



KAPITEL 15 / CHAPTER 15¹⁵ THE USE OF AI TECHNOLOGY IN LANGUAGE LEARNING

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Introduction

In recent years, with the emergence of new technologies, the methods of language teaching and learning have been fundamentally transformed. This shift has opened new opportunities for both language learners and educators. The use of Artificial Intelligence (AI) in education has become widespread, leading to the replacement of traditional educational methods with new approaches.

This study explores the current role played by innovative technologies in language teaching and learning. It investigates different methods and tools used to enhance the educational process and improve learners' language skills.

Numerous investigations in this field have shown that Artificial Intelligence in English Language Teaching (ELT) is the most realistic way in which English language teachers and learners can use it today. English is one of the most common world languages which has a systematic but peculiar grammatical structure.

15.1. AI-powered technologies in language learning

Understanding English verb system, articles, and sentence structure can be often challenging for English language learners. Thus, the approach to English language learning can be made more efficient through the use of such innovative technologies as artificial intelligence (AI), machine learning (ML) and natural language processing (NLP). Our aim was to study the role of Artificial Intelligence (AI) and AI technologies in English language learning and to analyze new AI-based methods currently used in this field. Nowadays AI technologies, especially in natural language processing (NLP) and machine learning (ML), have facilitated the creation of advanced language learning applications (apps). These applications are used to customize learning according to the

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specific requirements, preferences, and level of each user. AI provides a positive learning environment for each user depending on the learner's level of language proficiency, his needs and objectives.

According to some researchers AI enhances practical abilities like writing and offers an effective simulation dialogue platform like spoken English . It maximizes the teaching impact of English in ELT while increasing learners' practical skills. With the advancement of technology and platforms, learning languages has become much simpler. Artificial intelligence technology provides the chance to enhance English linguistic competence enabling students to learn much faster due to the access to a large number of different AI-based learning technologies.

At present, AI has found broad application in many educational institutions. Initially, AI was integrated through computer and related technologies, which led to the creation of web-based and online intelligent language learning platforms such as Duolingo, Babbel, Rosetta Stone and others. Further advancements involved the use of embedded computer systems alongside other technologies, including web-based chatbots. These tools have been employed to autonomously or collaboratively assist instructors in their teaching process. Through these platforms, educators are able to perform such tasks as creating, reviewing and grading assignments more efficiently.

15.2. Language learning apps - a new approach in education

Language learning applications have become an essential aid for those who strive to acquire a new language. Today, these apps offer interactive lessons, grammar exercises, vocabulary drills, and pronunciation practice to further improve the learning experience. Users have the possibility to advance at their own pace, tailoring their language studies to their requirements. These platforms employ machine learning algorithms to evaluate user progress and deliver personalized feedback and suggestions, enhancing the effectiveness of learning.

These applications provide users with convenience and flexibility, enabling



access to language lessons at any time and from any location using smartphones, PCs, or tablets. A significant feature of these apps is the incorporation of gamification elements such as quizzes, events, and rewards. For instance, they may utilize points, badges, and leaderboards to motivate users to complete lessons, monitor their progress, earn points, and engage in friendly competition with other participants.

Using unique algorithms, these applications create lessons to match the skill levels, learning preferences, and individual interests of users. Furthermore, they facilitate interaction with native speakers, thereby offering conversational practice to improve users' communication skills.

In recent times, numerous online language learning apps and platforms have emerged thanks to the introduction of AI technologies into education.

The process of replacing traditional teaching methods with innovative AI-based approaches still continues.

AI-powered language learning apps represent a rapidly advancing trend in education, revolutionizing the way individuals acquire linguistic proficiency with the help of artificial intelligence technology.

15.3. Some popular language learning apps

Among the most popular AI-powered language learning apps of today we can mention Duolingo.

