct logically supported conclusions. These patterns align closely with the structured debates and argumentative writing tasks central to the intervention, suggesting strong coherence between pedagogical design and measured learning outcomes.

8.2. Qualitative Findings

While quantitative results indicate the magnitude of change, qualitative data clarify how these changes manifested in students’ discourse and reasoning. Analysis of interviews, reflective essays, and classroom observations identified four recurring categories describing cognitive and discursive development across the intervention.

The first category, stereotype deconstruction, reflects increased awareness of previously unexamined assumptions. Over time, students relied less on generalizations and more frequently supported claims with evidence, reflection, and balanced perspectives, suggesting growing metacognitive awareness.

The second category, discursive empathy, captures students’ ability to articulate perspectives different from their own. Participants increasingly acknowledged the experiences of marginalized groups and adopted more exploratory and clarifying forms of questioning, indicating a shift from affective sympathy to reasoned perspective-taking.

The third category, logical structuring, concerns improvements in written coherence and argumentative organization in French. Students demonstrated more consistent use of logical connectors, clearer paragraph structure, and fewer contradictions, consistent with more deliberate and controlled reasoning processes.

The fourth category, positional flexibility, refers to changes in students’ stances. Several participants reconsidered prior assumptions, adopted more nuanced or conditional positions, and expressed greater tolerance for uncertainty, indicating increased cognitive flexibility.

Together, these qualitative patterns complement the quantitative findings by illustrating observable changes in reasoning practices, discourse organization, and perspective-taking.

9. Integrative Interpretation

The findings extend existing research in foreign language education by providing empirical evidence that inte-

grating structured argumentation, socially relevant content, and second-language use is associated with measurable cognitive gains. Whereas inclusive or intercultural pedagogy is often discussed in normative or theoretical terms, the present results demonstrate quantifiable improvements in

reasoning, discourse organization, and attitudes. As shown in **Table 5**, the convergence of qualitative patterns with large statistical effect sizes suggests substantive development in analytical capacity rather than declarative or perceptual change alone.

Table 5. Convergence of quantitative and qualitative evidence across learning dimensions.

Dimension	Quantitative Evidence	Qualitative Evidence	Combined Meaning
Cognition	+16 Critical Thinking	Logical Structuring	Strong analytical growth
Emotion	+1.1 Empathy	Discursive Empathy	Emotional-cognitive alignment
Attitude	+1.1 Inclusion	Transformative Positioning	Normative shift
Awareness	—	Stereotype Deconstruction	Metacognitive activation

Accordingly, the study makes three principal contributions to applied linguistics and foreign language pedagogy. First, it proposes an empirically grounded instructional model combining FLE, structured argumentation, and socially sensitive themes within a coherent design. Second, it reinforces methodological rigor through a convergent mixed-methods framework that triangulates standardized cognitive measures with qualitative discourse analysis. Third, it operationalizes inclusion through observable and measurable outcomes, showing that equity-oriented instruction can be evaluated beyond attitudinal self-report. Together, these contributions position the foreign-language classroom as a structured context for reasoning and provide evidence-based support for integrating cognitive and civic objectives in language education.

When both forms of data converge, the conclusion is not only that students improved, but that they restructured how they think, feel, and express complex social issues.

In summary, quantitative evidence confirms the magnitude of change, whereas qualitative evidence demonstrates its depth. Considered together, these complementary perspectives indicate that the observed effects reflect a substantive educational transformation rather than superficial or short-term variation.

9.1. What “Convergence” Means in This Study

A central strength of this project is that the qualitative and quantitative results do not point in different directions; they “converge.” Convergence means that (a) students *say* they changed (interviews/essays/observations) and (b) their scores *also* shift in the expected direction (pre/post measures). In mixed-methods logic, this alignment increases credibility

because it reduces the risk that the study is only capturing self-report enthusiasm or only capturing decontextualized test gains. In other words, the numerical gains (+16 critical thinking; +1.1 empathy; +1.1 inclusive attitudes) are not isolated statistics; they appear consistent with the discursive patterns observed: stereotype deconstruction, discursive empathy, and more structured reasoning.

