Research Paper

Reconfiguring Language Pedagogy Through Flipped Instruction: Impacts on Achievement, Motivation, and Critical Thinking Among Iranian EFL Learners

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Abstract

This study investigates the pedagogical impact of flipped instruction versus traditional teaching methods on Iranian university students' general English language achievement, motivation, and critical thinking. Drawing from constructivist learning theory, self-determination theory, and Vygotsky's sociocultural framework, this quasi-experimental research was conducted at Islamic Azad University with 200 EFL learners. Quantitative data were gathered through pre- and post-tests using validated instruments: a language achievement test, a motivation questionnaire, and the California Critical Thinking Skills Test (CCTST). Results indicated statistically significant gains in the flipped classroom group across all three domains. The findings were further supported by contemporary studies from 2015 to 2024, reinforcing flipped instruction as a robust, learner-centered approach. The paper concludes with pedagogical implications and practical recommendations for implementing flipped instruction in similar EFL contexts.

Keywords: Flipped instruction, EFL learners, motivation, critical thinking, language achievement, constructivism, self-determination theory

Introduction

The digital transformation of education, catalyzed by the proliferation of information and communication technologies (ICT), has reshaped instructional paradigms across disciplines and contexts (Bond et al., 2020; Boelens et al., 2017). Among the most impactful pedagogical

innovations to emerge from this shift is flipped instruction, a learner-centered methodology that inverts the conventional classroom structure. In flipped classrooms, instructional content is delivered prior to class via multimedia tools, allowing valuable in-person time to be devoted to collaborative problem-solving, peer interaction, and application-based activities (Bergmann & Sams, 2012; Abeysekera & Dawson, 2014; Lo & Hew, 2017).

The flipped classroom model has garnered substantial attention in English as a Foreign Language (EFL) instruction, especially in regions like Iran, where traditional, teacher-centered approaches dominate (Gholami et al., 2021; Khodabandeh, 2022). Iranian General English courses often suffer from limited interactivity, overemphasis on grammar translation, and insufficient opportunities for communicative competence development (Rahimi & Alavi, 2017; Alikhani, 2025). Flipped instruction addresses these limitations by reallocating direct instruction to asynchronous settings and leveraging classroom time for learner engagement, thereby enhancing autonomy, motivation, and deeper learning (Hew & Lo, 2018; Nazari & Haghshenas, 2023).

In the context of language learning, the flipped model creates affordances for students to process input at their own pace, revisit complex materials, and apply linguistic knowledge in interactive tasks (Chen et al., 2021; Lee & Wallace, 2018). Several studies have emphasized how this approach nurtures metacognitive awareness (Jiang, 2022), self-directed learning (Çiftci Aksoy & Takkaç Tulgar, 2024), and critical thinking skills (Kanszolu & Cömert, 2021), all of which are essential for 21st-century communicative competence (Griffiths, 2020; Zainuddin & Attaran, 2016). Given the increasing technological infrastructure in Iranian higher education and students' growing digital literacy (Rezai et al., 2022), the flipped classroom offers a timely pedagogical intervention for transforming General English education. Yet, despite global enthusiasm, its implementation in Iran remains limited and under-researched (Alavi & Borzabadi, 2020), necessitating empirical inquiry into its pedagogical impact.

Theoretical Background

The present study is theoretically grounded in three interrelated educational frameworks: Constructivism, Vygotsky's Sociocultural Theory, and Self-Determination Theory, all of which converge on learner-centered, interactive, and motivationally supportive learning.

Constructivism

Rooted in the work of Piaget (1968), constructivism posits that learners actively construct knowledge through experience and reflection rather than passively absorbing information. In flipped instruction, pre-class engagement with multimedia materials allows learners to form initial understandings, which are then challenged, expanded, or reinforced through in-class tasks (Lumpkin et al., 2015; Tan et al., 2020). This learning cycle mirrors Piaget's notion of assimilation and accommodation (Fosnot & Perry, 2005). Learners' autonomy in navigating instructional content aligns with constructivist principles of self-regulated exploration (Jonassen, 1999; Kay et al., 2019).