Duolingo. It was founded in 2011 and is considered to be a leader among language learning apps. By using a Duolingo application one can learn different languages in an interactive way. Duolingo usually starts by evaluating its users to determine their skill levels and then provides them with teaching materials according to these levels. Duolingo will not make available any English-language content until it has first determined the user's current level of proficiency in the language.

Due to Duolingo's contextual presentation, students learn to use vocabulary words and grammar rules across different contexts. The platform constantly revises prior



material, incorporating previously learned words and grammar into new lessons.

Duolingo widely employs a game-like format that involves various activities. Thus, you can learn new words through **a vocabulary game**. *e.g.* you enter the virtual market, where you're greeted by vendors selling fruits, vegetables, and other items. The game prompts you to click on each item to learn its English name.

Another game-like format helps you learn **common phrases and sentences** for different situations. For example, you visit a park where you encounter various characters. They greet you with common English phrases like "Hello, how are you?" You're given multiple-choice options to respond, earning points for correct answers.

The app also provides learners with the ability to practice their **listening and speaking** skills. For example, in the cafe, you listen to a recorded dialogue between two people ordering food. Then, the game asks you to repeat the phrases aloud for pronunciation practice. The app's speech recognition technology evaluates your pronunciation and gives a feedback.

Recently Duolingo has made significant updates and innovations in the field of its teaching methods. It started to use artificial intelligence (AI) technology instead of human instructors and content developers. In 2020 Duolingo introduced an AI model called '**Birdbrain**' to create tasks and to adjust their difficulty levels according to learners' language proficiency. How does it work in practice? An English content developer writes a "prompt," or a set of commands, that "explains" to the AI model how to write an exercise. For example, it is required to create an exercise that uses the verb 'TO GO'. AI model is also given a set of rules which it has to use, *e.g.*:

1. The exercise must contain 80 characters
2. The exercise must have 3 answer options
3. The exercise must contain The Past Simple Tense and The Present Perfect Tense.
4. The exercise must be at B2 level.

After that, the system may create the following multiple choice exercise:

Task: Choose the correct form of the verb "TO GO" in the sentences below:

1. Last weekend, they _____ to the beach for a picnic.
went b) have gone c) has gone



2. Sarah _____ to Paris twice this year.
a) went b) has gone c) goes
3. When was the last time you _____ to a concert?
a) went b) have gone c) go

Some of these instructions remain the same for certain types of exercises. For example, Rules 1 and 2 don't change. Other instructions change for every new exercise. Rule 3 depends on the grammar topic of the lesson. Rule 4 changes depending on the course and the level of difficulty. After this fixed and variable information is put in the next prompt, the model immediately produces another exercise based on new criteria.

One of the latest Duolingo's innovations was the introduction of **AI chatbots** that can create human-sounding text on any requested topic.

This new feature is used to provide learners with **Language practice**. The learners can practice speaking English with the AI chatbot and ask questions on various topics, such as daily life, food, travel, etc.. During these sessions, the AI chatbot is capable of correcting errors made by the learner. If the learner provides an incorrect answer or makes a mistake, the chatbot offers immediate feedback, including corrections in grammar, vocabulary, pronunciation or sentence structure. This prompt feedback feature is a key advantage of using AI chatbots for language learning, enabling learners to enhance their skills in real-time through practice - and-error correction.

AI chatbots are also efficient in teaching **Grammar**. They provide explanations on verb tenses, sentence structure and other grammatical aspects. During grammar practice, the AI chatbot immediately detects learner errors and provides the necessary corrections. Learners can then review the correct answers and learn from their mistakes. This instant feedback enables learners to practice and improve their grammar skills almost on the spot.

AI chatbots serve as effective assistants in expanding learners' vocabulary. They provide new words and phrases in context, offering prompts and detecting errors during vocabulary expansion lessons. Learners, when encountering unfamiliar words, receive hints, definitions, and contextual clues from the chatbot, which helps them understand how to use the new words in different contextual environments.



If the learner makes a mistake in selecting the correct translation or when answering a question related to the vocabulary, the chatbot will immediately respond. This response can include the correct answer and explanations to help the learner understand his mistake.

