ARTIFICIAL INTELLIGENCE ENHANCES FLIPPED LEARNING ENVIRONMENTS FOR DEVELOPING B1-LEVEL LEARNERS' PRODUCTIVE SKILLS

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Abstract. *The thesis aims to investigate how AI might enhance flipped learning settings, specifically in enhancing the productive skills of B1-level learners. This work examines the effectiveness of the flipped classroom model within student-centred foreign language teaching, with a particular focus on developing productive skills of B1-level learners. It further explores how Artificial Intelligence (AI) enhances flipped learning environments by providing personalized feedback, increasing learner autonomy, and improving overall communicative competence.*

Keywords: *Artificial Intelligence (AI), flipped learning environment, student-centred, foreign language teaching, communicative competence*

Digital technology developments have sped up the transition to more adaptable, student-centered teaching approaches, because it reallocates teacher assistance to classroom time while allowing students to access instructional content independently before class, the flipped classroom first methodically defined by Bergmann and Sams[16] – has become a popular strategy for language learning.

Differentiated instruction is supported, autonomy is increased, and active learning is encouraged. Simultaneously, artificial intelligence (AI) has taken center stage in contemporary language instruction. Language leaning has become more accessible and flexible thanks to AI powered apps like speech recognition, grammar checkers, automatic writing assessment systems, and tailored learning platforms.

Holmes at al.[17] claim that AI improves the quality of training and evolution by enabling quick feedback, variable pacing, and precision learning. The purpose of this thesis is to explore the role of AI in strengthening flipped learning environments, particularly in improving **B1-level learners' productive skills**. At this level, students can communicate in everyday situations but still struggle with coherence, accuracy, pronunciation, and lexical range. This study argues that AI tools enhance pre-class preparation, scaffold in-class tasks, and provide post-class improvement opportunities, thereby making flipped classrooms more efficient and personalized.

The flipped classroom model reassigns traditional lecture content to pre-class time and reserves classroom time for collaborative, communicative, and problem-solving activities. As defined by **Bishop & Verleger (2013)**, flipping requires two elements:

1. **Interactive group learning inside the classroom**, and

[16] Bergmann, J., & Sams, A. (2012). *Flip Your Classroom: Reach Every Student in Every Class Every Day*. ISTE.
[17] Holmes, W., Bialik, M., & Fadel, C. (2022). *Artificial Intelligence in Education: Promises and Implications*. Center for Curriculum Redesign.

2. **Direct instruction delivered individually outside the classroom**, typically via video or digital content.

For language learning, flipped instruction supports:

- more speaking practice in class,
- differentiated tasks,
- more time for communicative activities, and
- greater learner autonomy (Abeysekera & Dawson, 2015).

AI's use in language teaching is grounded in the concept of intelligent tutoring systems, personalization, and automated feedback (Luckin, 2018, Zawacki-Richter et al., 2019).

AI tools can:

- evaluate spoken and written language,
- detect grammatical and lexical errors,
- provide pronunciation analysis,
- adapt materials to learners' needs, and
- track progress through analytics.

AI-enhanced learning environments align with constructivist pedagogy by enabling students to actively build knowledge with real-time support.

The flipped classroom demands strong pre-class preparation and rich in-class interaction. AI ensures:

- **better preparation** through personalized pre-class tasks,
- **higher-quality interaction** by giving students confidence and scaffolding,
- **continuous learning** through automated feedback after class.

Thus, AI acts as a bridge that strengthens the effectiveness of the entire flipped cycle.

Before class, students typically watch videos and complete comprehension tasks. AI expands this process by offering:

a. Adaptive Vocabulary and Grammar Practice

Platforms such as *Quizlet AI*, *Duolingo Max*, and *WordUp* introduce vocabulary at appropriate difficulty levels. For B1 learners, this helps solidify target structures before producing language.

Example pre-class task: Students watch a teacher-recorded video explaining «giving opinions." An AI tool then generates vocabulary lists (e.g., *I believe that…, From my perspective…, It seems to me…*) and offers personalized quizzes.

b. AI-Based Speaking Warm-Ups

Tools like *ELSA Speak*, *Google Speech Recognition*, or *ChatGPT Voice Mode* allow students to practice pronunciation and learn model responses.

Example:

Students practice answering the prompt: «Describe a memorable trip." The AI evaluates pronunciation accuracy (e.g., stress on *memorable*) and provides instant correction.

c. AI-Generated Writing Starters

For writing tasks, AI provides sentence frames, outlines, and idea maps.

Example:

AI generates a mind map for «Advantages of Online Learning" with three main points and sample supporting details.

This pre-class support ensures all students come to class better prepared and more confident.

During the lesson, students engage in communicative tasks. AI enhances this stage by:

a. Supporting Collaborative Writing

Students work in groups while using AI-powered platforms such as *Grammarly GO* or *Google Docs AI* to co-edit texts.

Example task:

Students write a 120–150-word opinion paragraph on «Public transportation vs. private cars."

AI highlights grammar errors but the teacher guides students to correct them independently.

b. Real-Time Speech Coaching

Voice-based AI applications help students practice dialogues, role-plays, or presentations before performing in front of the class.

Example:

Before a class debate, students record their arguments using an AI speech tool that analyzes fluency, intonation, and filler words.

Using rubrics embedded in AI systems, learners provide structured feedback to classmates' speaking or writing samples. This develops metacognitive awareness.

Example:

Students upload voice messages describing their hobbies. AI provides model feedback («Your pronunciation of 'interested' needs adjustment"), and peers add comments.

This AI-supported environment boosts engagement and confidence among B1 learners.

After class, AI provides independent practice and data analytics for teachers.

Systems like *Write & Improve (Cambridge)* or *ChatGPT-enhanced revision tasks* help students rewrite texts with guided suggestions.

Example:

Students submit the first draft of their weekend diary. AI corrects sentence structure (e.g., run-on sentences) and suggests cohesive devices (e.g., *after that, finally*).

Students can record short monologues daily. AI tracks progress in:

- word choice,
- speaking speed,
- pronunciation accuracy.

AI significantly strengthens flipped learning environments by personalizing pre-class preparation, enriching in-class communicative activities, and supporting ongoing post-class practice. For B1-level learners, AI improves productive skills by providing adaptive scaffolding, real-time feedback, and opportunities for autonomous learning. As language education evolves, AI-enhanced flipped instruction represents a powerful and sustainable pedagogy aligned with modern educational demands.

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