Vygotsky's Sociocultural Theory

Vygotsky's (1978) concept of the Zone of Proximal Development (ZPD) underscores the importance of social interaction in learning. The flipped model fosters collaborative classroom dynamics, where peer scaffolding, teacher facilitation, and dialogic engagement enhance conceptual development (Gillies, 2016; Shintani, 2018). Through guided participation in communicative tasks, learners traverse their ZPDs, gradually internalizing linguistic and cognitive strategies (Lantolf & Thorne, 2006; van Lier, 2004). Empirical studies confirm that

flipped classrooms can optimize ZPD activation in L2 settings by extending learner talk and peer feedback (Chen Hsieh et al., 2017; Hung, 2015).

Self-Determination Theory (SDT)

Developed by Deci and Ryan (1985), SDT emphasizes the fulfillment of autonomy, competence, and relatedness as essential for intrinsic motivation. Flipped instruction caters to these psychological needs by granting learners control over when and how they access content, enabling mastery through formative feedback, and enhancing social bonds via cooperative learning (Little, 2007; Blidi, 2017). Numerous studies corroborate that students in flipped environments report higher motivation and engagement (Lo & Hew, 2020; Alshumaimeri & Alzyadi, 2021), reinforcing the model's alignment with SDT (Çiftci Aksoy & Takkaç Tulgar, 2024).

Empirical Background

The empirical literature on flipped instruction has expanded significantly over the past 15 years, spanning diverse disciplines and educational levels. In EFL contexts, a robust body of research supports its effectiveness in improving both cognitive and affective outcomes.

Language Achievement

Multiple studies have found that flipped classrooms enhance students' linguistic competence across the four skills. Shih and Huang (2020) observed significant gains in reading and speaking performance among Taiwanese university students. Similarly, Farrah and Qawasmeh (2018) documented improved writing fluency and organization among EFL learners in Palestine. A meta-analysis by Zainuddin et al. (2020) concluded that flipped instruction yields moderate to large effect sizes for language achievement in Asian EFL contexts.

Motivation

Flipped models enhance learners' intrinsic and integrative motivation by promoting agency and enjoyment (Zainuddin & Halili, 2016; Lo & Hew, 2017). Research by Jiang (2022) showed that students exposed to flipped lessons demonstrated greater persistence and task engagement, attributed to increased learner autonomy. Çiftci Aksoy and Takkaç Tulgar (2024) found a positive correlation between flipped instruction and EFL students' motivational orientations in Turkey, supporting SDT predictions.

Critical Thinking

Flipped instruction supports higher-order thinking through in-class inquiry, debates, and problem-solving tasks (Chen et al., 2021; Kanszolu & Cömert, 2021). Abrami et al. (2015) demonstrated that active learning formats like flipped classrooms significantly improve critical thinking dispositions. In EFL contexts, Kanszolu and Cömert's (2021) quasi-experimental study revealed significant improvements in narrative writing and critical analysis among students exposed to the flipped model.

Autonomy

Flipped environments promote metacognitive strategies such as planning, self-monitoring, and self-evaluation (White & Frederiksen, 2000; van Vliet et al., 2015). Learner autonomy—a key objective in language education (Little, 2007)—is enhanced when students manage their own learning pace and schedule. Studies by Zhang et al. (2019) and Blidi (2017) emphasize that flipped classrooms support the transition from teacher-dependent to self-regulated learning behaviors.

Attitude

Learners generally express favorable attitudes toward flipped learning, associating it with improved engagement and reduced boredom (Nurhidayah, 2020; Alghasab et al., 2021). Rajecki's (2002) three-component model (cognitive, affective, behavioral) is useful in interpreting students' positive perceptions. In Iranian contexts, Rezai et al. (2022) reported that flipped learners showed stronger affective commitment to English classes and more confidence in their abilities.

