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Original Research

The Effectiveness of Flipped Classrooms in EFL Contexts: A Mixed-Methods Study

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Abstract

This mixed-methods study investigates the effectiveness of flipped classroom instruction in English as a Foreign Language (EFL) contexts. Drawing on both quantitative and qualitative data, the research explores how flipped learning environments influence students' language performance, engagement, and perceptions of learning. The quantitative phase involved a quasi-experimental design with pre- and post-tests administered to two groups: an experimental group receiving flipped instruction and a control group following traditional lecture-based teaching. Results indicated a statistically significant improvement in the experimental group's performance, particularly in listening and speaking skills. The qualitative phase, comprising semi-structured interviews and classroom observations, revealed increased student autonomy, motivation, and active participation in the flipped classrooms. However, challenges such as unequal access to digital resources and varying learner readiness were also identified. The findings suggest that flipped classrooms hold promise for enhancing EFL learning outcomes in Iranian contexts through flipped learning implementation, though their effectiveness depends on thoughtful implementation, including adaptive strategies for technological barriers and learner preparedness, and contextual adaptation specific to resource-constrained EFL environments. Pedagogical implications and directions for future research are discussed.

***Keywords*:** Flipped Classroom; EFL (English as a Foreign Language); Mixed-Methods Study; Language Performance.

1. Introduction

The landscape of English as a Foreign Language (EFL) education has been reshaped by the integration of innovative pedagogical approaches, with the flipped classroom model emerging as a transformative strategy to address longstanding challenges in traditional teacher-centered instruction. In conventional EFL settings, lecture-based delivery often limits opportunities for active engagement and authentic language practice, constraining the development of critical communicative skills (Linling & Abdullah, 2023; Pu, 2017; Purwanti et al., 2022). The flipped classroom model inverts this paradigm by delivering instructional content—typically through video lectures or digital resources—outside of class, thereby reserving in-class time for interactive, student-centered activities such as collaborative tasks and communicative exercises (Hung, 2022; Kabri & Budiyanto, 2023; Li & Li, 2022; Teng, 2017). This approach, grounded in constructivist learning theories, emphasizes active knowledge construction through experience and interaction, fostering learner autonomy, critical thinking, and engagement (Abe et al., 2018; Çakıroğlu & Öztürk, 2020; Samadi et al., 2024).

The flipped classroom model aligns with constructivist and experiential learning theories, which posit that learners construct knowledge through active engagement and reflection on prior experiences (Abe et al., 2018; Pu, 2017). By leveraging digital tools such as video lectures and mobile applications, the model supports personalized learning and fosters self-regulated learning behaviors essential for language acquisition (Chang & Lan, 2021; Purwanti et al., 2022). The strategic reallocation of class time for task-based and collaborative activities further enhances communicative

competence and higher-order thinking skills, making the flipped approach particularly suited to the needs of EFL learners (Riza & Setyarini, 2020; Samadi et al., 2024).

Despite its potential, the effectiveness of the flipped classroom model in EFL contexts remains underexplored, with empirical findings yielding mixed results. While some studies report significant improvements in language skills, particularly in listening and speaking (Arboleda et al., 2024; Roohani & Etemadfar, 2021; Thatphaiboon & Sappapan, 2022), others indicate limited or inconsistent outcomes compared to traditional methods (Griffin et al., 2012; Lizawati, 2019). These discrepancies highlight the influence of contextual factors, such as unequal access to digital resources, varying levels of learner readiness, and cultural norms surrounding teacher authority (Linling & Abdullah, 2023; Mulyanto & Sujiatmoko, 2022). Additionally, much of the existing research focuses on quantitative performance metrics, often overlooking qualitative insights into learner perceptions, motivation, and classroom dynamics (Hung, 2022; Wati & Fauzi, 2023). This gap underscores the need for a comprehensive investigation that integrates both measurable outcomes and subjective experiences to fully understand the efficacy of flipped classrooms in diverse EFL settings.

This mixed-methods study aims to evaluate the effectiveness of flipped classroom instruction in EFL contexts by examining its impact on language performance, learner engagement, and perceptions of autonomy. Specifically, the study addresses the following research questions (RQs):

RQ1: To what extent does flipped instruction enhance EFL learners' listening and speaking skills compared to traditional lecture-based teaching?

RQ2: How do flipped classrooms influence students' motivation, engagement, and sense of autonomy?

RQ3: What contextual challenges exist, and what strategies can mitigate them for effective implementation?

By combining quantitative performance data with qualitative insights, this research seeks to provide a holistic understanding of the flipped classroom's potential to address persistent challenges in Iranian EFL education, including low motivation, limited opportunities for oral practice, and insufficient learner autonomy. The findings will contribute to the growing body of literature on technology-enhanced language learning in EFL contexts, offering evidence-based recommendations for educators and curriculum designers to optimize flipped instruction in resource-constrained settings. Furthermore, the study emphasizes the importance of context-sensitive pedagogical strategies that account for socio-technological realities in Iran, thereby promoting equitable access to innovative language instruction.