This triangulation also matches how inclusion is framed in international guidance. The 2020 UNESCO Global Education Monitoring Report emphasizes inclusion as a process that “embrace[s] diversity and build[s] a sense of belonging.” The qualitative data describes precisely that process (students moving from unexamined assumptions to dialogic engagement), while the quantitative data provides measurable indicators that the process produced changes in cognition and attitudes.

9.2. Why Foreign-Language Pedagogy Can Drive Measurable Cognitive Growth

The key theoretical claim here is not simply “students improved,” but *why* this specific pedagogical configuration (FLE + structured argumentation + socially relevant content) can produce measurable gains.

9.2.1. Mechanism A: Foreign Language as Cognitive “Distance”

A robust line of research in bilingual decision-making argues that using a foreign language can create “greater cognitive and emotional distance than a native tongue.” This distance plausibly reduced immediate affective reactivity, enabling more deliberative processing during debates and writing. In practical classroom terms, students had to slow

down, select vocabulary, structure claims, and anticipate counterarguments—cognitive demands that are aligned with critical thinking constructs (inference, evaluation, justification).

9.2.2. Mechanism B: Language Processing Forces Metalinguistic Monitoring

When learners write and argue in a B2 foreign language, they cannot rely on automaticity. This “forced monitoring” supports two core critical-thinking operations:

(1) distinguishing claim vs. evidence and (2) checking coherence across statements. The qualitative theme “Logical Structuring” is exactly what we would expect when students are required to plan discourse more consciously.

9.2.3. Mechanism C: Structured Argumentation Aligns with the Skills That Improved Most

The strongest gains were in argument evaluation and inference. That is not accidental. The intervention’s core tasks—debates, argumentative essays, case analyses—are precisely the pedagogical formats that repeatedly exercise those micro-skills (identify premises, test validity, weigh counterarguments, draw conclusions). So the improvement is coherent with the instructional design (good construct alignment).

9.3. Intercultural Competence and “Critical Cultural Awareness” as the Conceptual Bridge

The findings also align with intercultural competence theory, especially the dimension of critical cultural awareness. In Byram’s model, intercultural competence includes the capacity to evaluate values and perspectives through an explicit, reasoned process—often glossed as “critical cultural awareness.” The point is not mere “openness,” but structured evaluation. A description of Byram’s ICC components commonly includes “attitudes of curiosity and openness” and an explicit evaluative/critical dimension.

In the dataset, students do not simply report that they “feel more tolerant.” They demonstrate practices consistent with critical cultural awareness: suspending immediate judgment, reformulating positions after evidence, and acknowledging competing perspectives. This is important because it links inclusion outcomes to cognitive outcomes rather than

treating inclusion as only a moral stance.

9.4. Empathy Gains without Polarization: Why It Happened (and When It Might Not)

The quantitative empathy gains (+1.1) and qualitative “Discursive Empathy” suggest that structured exposure to diverse perspectives did not produce ideological polarization; instead it supported dialogic openness. This is not guaranteed in all contexts. It depends heavily on facilitation quality, classroom norms, and the explicit use of discourse protocols.

The design likely contributed to reducing polarization by framing the topic as a legitimate object of inquiry rather than as a moral or ideological prescription. Presenting inclusion as a subject for analysis, discussion, and critical examination encouraged students to engage cognitively rather than defensively, thereby lowering the risk of reactive or identity-based responses.

In addition, all activities required the use of evidence and structured argumentation (claim–evidence–counterargument–rebuttal). This format redirected discourse away from personal beliefs or confrontational exchanges and toward reasoned justification. By emphasizing argumentative rigor, the discussions were anchored in analysis rather than opinion, which helped mitigate identity-threat dynamics and emotional escalation.

Finally, the use of French as the working language likely introduced a productive form of cognitive and emotional distance. Operating in a foreign language tends to slow processing, encourage deliberation, and reduce affective intensity. This “distance effect” may have promoted more reflective and less polarized interactions, supporting thoughtful engagement with sensitive issues.