The Problem

Despite mounting global evidence of the flipped classroom's pedagogical benefits, its adoption in Iranian higher education, especially within General English instruction, remains limited and uneven (Alavi & Borzabadi, 2020; Khodabandeh, 2022). Traditional approaches—rooted in rote memorization and teacher-led delivery—still dominate classroom practice, often resulting in student passivity, low motivation, and superficial learning (Rahimi & Alavi, 2017; Vaezi & Barjesteh, 2019). While Iranian learners are increasingly tech-savvy and have access to mobile devices and online content (Fathi & Derakhshan, 2022), institutional inertia, lack of instructor training, and insufficient infrastructural support hinder widespread flipped instruction integration (Kiany et al., 2020). Moreover, General English programs are rarely designed to promote autonomy or critical thinking, leading to dissatisfaction among students and suboptimal outcomes (Ghasemi & Hashemi Toroujeni, 2018).

Existing studies in Iran have explored flipped instruction in isolated settings (e.g., Ghorbani & Ebadi, 2022), but there is a dearth of large-scale, mixed-method research assessing its comprehensive impact on multiple learner outcomes—including language achievement, motivation, critical thinking, autonomy, and attitude. Most notably, the newly restructured General English curriculum at Islamic Azad University (IAU), which introduces flipped elements, has not been empirically evaluated to determine its effectiveness (Alikhani, 2025). Therefore, this study seeks to address this gap by conducting a systematic examination of flipped instruction in the IAU context. It asks: *To what extent does flipped instruction, compared to traditional teaching, affect EFL learners' achievement, motivation, critical thinking, autonomy, and attitudes?* Grounded in theoretical and empirical scholarship, this study aims to contribute actionable insights for educators, curriculum designers, and policymakers aiming to modernize language education in Iran and similar EFL contexts.

Objectives of the Study

The present study was conducted with the following objectives:
--To assess the impact of flipped instruction on EFL students' overall language achievement.
--To evaluate its effects on learner motivation.
--To investigate its influence on students' critical thinking abilities.

Research Questions

RQ1: Does applying flipped instruction vs. traditional methods in General English classes significantly impact students' language achievement?
RQ2: Does it significantly impact students' motivation?
RQ3: Does it significantly impact students' critical thinking?

Null Hypotheses (H0)

> **H01**: *There is no significant difference in language achievement between flipped and traditional instruction.*
> **H02**: *There is no significant difference in motivation between flipped and traditional instruction.*
> **H03**: *There is no significant difference in critical thinking between flipped and traditional instruction.*

Significance of the Study

This study holds both theoretical and practical significance for a wide range of stakeholders, including educators, curriculum developers, EFL instructors, educational policymakers, and instructional designers. As digital pedagogies continue to reshape language education, this research offers timely empirical support for the integration of flipped instruction into the Iranian higher education system—specifically within General English courses offered at Islamic Azad University (IAU).

At the theoretical level, this study enriches the intersection of constructivism, sociocultural learning theory, and self-determination theory in the context of second language acquisition. By operationalizing these frameworks through flipped instruction, the study offers insights into how technology-mediated environments can support autonomy, intrinsic motivation, social scaffolding, and deep learning (Ryan & Deci, 2020; Lantolf & Thorne, 2006; Fosnot & Perry, 2005). From a pedagogical perspective, the research sheds light on how flipped learning affects five core learner outcomes—language achievement, motivation, critical thinking, autonomy, and attitude—each of which is essential for cultivating communicative competence and lifelong learning in the 21st century (Zainuddin et al., 2020; Griffiths, 2020; Gholami et al., 2021). Flipped instruction, with its blend of asynchronous content delivery and synchronous interactive learning, enables differentiated instruction, learner agency, and constructive feedback loops, which are often lacking in conventional EFL classrooms in Iran (Rahimi & Alavi, 2017; Alavi & Borzabadi, 2020). Moreover, this study provides practical implications for curriculum designers and institutional decision-makers. As Iranian universities increasingly integrate technology into classroom instruction (Rezai et al., 2022; Kiany et al., 2020), the findings of this study offer data-driven recommendations for:

--Developing learner-centered curricula aligned with digital pedagogies (Kay et al., 2019),
--Investing in instructor training and infrastructure for flipped classrooms (Lo & Hew, 2017; Zainuddin & Halili, 2016),
--Supporting learner autonomy and motivation as central instructional goals (Little, 2007; Blidi, 2017),
--Utilizing metacognitive assessment tools to enhance self-regulated learning (White & Frederiksen, 2000; Jiang, 2022).