While the research addresses broader themes of engagement and autonomy, it does not explore other language skills (e.g., reading or writing) in depth. Additionally, the study acknowledges potential limitations related to technological access and varying learner backgrounds, which may influence generalizability but are mitigated through adaptive instructional strategies and robust mixed-methods analysis.

The flipped classroom model represents a promising evolution in EFL pedagogy, offering opportunities to enhance language performance and foster learner-centered environments. However, its success hinges on addressing contextual challenges and aligning implementation with learners' needs and institutional realities. Through a mixed-methods approach, this study aims to bridge existing gaps in the literature, providing actionable insights to advance the discourse on innovative language education and inform effective pedagogical practices in EFL contexts.

2. Literature Review

The flipped classroom model, characterized by the delivery of instructional content outside class through digital resources and the utilization of in-class time for interactive, student-centered activities, has emerged as a transformative pedagogical approach in EFL education (Allahveysi & Aliakbari, 2021). This review synthesizes the theoretical foundations, empirical findings, and practical implications of flipped classrooms in EFL contexts, drawing on a comprehensive body of literature. It examines the model's impact on student performance, autonomy, engagement, motivation, and communicative competence, while addressing challenges.

2.1. Theoretical Foundations

The flipped classroom model is grounded in constructivist and socio-cultural learning theories, which emphasize active knowledge construction and collaborative learning (Abe et al., 2018; Pu, 2017). By shifting direct instruction to

pre-class activities, the model aligns with principles of learner autonomy and self-regulated learning (SRL), fostering critical thinking and problem-solving skills essential for language acquisition (Abe et al., 2018; Lee, 2017). The reversal of traditional instructional roles—where students engage with materials before class and participate in dynamic in-class practices—supports communicative competence and reduces passive learning, creating an environment conducive to meaningful language practice (Li & Li, 2022; Samiei & Ebadi, 2021). These theoretical underpinnings provide a robust rationale for the flipped classroom's application in EFL settings, where active engagement and interaction are paramount (Abe et al., 2018; Pu, 2017).

2.2. Impact on Student Performance

Empirical studies consistently demonstrate the flipped classroom's positive impact on EFL learners' language performance across various skills. Quasi-experimental research highlights significant improvements in vocabulary acquisition, with pre-class video lectures and interactive exercises enabling learners to process and rehearse lexical items at their own pace, followed by in-class reinforcement (Retnaningsih et al., 2022). Speaking skills benefit from pre-recorded content introducing language patterns, allowing in-class time for communicative activities like role-plays and discussions, which enhance fluency and reduce apprehension (Chang & Lan, 2021; Zhong, 2024). Writing performance improves through pre-class exposure to exemplar texts and in-class peer reviews, leading to enhanced coherence and mechanics (Muluk & Dahliana, 2024; Roohani & Rad, 2022). Listening and reading comprehension also advance, with pre-class audio-visual materials and digital platforms fostering auditory discrimination and inferential reasoning, complemented by in-class discussions (Ahmed et al., 2022; Arboleda et al., 2024; Khoiriyah, 2021; Samiei & Ebadi, 2021). For instance, Mahnaz et al. (2025) reported a strong correlation between flipped pedagogy and academic achievement, underscoring its efficacy in boosting language outcomes.

Comparative studies further validate these findings, showing that flipped classrooms outperform traditional methods in fostering communicative competence and academic performance (Fathi et al., 2022; Li et al., 2022). The model's emphasis on interactive, higher-order cognitive activities during class time provides more opportunities for authentic language use compared to lecture-based instruction (Fathi et al., 2022). Additionally, Chuang et al. (2016) found a significant indirect effect of instrumentality (promotion) on test score improvements through quiz performance, highlighting the flipped model's role in enhancing language learning outcomes.

2.3. Student Autonomy and Self-Regulated Learning

A central tenet of flipped classrooms is the promotion of learner autonomy, as students take responsibility for engaging with pre-class materials, setting learning goals, and managing study schedules (Birová et al., 2023; Lee, 2017). This shift fosters SRL, enabling learners to develop metacognitive skills crucial for mastering a foreign language (Abe et al., 2018; Alkhalaf, 2023). Digital resources, such as video lectures and online platforms, allow students to revisit complex topics at their own pace, consolidating understanding in a low-pressure environment (Lee, 2017; Purwanti et al., 2022). Gu et al. (2022) note that this autonomy correlates with increased initiative, while Algarni (2024) found that flipped learning significantly enhances self-efficacy, a key predictor of academic success. However, challenges such as unequal access to digital resources and varying SRL capabilities can hinder autonomy, particularly for students from under-resourced backgrounds (Hung, 2022; Singh et al., 2024).

