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INSTRUCTIONAL TOOLS**

**AULAS INVERTIDAS Y TECNOLOGÍA EDUCATIVA:
POTENCIANDO EL APRENDIZAJE DEL INGLÉS EN ADULTOS
UNIVERSITARIOS A TRAVÉS DE HERRAMIENTAS ASINCRÓNICAS**

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Flipped Classrooms and EdTech: Enhancing ESL Learning through Asynchronous Instructional Tools

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ABSTRACT

This theoretical study explores the integration of asynchronous educational technologies in flipped classrooms to support adult ESL learners in higher education. Drawing from adult learning theories—particularly andragogy and transformative learning—the article examines how platforms such as Microsoft Teams and Moodle can empower learners through flexibility, autonomy, and reflective engagement. Through a documentary analysis of pedagogical literature and technological affordances, the study highlights how flipped instruction aligns with the learning needs of adult students and the evolving role of technology in language education. Findings underscore the importance of purposeful instructional design and accessibility to ensure the success of flipped learning environments in university-level ESL programs.

Keywords: flipped classroom, adult learning theory, ESL, asynchronous tools, higher education

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Aulas invertidas y tecnología educativa: Potenciando el aprendizaje del inglés en adultos universitarios a través de herramientas asincrónicas

RESUMEN

Este estudio teórico analiza la integración de tecnologías educativas asincrónicas en aulas invertidas como apoyo al aprendizaje del inglés como segunda lengua (ESL) en estudiantes adultos universitarios. A partir de teorías del aprendizaje adulto—especialmente la andragogía y el aprendizaje transformativo—el artículo examina cómo plataformas como Microsoft Teams y Moodle pueden empoderar al estudiante mediante la flexibilidad, la autonomía y la reflexión. A través de un análisis documental de literatura pedagógica y de las posibilidades tecnológicas, el estudio destaca cómo la instrucción invertida se ajusta a las necesidades de aprendizaje de los adultos y al papel cambiante de la tecnología en la enseñanza de idiomas. Los hallazgos subrayan la importancia de un diseño instruccional intencionado y del acceso equitativo para garantizar el éxito de los entornos invertidos en programas universitarios de ESL.

Palabras clave: aula invertida, teoría del aprendizaje adulto, ESL, herramientas asincrónicas, educación superior

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Introduction

In recent years, the integration of educational technologies into higher education has redefined how language learning is approached, particularly through innovative instructional models such as the flipped classroom. This approach, which inverts the traditional teaching paradigm by shifting content delivery to pre-class time and dedicating classroom sessions to active engagement, has gained significant traction in English as a Second Language (ESL) programs. While much of the literature has focused on younger learners, there remains a gap in understanding how flipped instruction, supported by asynchronous tools, impacts adult learners at the university level—a population with distinct cognitive, motivational, and experiential characteristics.

This research seeks to address that gap by exploring how the use of asynchronous educational technologies in a flipped classroom setting can enhance language acquisition for adult ESL learners in higher education contexts. The need to address this topic arises from the growing demand for flexible, autonomous, and relevant learning environments that respond to the diverse needs of adult learners, many of whom balance academic responsibilities with work and family obligations. In this sense, the flipped classroom emerges as a promising model, aligning well with adult learning principles and offering a framework in which learners can engage with content at their own pace and apply knowledge collaboratively in classroom settings.

The theoretical foundation of this study draws upon key constructs from adult learning theories. Knowles' theory of andragogy emphasizes the importance of self-direction, life experience, and goal orientation in adult education, while Mezirow's theory of transformative learning highlights the potential for critical reflection and perspective change when learners are presented with meaningful, real-world tasks. These frameworks support the hypothesis that flipped classrooms, when combined with thoughtfully designed asynchronous tools—such as pre-recorded video lessons, discussion forums, interactive quizzes, and collaborative online platforms—can facilitate deeper engagement and improved language outcomes for adult learners.



The flipped classroom model aims to enhance student engagement by transforming them into active participants in their own learning process. With this approach, students independently explore course content—typically covered in class—at their own pace. This allows them to engage more effectively during in-person sessions, where they can apply the theory and participate in practical activities. It is believed that this method makes the content more meaningful and relevant to the learners.

Previous studies have considered the effectiveness of flipped learning in language instruction, generally noting increased motivation, greater classroom interaction, and improved learner autonomy (Hung, 2015; Webb & Doman, 2016; Alsowat, 2016). However, few have concentrated specifically on the university-level adult ESL population in Latin American contexts. This study contributes to the existing body of research by examining the implementation of flipped classroom methodologies in Costa Rican university settings, considering both the pedagogical potential and practical challenges involved.