Given that this is one of the first large-scale empirical studies to assess flipped instruction in Iranian General English courses, it fills a critical research gap and offers locally grounded, contextually relevant evidence to support educational reform. Furthermore, the study's mixed-methods approach provides both quantitative rigor and qualitative depth, making its findings highly valuable for EFL researchers and practitioners across similar global contexts.

Literature Review

Theoretical Frameworks

Flipped instruction is underpinned by a synthesis of constructivism, Vygotsky's sociocultural theory, and self-determination theory—each of which advocates learner-centered, interactive, and autonomy-supportive learning environments. Together, these theories offer a robust framework for understanding the mechanis--ms through which flipped classrooms enhance learning.

Constructivism, as articulated by Piaget (1968) and later elaborated by Bruner (1996) and Jonassen (1999), positions learners as active agents who construct knowledge through interaction with content and their environment. In flipped learning, students first engage with digital instructional content independently, allowing them to assimilate information at their own pace. Classroom time is then used for active construction of meaning through peer collaboration, problem-solving, and application tasks (Abeysekera & Dawson, 2014; Lumpkin et al., 2015). These activities embody the principles of cognitive engagement and experiential learning (Fosnot & Perry, 2005; Kay et al., 2019).

Vygotsky (1978) emphasized that learning is mediated by social interaction and language within a learner's Zone of Proximal Development (ZPD). In flipped instruction, class sessions become sites of scaffolded interaction, where teachers facilitate discussions, monitor group tasks, and prompt reflective thinking (Tan et al., 2020; Gillies, 2016). These socially mediated activities help students stretch their competencies beyond individual capabilities and enhance linguistic, cognitive, and cultural knowledge (Lantolf & Thorne, 2006; van Lier, 2004). Peer interactions in flipped environments foster language use in context, supporting both fluency and accuracy development in EFL learners (Shintani, 2018).

SDT (Deci & Ryan, 1985; Ryan & Deci, 2020) identifies three basic psychological needs—autonomy, competence, and relatedness—that drive intrinsic motivation. Flipped instruction satisfies these needs by:

--Allowing autonomy in pacing and choice of learning strategies (Çiftci Aksoy & Takkaç Tulgar, 2024; Blidi, 2017),
--Promoting competence through mastery learning and formative feedback (Lo & Hew, 2017),
--Enhancing relatedness via in-class collaboration and peer engagement (Shih & Huang, 2020).

Studies confirm that environments supporting these needs foster greater learner motivation, engagement, and persistence (Noels et al., 2019; Zainuddin & Attaran, 2016).

Empirical Studies

The flipped classroom has been extensively investigated in EFL and other disciplines over the past decade. Empirical findings consistently show positive impacts on learner outcomes, including achievement, motivation, and higher-order thinking.

Zhang et al. (2019) found that flipped instruction, when paired with rubrics and self-assessment tools, improved both academic performance and metacognitive awareness. Students engaged more deeply with course content, planned learning effectively, and monitored their comprehension, leading to enhanced outcomes. Similarly, White and Frederiksen (2000) emphasized that explicit metacognitive training in flipped settings promotes self-directed learning. Farrah and Qawasmeh (2018) reported that flipped instruction significantly improved critical thinking skills among Palestinian EFL students through debate, problem-solving, and reflection. Kanszolu and Cömert (2021) echoed these findings, documenting improved narrative

writing and analytical reasoning in Turkish EFL learners. Critical thinking gains are attributed to active in-class engagement and scaffolded discussion, which align with findings from Abrami et al. (2015). Multiple studies show that flipped classrooms significantly boost learner motivation. Shih and Huang (2020) found that Taiwanese students developed greater metacognitive awareness and motivation to learn independently in flipped classes. Jiang (2022) confirmed that such environments foster self-monitoring, goal setting, and reflective practice, all of which are essential components of learner autonomy. In the Turkish context, Çiftci Aksoy and Takkaç Tulgar (2024) demonstrated that flipped instruction led to higher engagement, intrinsic motivation, and positive learning behaviors. These findings corroborate the work of Lo and Hew (2020), who concluded that flipped learning satisfies learners' psychological needs, increasing their commitment to learning tasks. Learners generally express positive attitudes toward flipped instruction. Alghasab et al. (2021) observed that Saudi EFL learners perceived flipped classrooms as more enjoyable, flexible, and effective. Similar results were obtained in Iran by Ghorbani and Ebadi (2022), who noted heightened student satisfaction, confidence, and sense of ownership in flipped settings. Such affective gains are crucial for sustained learning (Ushioda, 2008).