2.4. Student Engagement and Motivation

Flipped classrooms significantly enhance student engagement and motivation in EFL settings. Pre-class digital assignments and in-class collaborative activities create a dynamic learning atmosphere that encourages active participation and meaning negotiation (Fan, 2022; Li & Li, 2022). Zhong (2024) highlights increased participation in peer-assisted speaking activities, while Aidoo et al. (2022) note that active engagement during class promotes motivation and linguistic competence. The model's learner-centered approach reduces anxiety and fosters affective engagement, generating greater interest in language learning (Hung, 2022; Qiu & Luo, 2022). Qualitative studies, such as Teng (2017), report high student satisfaction, with learners appreciating the flexibility of pre-recorded lessons and opportunities for in-class clarification. However, Chuang et al. (2016) suggest that engagement may vary based on motivational profiles, with students exhibiting higher instrumentality benefiting more from the flipped approach.

2.5. Technology Integration in Flipped EFL

Classrooms Technology is integral to the flipped classroom's success in EFL contexts, with digital tools like mobile applications, learning management systems (LMS), and video conferencing platforms enhancing content delivery and interaction specifically within the flipped model (Chang & Lan, 2021; Kawinkoonlasate, 2019). For instance, interactive video lectures in flipped settings cater to diverse learning styles by allowing pre-class access to EFL content, while platforms like WhatsApp and Telegram facilitate asynchronous discussions and feedback, improving linguistic and social skills through flipped-specific tasks (Arifani, 2019; Xiang-feng & Yan-ping, 2023). Emerging technologies, such as augmented reality (AR) and game-based learning, further enrich pre-class activities by simulating real-world communication scenarios in EFL flipped environments (Hong, 2022; Hung & Yeh, 2023). Digital scaffolding, including badges and formative assessments integrated into flipped instruction, supports engagement and reduces cognitive overload (Khoiriyah, 2021; Purwanti et al., 2022). However, issues of digital equity and technological literacy pose significant challenges, particularly in under-resourced EFL contexts where flipped learning relies heavily on these tools (Hung, 2022; Li, 2023).

2.6. Teacher Perceptions and Professional Development

Teachers play a pivotal role in flipped classroom implementation, transitioning from content deliverers to facilitators who guide interactive learning (Lubis & Samsudin, 2021; Shosha, 2023). Positive teacher perceptions, fostered through comprehensive training in digital literacy and curriculum design, correlate with improved student outcomes (Lubis & Samsudin, 2021). Qualitative insights from interviews reveal that teachers value the model's ability to address individual needs, though initial challenges include adapting to new roles and managing technology (Shosha, 2023; Xiang-feng & Yan-ping, 2023). Professional development is critical for building confidence and ensuring effective integration of digital tools, as it equips educators with strategies for creating flipped materials, assessing pre-class engagement, and facilitating in-class activities (Lubis & Samsudin, 2021). Such training programs should include workshops on technology use, pedagogical shifts, and ongoing support to address common barriers in EFL flipped settings.

2.7. Challenges and Implementation Concerns

Despite its benefits, the flipped classroom model faces challenges related to digital equity, learner readiness, and workload management. Unequal access to reliable technology and variations in digital literacy can exacerbate educational disparities, particularly for students from disadvantaged backgrounds (Hung, 2022; Li, 2023). Varying levels of SRL readiness may hinder engagement with pre-class materials, while excessive workloads can lead to cognitive overload (Çakıroğlu & Öztürk, 2020; Cao et al., 2024). Contextual factors, such as the abrupt shift to online modalities during the COVID-19 pandemic, magnified these issues, highlighting the need for robust technological infrastructure and teacher training (Huang et al., 2024; Nursyahdiyah et al., 2022). Strategic implementation, including co-regulation and optimized pre-class materials, is essential for mitigating these challenges (Jafarian et al., 2021; Li, 2023).

2.8. Contextual and Cultural Variations

The effectiveness of flipped classrooms varies across educational levels and cultural contexts. University settings benefit from greater technological access and student autonomy, while secondary schools face challenges related to limited infrastructure and the need for additional scaffolding (Birová et al., 2023; Jordán & Garzón, 2023). Cross-cultural studies emphasize the importance of adapting the model to local linguistic, technological, and pedagogical factors (Al-Amri, 2022; Wang & Yu, 2022). For instance, cultural attitudes toward technology and non-traditional teaching methods can influence implementation success, necessitating context-specific training and resources (Nursyahdiyah et al., 2022).

The literature underscores the flipped classroom's effectiveness in enhancing EFL learning outcomes by promoting autonomy, engagement, motivation, and communicative competence. Its integration of technology and collaborative learning creates a learner-centered environment that outperforms traditional methods. However, challenges such as digital equity, learner readiness, and workload management necessitate thoughtful implementation and contextual adaptation. Despite these advancements, a key research gap persists in integrating quantitative and qualitative data to explore flipped classrooms in resource-constrained EFL contexts like Iran. This study addresses this gap by employing a mixed-methods approach to evaluate performance improvements and contextual challenges in an Iranian university setting.