The integration of educational technology has become a cornerstone of modern instructional practices, particularly in higher education. Learning management systems like Moodle provide structured environments for organizing materials, tracking student progress, and delivering diverse content formats such as videos, quizzes, and interactive modules (Martin et al., 2020). Meanwhile, collaboration platforms such as Microsoft Teams offer synchronous and asynchronous communication channels that promote discussion, teamwork, and community-building among learners (López-Pérez et al., 2011).

In flipped learning, EdTech plays a critical role by enabling the asynchronous phase of instruction. According to Bishop and Verleger (2013), flipped learning is “a student-centered learning environment that blends direct instruction with constructivist methods, delivered primarily through technology.” This means that tools like Moodle serve as the foundation for content delivery, while Teams supports interaction and scaffolding. These platforms not only enhance engagement but also promote digital literacy and accountability, which are especially relevant for adult learners navigating academic and professional landscapes.

The research is situated within the broader context of higher education in Costa Rica, where universities are increasingly adopting digital learning strategies to support student-centered instruction. However,

these shifts raise questions about institutional readiness, technological accessibility, and instructor preparedness. Through qualitative inquiry, this study investigates the perceptions of adult ESL learners and instructors regarding flipped instruction, with particular emphasis on the role of asynchronous tools in promoting autonomy, engagement, and communicative competence.

The primary objective of this research is to analyze how flipped classroom strategies, mediated by educational technologies, support the language learning process among adult university students in ESL programs. By doing so, the study aims to provide actionable insights for educators and institutions looking to innovate their teaching practices in line with contemporary adult learning needs.

METHODOLOGY

This study adopts a qualitative, theoretical research approach, grounded in the analysis of pedagogical theories, institutional practices, and technological frameworks relevant to flipped classroom instruction in university-level ESL education. Rather than collecting empirical data through instruments or fieldwork, the research engages in an analytical exploration of how asynchronous educational technologies—particularly Microsoft Teams and Moodle—support the learning processes of adult learners in higher education.

The methodology follows a documentary research design, relying on secondary sources, including peer-reviewed journal articles, institutional reports, theoretical texts, and case studies that examine the integration of flipped classroom methodologies in university ESL contexts. Theoretical foundations are drawn from Knowles' theory of andragogy, Mezirow's transformative learning theory, and perspectives on self-directed learning, which are used as analytical lenses to evaluate how asynchronous tools facilitate learner autonomy, engagement, and practical application of language skills.

The study specifically focuses on the educational use of Microsoft Teams and Moodle, two platforms widely adopted in many Costa Rican universities. These tools are examined for their role in enabling asynchronous interaction (e.g., recorded lessons, discussion threads, self-paced tasks) and their alignment with the principles of adult learning. Their affordances are analyzed based on functionality, accessibility, and pedagogical potential within the flipped classroom model.

Through a conceptual synthesis of existing literature and technological affordances, this research aims to identify patterns, challenges, and pedagogical implications of using asynchronous tools in the language classroom. The analysis is structured thematically, guided by key categories such as learner autonomy, flexibility, interaction, and relevance—categories aligned with adult learning principles.

The main limitation of this approach is the absence of direct empirical evidence from specific classrooms; however, the study compensates by offering a theoretically grounded interpretation that contributes to the academic dialogue surrounding flipped learning and adult ESL education.

RESULTS AND DISCUSSION

The analysis of theoretical and institutional literature reveals that the flipped classroom model, when supported by asynchronous tools such as Microsoft Teams and Moodle, aligns well with the needs and characteristics of adult learners in university-level ESL programs. Several core themes emerged from the reviewed sources: learner autonomy, flexibility, technological mediation, and active engagement.

First, a consistent finding across the literature is that flipped instruction fosters learner autonomy—a key principle in adult education as highlighted by Knowles (2015). Asynchronous content delivery through Moodle (e.g., recorded grammar tutorials, vocabulary quizzes, and reading activities) allows learners to take ownership of their learning process, engaging with materials at their own pace and according to their individual schedules. This level of control is especially significant for adult learners, many of whom balance academic pursuits with personal and professional responsibilities (Hung, 2015; Webb & Doman, 2016).