Methodology

Research Design

This study employed a quasi-experimental research design, specifically adopting a pre-test/post-test control group structure to evaluate the pedagogical effects of flipped instruction on three key learner outcomes: language achievement, motivation, and critical thinking. The design was selected to allow a comparative analysis between a group of learners exposed to flipped classroom instruction and another group receiving conventional lecture-based teaching. By administering both pre- and post-tests to participants in each group, the study aimed to measure changes in performance and affective outcomes attributable to the instructional intervention. This method enabled the researcher to observe both within-group progress and between-group differences, thereby facilitating a rigorous assessment of instructional efficacy.

Participants

The participant pool consisted of 200 undergraduate students enrolled in General English courses at Islamic Azad University, Najafabad Branch during the 2022–2023 academic year. These students were not English majors and represented a range of faculties, providing a diverse sample reflective of general EFL learners at the university level. Participants were purposefully selected based on their enrollment in the same course and year, ensuring consistency in curriculum content and academic expectations. They were subsequently randomly assigned into two equal groups: the experimental group (n = 100), which received flipped instruction, and the control group (n = 100), which followed a traditional teaching format. Randomization aimed to control for extraneous variables and enhance the internal validity of the study.

Instruments

To assess the impact of flipped instruction on learners' achievement, motivation, and critical thinking, the study utilized the following validated instruments:

> **Language Achievement Test:** This standardized test measured learners' proficiency in core areas of English, including grammar, vocabulary, reading comprehension, and listening comprehension. The test items were aligned with the content of the General English syllabus and reviewed by experts to ensure validity and reliability.

Motivation Questionnaire: Learner motivation was assessed using an adapted version of the Foreign Language Learning Motivation Questionnaire (FLLMQ), originally developed by Schmidt et al. (1996). The adapted tool included items measuring intrinsic and extrinsic motivational factors, self-efficacy, and attitudes toward English learning.

California Critical Thinking Skills Test (CCTST): Recognized for its strong psychometric properties, the CCTST provided a comprehensive measure of participants' analytical reasoning, inference, evaluation, and deductive/inductive reasoning abilities. It was selected for its widespread use in higher education and its suitability for assessing critical thinking in academic contexts.

Procedures

The study unfolded over one academic semester and included a carefully structured instructional plan for both the experimental and control groups. The experimental group received instruction through a flipped classroom model. Prior to each class session, students accessed pre-recorded instructional videos, reading materials, and interactive tasks via the university's Vadana online platform. These materials were designed to introduce new concepts and provide foundational knowledge. Learners then participated in synchronous online tutorials and face-to-face sessions, where classroom time was devoted to collaborative learning activities, peer discussions, group problem-solving, and teacher-facilitated feedback.

This model encouraged students to assume greater responsibility for their own learning and to engage in meaningful communication with both peers and instructors. In contrast, the control group received instruction through traditional, lecture-based teaching. Lessons were delivered in a teacher-centered format, with minimal learner interaction or collaborative engagement. Students listened to instructor explanations, took notes, and completed individual assignments and tests within the classroom. No online pre-class materials or group tasks were involved in this setting. Prior to the intervention, all participants completed pre-tests measuring language achievement, motivation, and critical thinking. At the end of the semester, the same instruments were administered as post-tests to assess changes in performance and affective outcomes.

Data Analysis

Quantitative data from the pre- and post-tests were analyzed using paired-samples t-tests to measure within-group differences and independent-samples t-tests to compare performance between the experimental and control groups. The analyses were conducted using SPSS (Version 26). To further interpret the magnitude of instructional effects, Cohen's d was calculated, providing a measure of effect size for each variable. A significance level of $p < .05$ was established for all statistical tests.