3. Methodology

This study employed a mixed-methods research design to investigate the effectiveness of flipped classroom instruction in EFL contexts. The approach integrated quantitative and qualitative methods to provide a comprehensive understanding of the impact of flipped learning on students' language performance, engagement, and perceptions. The quantitative phase used a quasi-experimental design, while the qualitative phase was conducted concurrently with the latter half of the semester to allow for real-time insights into classroom dynamics. This section outlines the participants, setting, research instruments, data collection procedures, and data analysis methods.

3.1. Participants and Setting

This study focuses on EFL learners in a non-Anglophone, resource-constrained educational context, examining the impact of flipped instruction on listening and speaking skills over a defined intervention period. The study was conducted over a 12-week academic semester at Ilam university, Iran, in an EFL context, where English is taught as a compulsory subject. A total of 64 undergraduate students majoring in English Language and Literature, aged 18–22 and at an intermediate proficiency level, participated in the study. Participants enrolling in EFL courses were ensured equivalence in baseline proficiency through a pre-test (a TOEFL-like proficiency test consisting of items adapted from standard TOEFL preparation materials to assess general English proficiency), and were divided into two groups based on intact classes to minimize disruption to the academic schedule. The experimental group (n=32) received flipped classroom instruction, while the control group (n=32) followed traditional lecture-based teaching. The instructional content focused on general English topics, including vocabulary building, grammar structures, and communicative themes such as daily conversations, debates, and presentations, tailored to enhance listening and speaking skills. Both groups were taught by the same instructor to control for teacher-related variables. Informed consent was obtained from all participants.

3.2. Research Instruments

3.2.1. Quantitative Instruments

The pre- and post-tests were adapted from standardized TOEFL iBT, which included items on all four language skills (listening, speaking, reading, and writing) to provide a comprehensive measure of proficiency. However, this study focused exclusively on the listening and speaking sections' scores, as these aligned with the research objectives; the inclusion of all skills ensured a holistic baseline evaluation but did not influence the analysis beyond the targeted areas. The tests were administered immediately before the intervention began and again at its conclusion after 12 weeks, providing a basis for evaluating changes in performance attributable to the teaching methods. Each test consisted of 40 items, with sections dedicated to listening comprehension (10 items), speaking tasks (10 items), reading comprehension (10 items), and writing tasks (10 items). The tests were scored on a 100-point scale, with each section contributing equally to the total score.

3.2.2. Qualitative Instruments

Qualitative data were collected through semi-structured interviews and classroom observations. The interview protocol included open-ended questions exploring students' experiences, perceptions, and challenges in the flipped classroom environment. Questions addressed topics such as engagement, autonomy, motivation, and access to resources. Interviews were conducted in the participants' native language (Persian) to ensure clarity and comfort. Classroom observations were guided by an observation checklist focusing on student participation, interaction patterns, and the use of digital resources. The checklist was adapted from established frameworks for observing active learning environments.

3.3. Data Collection Procedures

3.3.1. Quantitative Phase

The quantitative phase followed a quasi-experimental design with a pre-test/post-test structure. At the start of the 12-week semester, both the experimental and control groups completed the pre-test to establish baseline language proficiency. The experimental group received flipped classroom instruction, which involved pre-class activities (e.g., watching instructional videos and completing online quizzes) and in-class activities (e.g., collaborative tasks, discussions, and teacher-guided practice). The control group received traditional instruction, consisting of in-class lectures followed

by practice exercises. Both groups covered the same curriculum and had equivalent instructional time (3 hours per week). At the end of the semester, both groups completed the post-test under controlled conditions.

3.3.2. Qualitative Phase

The qualitative phase was conducted concurrently with the latter half of the semester to capture in-depth insights into the flipped classroom experience. Semi-structured interviews were conducted with a purposive sample of 15 students from the experimental group, selected to represent diverse academic performance levels and engagement patterns. Each interview lasted approximately 20–30 minutes and was audio-recorded with participants' consent. Classroom observations were conducted during four sessions (two per group) in weeks 8–10 of the semester. Each observation lasted 60 minutes, and detailed field notes were taken using the observation checklist (Sawada et al., 2002). To ensure trustworthiness, interviews were transcribed verbatim, and observational data were cross-checked by two researchers.

3.4. Data Analysis

3.4.1. Quantitative Analysis

Quantitative data from the pre- and post-tests were analyzed using SPSS version 26. Descriptive statistics (means and standard deviations) were calculated to summarize performance scores. To compare the experimental and control groups' performance, an analysis of covariance (ANCOVA) was conducted, with pre-test scores as the covariate to control for baseline differences. The significance level was set at $p < 0.05$. Effect sizes were calculated using Cohen's d to assess the practical significance of the findings.