The flipped classroom is a pedagogical model that inverts the traditional approach to teaching by delivering instructional content outside of the classroom and moving active learning activities into the classroom. According to Bergmann and Sams (2012), pioneers of this model, “what used to be homework is now done in class, and what used to be classwork is now done at home.” This reallocation of time allows students to engage with material independently before class, enabling instructors to use face-to-face time for deeper exploration and application of concepts.

Research supports the effectiveness of this approach in language learning contexts. Hung (2015) found



that students in flipped ESL classrooms demonstrated higher motivation and engagement compared to those in traditional settings. The flipped model encourages learner-centered instruction, which is especially beneficial for language acquisition, as it increases opportunities for interaction, peer collaboration, and real-time feedback (Lo & Hew, 2017). These elements are essential for building communicative competence and fluency.

In parallel, Microsoft Teams has emerged as a dynamic platform for facilitating asynchronous communication and collaboration. Features such as threaded discussions, file sharing, and integrated calendars support reflective interaction outside the classroom, enabling students to process input and prepare contributions at their own rhythm. This format resonates with Mezirow's (2000) theory of transformative learning, which emphasizes the importance of critical reflection and dialogue in constructing new understandings. By promoting asynchronous exchanges, Teams allows learners to revisit previous interactions, clarify misunderstandings, and build more meaningful responses—an essential aspect of developing communicative competence in a second language.

Moreover, the flexibility of the flipped classroom model reduces dependence on synchronous, instructor-led input, creating space for more targeted in-class activities. In the ESL context, this shift enhances opportunities for interaction, application, and corrective feedback, all of which are crucial for language acquisition. Moodle's activity logs and completion tracking features allow instructors to monitor student progress and tailor classroom time to the learners' specific needs, an approach consistent with learner-centered pedagogy.

However, the review also highlighted some challenges. For instance, studies (Alsowat, 2016; Lee & Wallace, 2018) noted that technological access and digital literacy can be barriers, particularly in under-resourced environments or among older adult learners unfamiliar with online platforms. Furthermore, the role of the instructor is critical in designing meaningful asynchronous tasks and scaffolding student engagement—an aspect that, if neglected, may lead to superficial participation and reduced learning outcomes.

Adult learning theories provide a strong foundation for understanding how to effectively implement



flipped instruction at the university level. Knowles (1980) argues that adult learners are autonomous, experience-rich, and driven by internal motivations. He highlights that adults “need to know why they need to learn something before undertaking to learn it,” which aligns with the flipped classroom’s emphasis on relevance and self-direction. These learners thrive in environments that offer flexibility and allow them to connect new knowledge with past experiences.

In addition, transformative learning theory, introduced by Mezirow (2000), emphasizes the importance of critical reflection and meaning making in adult education. He posits that “learning is understood as the process of using a prior interpretation to construe a new or revised interpretation of the meaning of one’s experience.” The flipped classroom’s structure—where learners prepare individually and engage in critical discussion and application during class—creates ideal conditions for this kind of transformative process, particularly in language learning where personal meaning and expression are vital.

Despite these limitations, the evidence suggests that when properly implemented, the integration of asynchronous tools within a flipped classroom can enhance engagement, promote learner responsibility, and support the development of communicative language skills in adult university learners. The synergy between educational technology and adult learning theory presents a powerful framework for innovation in ESL instruction, particularly in higher education contexts that seek to balance academic rigor with learner-centered flexibility.

In theoretical terms, the flipped classroom model presents a unique advantage by redistributing instructional time to promote higher-order thinking. By relocating the initial exposure to new content outside the classroom, students come to class with a foundational understanding, allowing for deeper in-class engagement with problem-solving, discussion, and authentic language use. This shift aligns with Bloom’s revised taxonomy, which places “remembering” and “understanding” at the lower levels of cognition—tasks that can be done individually—and “applying,” “analyzing,” and “creating” as activities best suited for collaborative and guided environments (Anderson & Krathwohl, 2001). Adult learners, who often seek practical, real-world application of content, find this approach especially



appealing, as it allows them to derive meaning through context and peer exchange.

Another key finding from the theoretical review is the potential for educational technology to bridge gaps in accessibility and engagement. Platforms like Moodle enable instructors to create diversified, inclusive materials that cater to different learning needs and preferences, including videos, discussion forums, quizzes, and supplementary resources. Meanwhile, Microsoft Teams supports synchronous and asynchronous interaction, giving students the option to collaborate in real time or on their own schedule. This adaptability is particularly important for adult learners, many of whom balance studies with work and family responsibilities. When technology is used intentionally and not merely as a content repository, it can greatly enhance both motivation and performance.