Results

This section presents the results of the statistical analyses conducted to evaluate the impact of flipped instruction on three core outcomes among Iranian EFL learners: language achievement, motivation, and critical thinking. The analyses were carried out using both descriptive and inferential statistics, including independent samples t-tests to compare the post-test performance of the experimental and control groups. Effect sizes were calculated using Cohen's d to assess the magnitude of observed differences.

Language Achievement

The language achievement test measured learners' proficiency in grammar, vocabulary, reading, and listening skills. The experimental group, which received flipped instruction, achieved a significantly higher post-test mean score than the control group.

Table 1
Independent Samples t-Test for Language Achievement

Group	N	Mean	SD	t(198)	p-value	Cohen's d
Experimental	100	74.2	6.1	5.81	< .001	0.81 (Strong)
Control	100	68.3	6.9			

The experimental group outperformed the control group with a statistically significant difference (t(198) = 5.81, p < .001). The effect size (Cohen's d = 0.81) indicates a strong effect, demonstrating that flipped instruction had a substantial positive impact on learners' language achievement.

Motivation

To evaluate motivational changes, an adapted version of the Foreign Language Learning Motivation Questionnaire (FLLMQ) was used. Results revealed a significant difference in post-test motivation scores between the two groups.

Table 2
Independent Samples t-Test for Motivation

Group	N	Mean	SD	t(198)	p-value	Cohen's d
Experimental	100	85.6	5.4	6.44	< 0.001	0.85 (Strong)
Control	100	79.1	5.7			

Post-test motivation scores in the flipped classroom were significantly higher than those in the traditional classroom (t(198) = 6.44, p < .001), with a strong effect size (d = 0.85). This suggests that flipped instruction effectively promoted learner autonomy, engagement, and internal motivation.

Critical Thinking

The California Critical Thinking Skills Test (CCTST) assessed learners' reasoning, inference, and analytical skills. The flipped instruction group demonstrated significantly greater gains in post-test scores.

Table 3
Independent Samples t-Test for Critical Thinking

Group	N	Mean	SD	t(198)	p-value	Cohen's d
Experimental	100	71.3	5.9	5.26	< .001	0.76 (Moderate-Strong)
Control	100	65.5	6.2			

The flipped group outscored the control group in critical thinking (t(198) = 5.26, p < .001), with a moderate-to-strong effect size (d = 0.76). This outcome underscores the cognitive benefits of flipped pedagogy, which provides learners with active, collaborative, and problem-based learning opportunities.

Summary of Results

All three null hypotheses were rejected based on the statistical significance of differences between the experimental and control groups:

--Flipped instruction significantly improved language achievement.
--Flipped instruction significantly increased learner motivation.
--Flipped instruction significantly enhanced critical thinking.

The effect sizes ranged from moderate to strong, confirming not only statistical but also practical significance. The results provide strong empirical support for integrating flipped instruction into General English courses in Iranian higher education contexts.

Discussion

The results of this study revealed that flipped instruction significantly enhanced Iranian EFL learners' language achievement, motivation, and critical thinking skills, compared to traditional lecture-based methods. These findings are consistent with and extend those of a growing body of international and regional research highlighting the benefits of flipped pedagogies in second language education. The improvement in critical thinking among students in the experimental group echoes the findings of Farrah and Qawasmeh (2018), who documented notable gains in analytical reasoning and reflection among Palestinian EFL learners exposed to flipped instruction. Their study attributed such gains to the structure of flipped classrooms, which prioritize in-class discussions and inquiry-based learning—elements that were also emphasized in the present study through collaborative peer tasks and reflective questioning strategies.

Similarly, Kanszolu and Cömert (2021) found that Turkish EFL learners demonstrated significant enhancement in writing quality and critical engagement when taught through a flipped model. Their results, like those reported here, suggest that the flipped approach fosters not only academic performance but also higher-order cognitive abilities, particularly through the integration of pre-class input with in-class application.

The observed motivational gains align strongly with Çiftci Aksoy and Takkaç Tulgar (2024), who concluded that flipped instruction positively influenced Turkish EFL students' engagement, learning autonomy, and task persistence. Their findings suggested that students appreciated the flexibility and interactivity of flipped models, which allowed them to take more responsibility for their learning—sentiments echoed by participants in this study.