3.4.2. Qualitative Analysis

Qualitative data from interviews and observations were analyzed using thematic analysis. Interview transcripts and observation notes were coded inductively to identify recurring themes related to student engagement, autonomy, motivation, and challenges. The coding process followed a three-stage approach: open coding, axial coding, and selective coding. To enhance reliability, two researchers independently coded a subset of the data, achieving an inter-coder agreement of 92%. Discrepancies were resolved through discussion. Themes were triangulated across data sources (interviews and observations) to ensure robustness.

3.5. Ethical Considerations

The study adhered strictly to ethical guidelines governing research with human participants, prioritizing participant welfare and data integrity. Participation was entirely voluntary, and informed consent was secured from all individuals prior to their involvement. During the consent process, participants were thoroughly briefed on the study's purpose, procedures, potential benefits, and their unconditional right to withdraw at any point without repercussions. To safeguard privacy, all data were anonymized by replacing personal identifiers with unique codes, and confidentiality was maintained throughout the research process, from data collection to reporting. Findings were presented in aggregate form to prevent the identification of individual respondents.

4. Results

This section presents the findings from the mixed-method study evaluating the effectiveness of flipped classroom instruction in an EFL context. The results are organized into two subsections: quantitative findings, which detail the impact of flipped instruction on language performance, and qualitative findings, which explore students' engagement, autonomy, motivation, and challenges in the flipped classroom environment.

4.1. Quantitative Findings

The quantitative phase assessed the impact of flipped classroom instruction on EFL learners' language performance, focusing on listening, speaking, reading, and writing skills. Pre- and post-test scores were analyzed using descriptive statistics and ANCOVA, with pre-test scores as the covariate to control for baseline differences.

4.1.1. Descriptive Statistics

Table 1 summarizes the mean scores and standard deviations for the experimental (flipped classroom) and control (traditional lecture-based) groups on the pre- and post-tests.

Table 1. *Descriptive Statistics for Pre- and Post-Test Scores*

Group	Test	Listening (M ± SD)	Speaking (M ± SD)	Reading (M ± SD)	Writing (M ± SD)	Total (M ± SD)
Experimental (n=32)	Pre-Test	18.50 ± 3.12	17.25 ± 2.89	19.75 ± 2.54	18.00 ± 3.01	73.50 ± 9.87
Experimental (n=32)	Post-Test	22.75 ± 2.65	21.50 ± 2.33	21.25 ± 2.12	19.50 ± 2.76	85.00 ± 8.32
Control (n=32)	Pre-Test	18.25 ± 3.05	17.50 ± 2.95	19.50 ± 2.61	18.25 ± 2.88	73.50 ± 9.62
Control (n=32)	Post-Test	19.75 ± 2.98	18.75 ± 2.67	20.50 ± 2.45	19.00 ± 2.65	78.00 ± 8.95

The experimental group showed greater improvement in post-test scores across all skills, with the largest gains in listening (M = 22.75, SD = 2.65) and speaking (M = 21.50, SD = 2.33) compared to the control group (Listening: M = 19.75, SD = 2.98; Speaking: M = 18.75, SD = 2.67). Total post-test scores were also higher for the experimental group (M = 85.00, SD = 8.32) than the control group (M = 78.00, SD = 8.95). Figure 1 compares the pre- and post-test scores of experimental and control groups across four language skills.

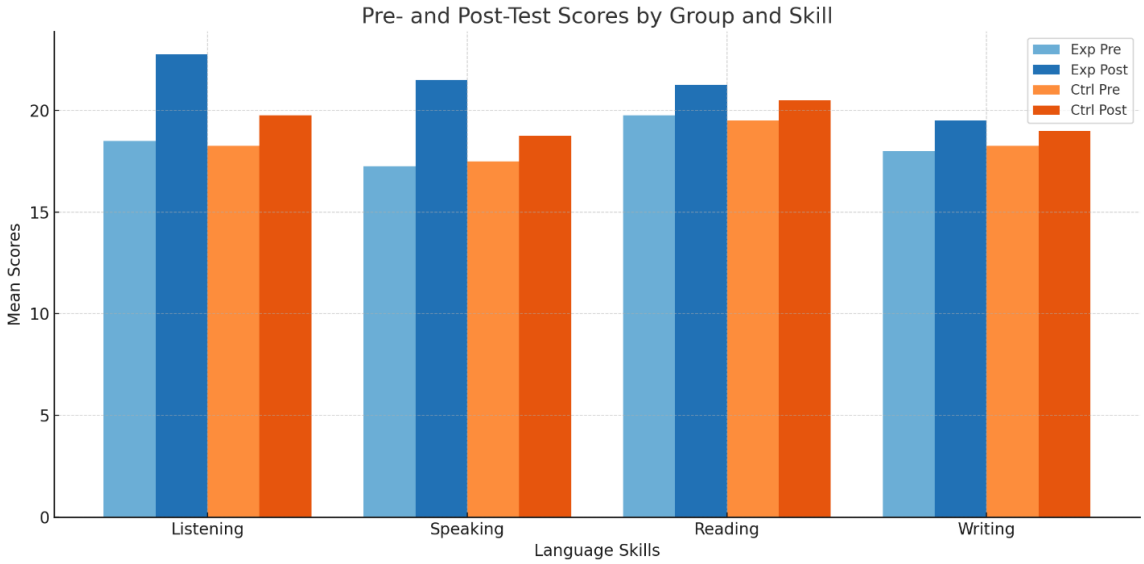

Figure 1. Pre- and Post-Test Scores by Group and Skill

4.1.2. ANCOVA Results

ANCOVA was conducted to determine whether the differences in post-test scores between groups were statistically significant, controlling for pre-test scores. The results are presented in Table 2.