Babbel. Another popular language learning application is Babbel. It is known for its AI-based innovative and highly effective approach to language teaching. This language learning app is currently using the following techniques to enhance the efficiency of language acquisition:

Adaptive Learning Paths. Babbel uses AI algorithms to analyze user performance and adapt learning paths accordingly.

For example, after a learner completes the initial lessons, the platform evaluates his progress and performance. If the user shows good results with vocabulary but encounters difficulties with verb tenses, Babbel's Adaptive Learning Paths will respond accordingly. It may prioritize lessons and exercises focused on verb tenses, offering extra practice and reinforcement in this aspect. The platform may also provide personalized feedback and recommendations based on the user's individual learning requirements. As the user advances and his language proficiency grows, Babbel continues to adapt the tasks to suit the learner's new level of linguistic competence.

Speech Recognition Technology. Babbel app uses AI-powered speech recognition technology to assess learners' pronunciation. This feature allows language learners to practice their pronunciation by speaking words, phrases, and sentences aloud. In this task, they can listen to audio recordings of words or sentences and are prompted to repeat them. The platform's AI-powered Speech Recognition technology analyzes learners' pronunciation and provides immediate feedback on accuracy. Learners can see visual indicators showing how closely their pronunciation matches the native speaker's pronunciation. This task helps learners improve their speaking skills and develop accurate pronunciation.

Personalized Recommendations. Babbel's AI system evaluates individual user preferences, past learning experiences, and objectives to offer customized lessons. For example, if a user shows a particular interest in vocabulary related to travel, the



platform may recommend lessons which include topics such as arranging accommodations, ordering meals in restaurants, and seeking directions to align with the user's specific learning aims and preferences.

Natural Language Processing (NLP). Babbel makes use of NLP technology to improve language comprehension. Through interactive exercises and conversations, users interact with AI-powered language models simulating natural conversations. Users participate in conversations covering various everyday topics, like introducing oneself or ordering food. By interacting with these AI models and responding to prompts, learners practice conversational skills within a realistic context. The AI models provide feedback and practical tips based on users' responses thus improving their speaking skills.

Progress Tracking and Analysis. Babbel's AI algorithms track users' progress and performance. Babbel monitors users' advancement as they finish lessons and tasks within the application. For instance, once a user completes a lesson on greetings, the platform records his results of that particular lesson. Users can access their progress report, detailing completed lessons, quiz scores, and overall language proficiency level. This function enables users to monitor their learning progress and identify areas for additional practice and further improvement.

Contextual Learning. AI-powered contextual learning features help users understand language in real-life contexts. Babbel provides vocabulary and grammar tasks within real-life context or situations. Instead of learning words and phrases in isolation, users learn them in relevant contexts, such as making acquaintances, traveling, or workplace situations. This approach helps learners understand how language is used in practical situations and facilitates better retention of a new vocabulary. For example, instead of just learning the word "airport," users may encounter it in a dialogue about traveling or booking a flight, allowing them to better understand the word usage in context.

Content Personalization. Babbel's AI algorithms personalize content based on users' interests, proficiency level, and learning preferences. For instance, if a user aims to learn English for travel purposes, Babbel's personalized system takes this into



account. It then prioritizes lessons and exercises related to travel vocabulary, such as greetings, directions, transportation, and hotel bookings. This customized approach ensures that the learning content aligns with the user's interests and goals, enhancing motivation and effectiveness.

Conclusions.

Modern AI-powered language learning applications like Duolingo, Babbel and others play a vital role in supporting language learners today. These platforms continuously enhance and innovate language teaching methods through AI technology, leading to a more effective language acquisition process. This improvement in language learning, aided by AI technologies, is expected to have a positive impact on learners' progress and their overall language proficiency. Language learners who have experienced innovative methods in language acquisition find the benefits of learning vocabulary and pronunciation through gamification. However, some users feel that the grammar instruction in most applications could be improved.