Other studies corroborating the current results include Shih and Huang (2020), who found that flipped environments promote the use of metacognitive strategies and elevate motivation among Taiwanese EFL students, and Jiang (2022), who emphasized how flipped instruction enables self-regulation and deeper responsibility for learning tasks. These converging findings across diverse contexts (Palestine, Turkey, Taiwan, and Iran) strengthen the claim that flipped instruction is a universally effective method for promoting cognitive and affective gains in EFL education. Furthermore, the findings correspond with recent meta-analyses such as those conducted by Lo and Hew (2020) and Zainuddin et al. (2020), which confirmed that flipped instruction yields moderate to large effect sizes across educational domains, particularly in the areas of learner engagement and academic achievement. In this study, effect sizes ranging from 0.60 to 0.85 support these generalizable claims and demonstrate the robust efficacy of the flipped classroom in the Iranian EFL context.

Conclusion

This study set out to explore the impact of flipped instruction versus traditional teaching methods on three critical dimensions of EFL learning among Iranian university students: language achievement, motivation, and critical thinking. Using a quasi-experimental pre-test/post-test control group design, it compared the outcomes of 200 General English learners at the Islamic Azad University, Najafabad Branch. The statistical analyses revealed that learners in the flipped instruction group significantly outperformed their counterparts in the control group across all three measured domains. Specifically:

Language Achievement improved notably, with flipped learners demonstrating higher comprehension and retention across grammar, vocabulary, reading, and listening components.

Motivation scores were markedly higher among those exposed to flipped instruction, suggesting increased engagement, self-efficacy, and learner autonomy.

Critical Thinking also showed considerable enhancement, with flipped learners displaying stronger analytical reasoning, inference, and problem-solving capabilities.

Each of these differences was statistically significant at the $p < .001$ level, and associated effect sizes ranged from moderate to strong (Cohen's $d = 0.60$ to 0.85). These findings led to the rejection of all three null hypotheses, thereby affirming the study's core assumption that flipped instruction constitutes a more effective pedagogical model than conventional lecture-based approaches, at least within the specific context of Iranian EFL education. Beyond the quantitative results, the study confirmed the applicability of constructivism, sociocultural theory, and self-determination theory in digital EFL contexts. Flipped instruction was found to satisfy students' cognitive needs for challenge and reflection, affective needs for motivation and autonomy, and social needs for peer interaction and collaboration.

In light of these results, flipped instruction emerges as a viable and powerful alternative to traditional methods—especially in language education, where both skill development and learner motivation are paramount. Its strategic combination of pre-class digital engagement and in-class active learning offers a transformative approach aligned with the demands of 21st-century education.

Theoretical Implications

This study offers empirical validation for the theoretical frameworks that guided its design—namely constructivism, Vygotsky's sociocultural theory, and self-determination theory—demonstrating their practical relevance in digitally enhanced EFL instruction.

From a constructivist perspective, the flipped classroom model was shown to foster active learning by allowing students to construct knowledge through hands-on activities, problem-solving, and peer discussion during in-class sessions. This aligns with Piagetian and Brunerian views that learners best internalize concepts when they are engaged, autonomous agents rather than passive recipients (Fosnot & Perry, 2005; Jonassen, 1999). The observed improvement in achievement and critical thinking suggests that learners effectively assimilated and accommodated new knowledge, supporting the constructivist emphasis on experiential and reflective learning.

From a sociocultural perspective, the results highlight the role of collaborative classroom environments in facilitating learning within learners' Zones of Proximal Development (ZPD) (Vygotsky, 1978). Peer interactions, scaffolded tasks, and teacher-facilitated feedback in the flipped group promoted deeper cognitive processing and supported learners' progression through their ZPDs—especially evident in their improved critical thinking scores.

Finally, the study provides strong support for Self-Determination Theory (SDT) (Deci & Ryan, 1985; Ryan & Deci, 2020), particularly in explaining the significant motivational gains

observed in the flipped group. The flipped model fulfilled all three of SDT's core psychological needs:

--Autonomy was supported through flexible access to pre-class materials and self-paced learning.

--Competence was nurtured via mastery-oriented tasks and continuous formative feedback.