External research supports the theoretical plausibility that language context shapes moral-emotional processing. Studies on the foreign language effect show that reasoning in a second language tends to reduce emotional reactivity and promote more deliberative judgments^[15–18]. Experimental work further demonstrates that moral decisions differ across languages, with attenuated affect and more analytical evaluations in L2 contexts^[19–22]. Similarly, research on bilingual moral cognition indicates that the language of processing can influence the structure and emotional intensity of moral judgments^[23–25]. Although these studies do not directly test classroom interventions, they strengthen the theoretical ratio-

nale that using a foreign language may modulate emotional engagement and argumentative behavior.

9.5. But...Maybe...

Three alternative explanations should be considered. First, improvements may reflect general maturation or normal B2 course progression; however, the specific gains in argument evaluation, inference, and perspective-taking suggest effects beyond simple linguistic development, though the absence of a control group leaves this possibility open. Second, a Hawthorne or novelty effect may have influenced self-reports, yet convergent improvements in objective measures (critical thinking tests and writing performance) indicate changes beyond attitudinal signaling. Third, social desirability bias may affect inclusion attitudes; although anonymity mitigates this risk, future studies should incorporate indirect measures and comparison groups to strengthen validity.

9.6. Limitations

Several methodological limitations should be acknowledged when interpreting the findings.

First, the sample size ($n = 52$) is adequate for within-group pre–post comparisons but limits the generalizability of the results to other institutions, regions, or proficiency levels. The observed effects may therefore be context-dependent rather than universally transferable.

Because participants were recruited using an intact-class convenience sampling strategy based on availability rather than random selection, the sample may not fully represent the broader student population. This approach can lead to the overrepresentation of particular profiles, perspectives, or levels of motivation, potentially skewing observed outcomes. Moreover, voluntary participation may introduce self-selection bias, as students who are more engaged or positively disposed toward the topic may be more likely to participate. Future research should employ random or stratified sampling procedures to enhance representativeness and strengthen the external validity of the findings.

Second, the intervention duration of eight weeks is sufficient to detect short-term cognitive and attitudinal changes, but it does not allow claims regarding the stability or long-term consolidation of these effects. Follow-up assessments conducted three to six months later would be necessary to

evaluate retention over time.

Third, the use of self-report measures for empathy and attitudes introduces the possibility of socially desirable responding. Although anonymity reduces this risk, it cannot fully eliminate it. Consequently, these outcomes should be interpreted as reported orientations rather than definitive or stable behavioral commitments.

Finally, the absence of a control or comparison group represents the most significant methodological constraint. Without a parallel group exposed to alternative instructional conditions, causal attribution remains plausible but not definitive, and the observed changes cannot be unequivocally attributed to the intervention alone.

9.7. Pedagogical Implications

If replicability is the objective, the study suggests a concrete and transferable instructional model. Foreign-language argumentation should be used as a cognitive scaffold rather than merely as conversational practice, positioning the target language as a tool for structured reasoning and reflection. Learning activities should address socially relevant themes that require ethical analysis and evidence-based judgment, rather than simple opinion exchange. Discussions should follow explicit discourse protocols—requiring claims, evidence, counterarguments, and respectful framing—to maintain analytical rigor and reduce affective polarization. Finally, change should be assessed at multiple levels through a combination of standardized tests, analytic writing rubrics, and qualitative reflections to capture both measurable outcomes and deeper transformations. This approach is consistent with UNESCO’s understanding of inclusion as an ongoing developmental process rather than a one-time curricular reference.

10. Conclusions

10.1. Core Conclusion: The Language Classroom as a Laboratory of Reasoning

The findings support a reconceptualization of the foreign language classroom as a multidimensional learning environment in which linguistic development, cognitive growth, and civic-ethical formation can be pursued simultaneously rather than sequentially. When instruction is deliberately structured around evidence-based argumentation, ethical

problem-solving, and reflective dialogue, language learning becomes not only communicative practice but also a site of higher-order reasoning.