Table 2. *ANCOVA Results for Post-Test Scores*

Skill	*F*-value	*p*-value	Partial η^2	Cohen's d
Listening	14.72	<0.001	0.192	0.99
Speaking	12.45	<0.001	0.168	0.93
Reading	2.89	0.094	0.046	0.34
Writing	1.56	0.216	0.025	0.19
Total Score	15.38	<0.001	0.201	0.83

The ANCOVA revealed statistically significant differences in post-test scores for listening ($F(1,61) = 14.72$, $p < 0.001$, partial $\eta^2 = 0.192$) and speaking ($F(1,61) = 12.45$, $p < 0.001$, partial $\eta^2 = 0.168$), indicating that the flipped classroom group outperformed the control group. The effect sizes (Cohen's $d = 0.99$ for listening, 0.93 for speaking) suggest large practical significance. Differences in reading ($p = 0.094$) and writing ($p = 0.216$) were not statistically significant, with small effect sizes (Cohen's $d = 0.34$ and 0.19, respectively). The total score showed a significant difference favoring the experimental group ($F(1,61) = 15.38$, $p < 0.001$, partial $\eta^2 = 0.201$, Cohen's $d = 0.83$). Figure 2 shows effect sizes (Cohen's d) from the ANCOVA analysis. Large effects can be seen for listening, speaking, and total scores, while small effects for reading and writing are reported.

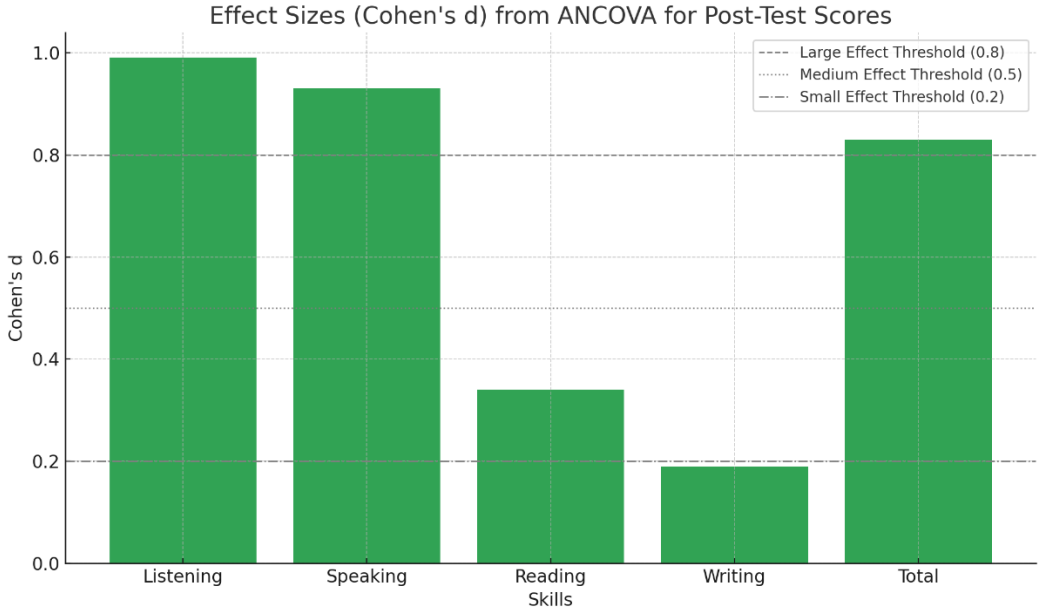

Figure 2. Effect Sizes (Cohen's d) from ANCOVA for Post-Test Scores

4.2. Qualitative Findings

The qualitative phase explored students' experiences in the flipped classroom through semi-structured interviews (n=15) and classroom observations (four sessions). Thematic analysis identified four key themes: increased autonomy, enhanced motivation and engagement, active participation, and contextual challenges.

Theme 1: Increased Autonomy

Students reported that the flipped classroom fostered greater autonomy in their learning. Access to pre-class materials (e.g., video lectures) allowed them to study at their own pace and revisit content as needed. One student noted, "*I could watch the videos multiple times to understand the grammar rules, which I couldn't do in traditional classes.*", Another student also commented: "*Watching videos at home let me review difficult parts repeatedly. I felt more prepared to participate in class.*" Observations confirmed that students in the experimental group frequently referenced pre-class materials during in-class tasks, demonstrating self-directed learning behaviors.