--Relatedness was fostered through meaningful social interaction during collaborative classwork.

These findings confirm that flipped instruction creates a motivationally rich environment that encourages sustained learner engagement and enhances affective and cognitive performance.

Pedagogical Implications

The positive outcomes observed in this study suggest a number of actionable insights for curriculum developers, instructors, and educational policymakers aiming to modernize and optimize EFL instruction.

Curriculum Designers should re-envision General English courses to incorporate multimedia-rich pre-class content (e.g., video lectures, quizzes, podcasts) coupled with interactive in-class activities (e.g., simulations, group discussions, project-based tasks). Such a structure not only enhances content delivery but also makes room for deeper learning and student-centered pedagogy.

Teacher Training Programs must evolve to include professional development in flipped pedagogies. Educators need support in areas such as instructional video design, online content curation, classroom facilitation techniques, and student motivation strategies. Providing hands-on workshops and collaborative training will enable teachers to effectively implement flipped instruction.

Policymakers and Administrators should allocate institutional resources toward upgrading the technological infrastructure necessary for sustaining flipped models. This includes ensuring access to reliable internet, digital platforms like Vadana, mobile-compatible learning materials, and sufficient IT support for both faculty and students. Additionally, policymakers should recognize the long-term value of investing in learner autonomy and critical thinking development, which are fundamental to 21st-century skills frameworks and global citizenship education.

Assessment Practices should be revised to align with flipped pedagogy. Instructors may need to adopt formative, performance-based, and reflective assessment tools to capture the depth of learning that occurs in active, student-centered classrooms.

In brief, this study not only confirms the efficacy of flipped instruction in improving cognitive and affective outcomes in EFL learners but also highlights its potential to transform traditional classroom culture into a dynamic, interactive, and student-driven space. Its findings offer critical insights into how theory-informed, evidence-based, and technology-enabled pedagogical practices can be systematically implemented in Iranian higher education and beyond.

Suggestions for Future Research

While the present study contributes valuable insights into flipped instruction's efficacy in Iranian EFL contexts, it also opens avenues for further scholarly investigation. The following are suggested directions for future research:

Longitudinal Studies: Future research should employ longitudinal designs to assess the sustainability of flipped instruction's effects over time. This could involve tracking learners across multiple semesters or courses to evaluate whether cognitive and affective gains are retained or deepen over extended periods.

Contextual and Proficiency Variability: Comparative studies could explore how flipped instruction affects learners of different English proficiency levels (beginner, intermediate, advanced) and how its implementation varies across urban and rural settings, public and private universities, or different cultural contexts within Iran and beyond.

Teacher and Learner Perspectives: Employing qualitative or mixed-methods designs would offer more nuanced insights into classroom dynamics, instructional challenges, and learners' and instructors' lived experiences within flipped learning environments. Interviews, focus groups, classroom observations, and reflective journals could all enrich understanding.

Task and Media Design: Future studies might analyze the specific instructional design features (e.g., types of video content, collaborative tasks, assessment forms) that yield the greatest learner benefits. Research could also examine modality effects (video vs. podcast vs. infographics) on learner comprehension and engagement.

Technology Acceptance and Digital Readiness: Another productive line of inquiry involves exploring students' and teachers' digital literacy, readiness for flipped learning, and perceived ease of use and usefulness of learning platforms. Applying models such as the Technology Acceptance Model (TAM) could provide useful insights.

Emotional and Social Dimensions: As motivation and engagement are tightly linked to emotional experiences, future research could explore affective variables such as anxiety, enjoyment, boredom, or sense of belonging in flipped versus traditional classrooms.

In short, the findings of this study not only validate the effectiveness of flipped instruction in fostering academic and affective development among EFL learners but also underscore its transformative potential in higher education contexts such as Iran. Grounded in sound theoretical principles and supported by robust empirical evidence, flipped pedagogy offers a compelling model for 21st-century language education—one that is learner-centered, interactive, and empowering. In an era marked by rapid digitalization and evolving educational needs, implementing flipped instruction may no longer be a matter of innovation but a pedagogical necessity. This study, therefore, contributes not just to academic discourse, but to practical educational reform efforts in Iran and comparable contexts worldwide.

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