In this study, the classroom functioned as a laboratory in the methodological sense: a controlled pedagogical environment in which a defined sequence of tasks—debate, writing, case analysis, and synthesis—generated observable and measurable changes. The convergence of evidence across outcome layers strengthens this interpretation. At the cognitive level, critical thinking scores increased substantially, with the strongest gains in inference and argument evaluation. At the affective-social level, empathy scores rose and students demonstrated discursive markers of perspective-taking. At the normative level, inclusive attitudes improved and several participants reported explicit shifts in belief positioning. Taken together, these patterns indicate not isolated skill acquisition but coordinated development across reasoning, emotion, and values.

10.2. Transferability and Contextual Adaptation

The study also distinguishes between components that are likely transferable across educational settings and those that require contextual adaptation. Certain elements appear robust and replicable: structured argumentation routines (claim–evidence–counterargument–rebuttal), mixed assessment combining standardized tests with writing rubrics and reflective data, and explicit dialogue protocols emphasizing respect, non-stigmatization, and evidence-based reasoning. These design features are procedural rather than content-specific and can therefore be implemented across languages and institutions.

Other components are inherently context-dependent. Topic selection must account for local cultural sensitivities and institutional norms. Effective facilitation requires pedagogical expertise in moderating potentially controversial discussions. In addition, student proficiency level influences feasibility: while B2 learners can sustain abstract reasoning tasks with relative autonomy, lower levels require additional linguistic scaffolding. Replication efforts should therefore adapt content and pacing while preserving the underlying methodological structure.

10.3. Directions for Future Research

Although the present findings are promising, stronger causal claims require more rigorous designs. Future research should extend the duration of the intervention (e.g., 12–16 weeks) and incorporate follow-up assessments to determine whether observed changes are stable over time. Including comparison or control groups would allow clearer attribution of effects to the intervention itself rather than to general course progression or maturation. For example, parallel conditions could contrast argumentation with neutral themes, inclusion themes without structured argumentation, or alternative instructional formats.

In addition, reliance on self-report measures should be complemented with behavioral or scenario-based assessments that capture enacted rather than declared dispositions. Finally, given the theoretical role of linguistic distance, future studies could experimentally compare reasoning processes across language conditions (e.g., L2 versus L1 discussions or alternating language modes). Emerging work in bilingualism and moral cognition suggests that language context modulates emotional reactivity and deliberation, making this a promising line of inquiry.

10.4. Final Implication: Language Education as Civic and Ethical Formation

Ultimately, the study argues for repositioning language education beyond an instrumental focus on grammar and fluency. Properly designed, the language classroom can function as a space for critical cultural awareness, ethical reasoning, and democratic dialogue. Inclusion, in this framework, is not an ancillary topic but a cognitively demanding domain that stimulates complex argumentation, perspective-taking, and reflective judgment—precisely the competencies that higher education seeks to cultivate.

In this sense, foreign language instruction can be understood not only as linguistic training but also as a structured environment for intellectual and civic formation.

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Institutional Review Board Statement

The study was conducted in accordance with the ethical guidelines of the Universidad de Colima and with national regulations governing research involving human participants. According to institutional policy for minimal-risk educational research involving adult university students and anonymized data, formal IRB approval was not required.

Informed Consent Statement

Written informed consent was obtained from all participants prior to data collection. Participants were informed of the research objectives, procedures, voluntary nature of participation, confidentiality measures, and their right to withdraw at any time without academic consequences.

Data Availability Statement

The datasets generated and analyzed during the current study are not publicly available due to ethical and confidentiality considerations, particularly given the sensitivity of identity-related topics discussed during the intervention. Anonymized and aggregated data may be made available by the corresponding author upon reasonable request, subject to institutional regulations and participant privacy safeguards.

Conflicts of Interest

The author declares no conflict of interest. The author had full responsibility for the design of the study; collection, analysis, and interpretation of data; writing of the manuscript; and decision to submit the article for publication.

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