Furthermore, the discussion reveals that flipped learning fosters a culture of continuous reflection and self-regulation, key attributes in adult education. Learners are expected not only to absorb information but to evaluate their understanding and seek clarification proactively. This empowers them to become agents of their own learning process, echoing Knowles's (1980) emphasis on learner responsibility and initiative. Instructors also benefit by transitioning into facilitators and learning partners rather than sole content deliverers, which opens space for a more dynamic and reciprocal classroom environment. These theoretical results suggest that flipped classroom designs, supported by robust digital tools, are well-positioned to meet the evolving demands of adult language education.

CONCLUSION

This theoretical study explored the intersection of adult learning theories and flipped classroom methodologies in the context of university-level ESL instruction, with a specific focus on the role of asynchronous tools such as Moodle and Microsoft Teams. Drawing on the principles of andragogy (Knowles, 2015) and transformative learning theory (Mezirow, 2000), the analysis demonstrates that flipped models supported by asynchronous technologies hold significant potential for empowering adult learners through increased autonomy, flexibility, and meaningful engagement.

The integration of flipped classroom methodologies and educational technology tools such as Moodle and Microsoft Teams have emerged as a powerful strategy for enhancing language learning among adult



university students. This pedagogical approach supports the shift from passive reception of content to active knowledge construction, aligning with adult learning theories that emphasize autonomy, relevance, and experiential learning. The flipped model fosters student engagement by giving learners ownership of their educational process, allowing them to prepare at their own pace and arrive in class ready to participate meaningfully.

Adult learners benefit particularly from flipped environments because these contexts cater to their need for flexibility, self-direction, and practical application of knowledge. Drawing from Knowles's andragogy and Mezirow's transformative learning theory, it is clear that adult learners require more than content delivery; they need spaces that encourage critical thinking, dialogue, and reflection. The use of asynchronous tools not only accommodates diverse schedules and learning styles but also promotes the development of essential 21st-century skills such as digital literacy and independent learning.

Self-directed learning involves students who are actively engaged in their own educational journey, taking initiative and responsibility for their development. Adult university learners, characterized by their high level of independence, are particularly well-suited for this process. Motivated by a personal desire to acquire new knowledge, they thrive in environments that allow them to guide their own learning. As Malcolm Knowles (2015) emphasizes, adult learners often make connections between new information and their prior experiences, which enhances their ability to learn and retain new concepts.

Rather than relying solely on teacher-led instruction, flipped learning repositions adult students as active agents in their own learning process. Tools like Moodle and Teams enable asynchronous interaction, resource access, and self-paced engagement—characteristics that align well with the diverse responsibilities and self-directed learning needs typical of adult learners in higher education. These platforms also support opportunities for reflection, collaboration, and practical language use—key elements for fostering communicative competence in second language acquisition.

Educational technologies serve as enablers in this transformation. Platforms like Moodle allow instructors to design well-structured, accessible content that students can explore independently, while tools like Microsoft Teams foster communication and collaboration both inside and outside the



classroom. The synergy between these platforms and the flipped model ensures that class time is optimized for language practice, peer interaction, and instructor support, ultimately contributing to better learning outcomes and higher learner satisfaction.

Nonetheless, the effective implementation of such models demands thoughtful instructional design, technological support, and ongoing pedagogical reflection. Without these, there is a risk of superficial engagement or exclusion of learners with limited digital access or confidence.

Based on the findings of this theoretical study, educators are encouraged to adopt flipped classroom strategies in higher education language programs, especially when teaching adult learners. It is recommended that instructors receive proper training in digital pedagogy and instructional design to maximize the potential of these tools. Moreover, course design should prioritize clarity, consistency, and learner support to ensure students can navigate the platforms effectively and take full advantage of asynchronous content.

Future research could explore the practical implementation of flipped classrooms in diverse educational contexts, including longitudinal studies that assess learner outcomes over time. Qualitative investigations could provide insights into students' lived experiences, perceptions, and challenges when engaging with flipped methodologies. Additionally, comparative studies between traditional and flipped classrooms in adult ESL instruction would offer valuable evidence for further validating the effectiveness of this model in fostering deeper learning, language proficiency, and learner autonomy.

In closing, this study contributes to the academic discourse on technology-enhanced language learning by offering a theoretically grounded perspective on the flipped classroom's relevance for adult ESL learners. Future research might expand on this work through empirical classroom-based studies or comparative analyses across different educational and cultural contexts.

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