Theme 2: Enhanced Motivation and Engagement

The flipped classroom increased students' motivation and engagement, primarily due to interactive in-class activities. Students appreciated the shift from passive listening to collaborative tasks, such as role-plays and group discussions. A participant stated, "*The classes were fun because we talked and practiced speaking a lot, not just listened to the teacher.*" Another participant noted: "*Knowing I'd contribute in class made me study the videos more carefully.*" Observations revealed higher levels of student-initiated interactions in the experimental group compared to the control group, where teacher-led instruction dominated.

Theme 3: Active Participation

Flipped classrooms fostered collaborative tasks and peer interactions. Instructors noted higher engagement during role-plays and discussions. A student shared: "*In-class activities forced me to speak more. I wasn't just listening to the teacher.*" Another student stated: "*In group activities, I spoke up more than ever before.*" Classroom observations highlighted a marked increase in active participation in the flipped classroom. Students engaged in communicative tasks, such as peer feedback sessions and problem-solving activities, which were less prevalent in the control group. For instance, during a speaking task, experimental group students were observed negotiating meaning and correcting each other's pronunciation, indicating deeper engagement with the material.

Theme 4: Contextual Challenges

Despite the benefits, students faced challenges in the flipped classroom. Unequal access to digital resources was a significant barrier, with some students reporting unreliable internet or lack of personal devices. One student commented, "*Sometimes I couldn't watch the videos because my internet was slow, so I felt behind.*" Other student mentioned: "*My phone couldn't handle the video formats.*" Additionally, varying levels of learner readiness posed challenges, as some students struggled with the self-discipline required for pre-class preparation. A participant admitted: "*I forgot to watch the videos a few times. It's hard to stay disciplined without deadlines.*" Another participant commented: "*I needed reminders to complete pre-class work.*" Observations noted that a small subset of students in the experimental group appeared less prepared for in-class activities, relying on peers to catch up.

Table 3. *Qualitative Themes and Representative Quotes*

Theme	Description	Illustrative Quote
Increased Autonomy	Increased learner control over pacing and campus resources.	"I could watch the videos multiple times to understand the grammar rules, which I couldn't do in traditional classes"
Enhanced Motivation and Engagement	Heightened intrinsic motivation driven by interactive tasks.	"The classes were fun because we talked and practiced speaking a lot, not just listened to the teacher"
Active Participation	More frequent peer interaction and communicative practice.	"In group activities, I spoke up more than ever before."
Contextual Challenges	Unequal access to reliable internet and devices. Varied ability to self-regulate pre-class preparation.	"Sometimes I couldn't watch the videos because my internet was slow, so I felt behind"

4.3. Integration of Quantitative and Qualitative Findings

The quantitative and qualitative findings converge to suggest that flipped classroom instruction significantly enhances EFL learners' listening and speaking skills, likely due to increased opportunities for active practice and engagement during class time. The qualitative data provide context for the quantitative results, indicating that improvements in performance are linked to heightened autonomy, motivation, and participation. However, the lack of significant improvements in reading and writing may reflect the study's focus on communicative activities, which prioritized oral skills. The identified challenges—technological barriers and learner readiness—highlight the need for contextual adaptations to maximize the flipped classroom's effectiveness.

5. Discussion

The findings of this mixed-method study provide robust evidence supporting the effectiveness of flipped classroom instruction in enhancing EFL learners' language performance, particularly in listening and speaking skills, while also fostering autonomy, motivation, and active participation. The significant improvements observed in the experimental group's post-test scores for listening ($p < 0.001$, Cohen's $d = 0.99$) and speaking ($p < 0.001$, Cohen's $d = 0.93$) align with prior research highlighting the flipped model's efficacy in promoting communicative competence (Arboleda et al., 2024; Roohani & Etemadfar, 2021; Thatphaiboon & Sappapan, 2022). These gains can be attributed to the model's strategic reallocation of class time for interactive, student-centered activities, such as role-plays and

discussions, which provided ample opportunities for authentic language practice. Qualitative insights further contextualize these outcomes, revealing that students' increased engagement and motivation stemmed from collaborative tasks that made learning dynamic and relevant, corroborating studies by Zhong (2024) and Aidoo et al. (2022).

The flipped classroom's emphasis on pre-class preparation fostered learner autonomy, as students controlled the pace of their learning and revisited materials as needed. This aligns with constructivist theories and self-regulated learning frameworks, which posit that active engagement with content enhances knowledge construction (Abe et al., 2018; Lee, 2017). Students' reports of reviewing video lectures multiple times to master complex concepts reflect the model's capacity to support personalized learning, a finding consistent with Purwanti et al. (2022) and Alkhalaf (2023). However, the qualitative data also underscore challenges, such as unequal access to digital resources and varying learner readiness, which echo concerns raised by Hung (2022) and Li (2023). These barriers highlight the importance of addressing digital equity to ensure all students can fully engage with pre-class materials, particularly in resource-constrained contexts like the one studied.

The lack of significant improvements in reading and writing skills ($p = 0.094$ and $p = 0.216$, respectively) may be attributed to the study's focus on communicative activities, which prioritized oral skills over written ones. This finding contrasts with some literature suggesting benefits for writing through flipped instruction (Muluk & Dahliana, 2024) but supports studies indicating skill-specific outcomes depend on activity design (Lizawati, 2019). Future implementations could incorporate targeted pre-class and in-class tasks to address reading and writing, such as analyzing exemplar texts or engaging in peer-editing sessions, to achieve more balanced skill development.

Contextual challenges identified in the qualitative phase, including unreliable internet and insufficient self-discipline for pre-class preparation, underscore the need for adaptive strategies. For instance, providing offline access to materials or integrating reminders and scaffolding for pre-class tasks could mitigate these issues, as suggested by Jafarian et al. (2021). Additionally, cultural and institutional factors, such as students' reliance on teacher-led instruction, may have influenced readiness for self-directed learning, aligning with cross-cultural findings by Wang and Yu (2022). These challenges emphasize the necessity of context-sensitive implementation, including teacher training and institutional support, to maximize the flipped model's benefits (Lubis & Samsudin, 2021).

The integration of quantitative and qualitative findings reveals a synergistic relationship between performance gains and learner experiences. The flipped classroom's success in enhancing listening and speaking skills is closely tied to increased autonomy and engagement, which empowered students to take ownership of their learning. However, the identified challenges highlight the model's dependence on technological infrastructure and learner preparedness, reinforcing the need for strategic planning to ensure equitable access and effective implementation.

5.1. Implications for Practice

The findings offer several pedagogical implications for EFL educators. First, flipped classrooms should prioritize interactive, communicative tasks to capitalize on the model's strength in fostering oral skills. Second, addressing digital equity through alternative resource delivery methods (e.g., USB drives or printed materials) can ensure inclusivity. Third, scaffolding strategies, such as structured pre-class guides or progress tracking, can enhance learner readiness and self-regulation. Finally, professional development for teachers is critical to equip them with the skills to design effective flipped lessons and manage technology-enhanced environments.

5.2. Limitations and Future Research

While the study provides valuable insights, its quasi-experimental design and single-institution setting limit generalizability. The small qualitative sample, though sufficient for thematic saturation, may not capture all perspectives. Future research could employ randomized controlled trials across diverse contexts to enhance external validity. Additionally, longitudinal studies examining the flipped model's long-term impact on all language skills, including reading and writing, would provide a more comprehensive understanding. Future research should explore tailored digital interventions, long-term impacts, and cross-cultural adaptations to refine the model's application in diverse EFL contexts. Exploring tailored digital interventions, such as mobile-friendly platforms or gamified pre-class activities, could further address access and engagement challenges.

6. Conclusion

This mixed-method study underscores the potential of flipped classroom instruction to enhance EFL learning outcomes, particularly in listening and speaking proficiency, while also fostering learner autonomy, motivation, and active engagement. The quantitative findings revealed statistically significant improvements in the experimental group's oral/aural skills compared to traditional instruction, with large effect sizes (Cohen's d = 0.99 for listening, 0.93 for speaking), aligning with prior research on the model's capacity to prioritize communicative practice during class time. Qualitative insights contextualized these gains, highlighting students' appreciation for self-paced pre-class learning, collaborative in-class activities, and the sense of ownership over their progress. However, challenges such as unequal access to digital resources, technological barriers, and disparities in learner readiness underscored the necessity of equitable implementation strategies.

The study's theoretical contributions reinforce the alignment of flipped classrooms with constructivist principles, emphasizing active knowledge construction and learner-centered environments. Practically, the findings advocate for pedagogical adaptations that balance technological innovation with contextual realities, such as providing offline materials for resource-constrained learners and integrating scaffolding mechanisms to support self-regulation. Teacher training and institutional support are critical to address challenges in transitioning from lecturer to facilitator and optimizing activity design.

While the flipped model demonstrated clear advantages for oral skills, its limited impact on reading and writing suggests the need for skill-specific task design, such as peer-editing exercises or text analysis, to ensure holistic language development. Future research should explore longitudinal implementations across diverse educational settings, investigate strategies to mitigate digital inequities, and examine the model's adaptability to varying cultural and institutional contexts. By addressing these considerations, educators can harness the flipped classroom's transformative potential while fostering inclusive, engaging, and effective EFL learning environments. Ultimately, this study affirms that the flipped classroom is not a one-size-fits-all solution but a flexible framework requiring thoughtful adaptation to unlock its full benefits in EFL education.

Declaration

In order to correct and improve the academic writing of our paper, and to visualize the data, we have used the language model ChatGPT.

Author Contributions

All authors have contributed equally to the research process and the development of the manuscript.

Conflict of Interest

The authors report no conflict of interest"

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