26. USE OF GENERATIVE AI FOR FOREIGN LANGUAGE LEARNING GAMIFICATION

Hrabouski A.K.

Belarusian State University of Informatics and Radioelectronics
Minsk, Republic of Belarus

Kaspiarovich N.G. – Senior Lecturer

The purpose of this paper is to analyze the growing influence of gamification on the foreign language learning industry, combined with the rise of Generative AI. A plan for the creation of a gamified AI-powered Telegram bot is provided.

Initially, it is necessary to state what the term "gamification" means and how it differs from game-based learning. In the latter, actual games are used while learning, and a prime example of that is the game Minecraft: Education Edition, which is used to teach science and coding. Gamification implies another thing – the whole process is turned into a game, regardless of whether there are actual games or not. Hallmarks of gamification are points, badges, rankings, avatar creation. Gamification can be applied to any sphere of human life, but here we will use the term "gamified learning", more broadly known as simply "gamification of learning". Most optimistic studies in the field report the performance improvement in gamified learning up of to 89 % compared to traditional lecture education [1]. While some studies claim to prove that gamified learning is no panacea and its results differ considerably depending on the personality type of a learner [2], it might be unprofitable to neglect this approach completely. Duolingo, the most popular app for learning foreign languages in the world, is a quintessential example of gamified learning. The app provides the learners with the opportunity to get points and badges and rise up in ratings. Thus, it is evident people enjoy gamified learning, and they appreciate when it is applied to foreign languages, which is the focus of our study.

Undoubtedly, Artificial Intelligence (AI) is a powerful tool for language learning enhancement. According to the paper published by Cambridge in 2024, AI is broadly used in this field – not only as a writing assistant, but even as a conversation partner and a personalized tutor [3]. State-of-the-art Generative AI neural networks, and most importantly, ChatGPT-4o from OpenAI and R1 from Deepseek, can enable any language learner to strike up a conversation or develop personalized vocabulary tasks instantaneously and at will. AI-powered language learning platforms are mushrooming, such as Babbel and Jumpspeak, while tutors are calling for the use of initially non-learning tools, e.g. CharacterAI, for language practice.

Now that we have two approaches that are revolutionizing the field, which are gamification and Generative AI, it is reasonable to examine their possible integration. Even though Duolingo has certain AI-features, we would like to demonstrate here the example of Xeropan platform, that attracted our attention due to its vivid gamification. It features a system of levels, attention-gripping bonus lessons activated for achievements and AI-powered conversational chatbot in addition (Figure 1).
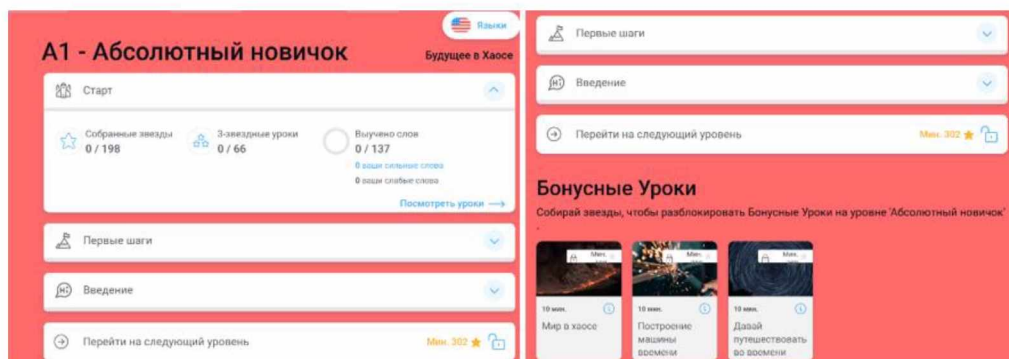

Figure 1 – Xeropan interface

While Xeropan and other gamified systems like Duolingo certainly keep their user engaged, in terms of accessibility they likely lose to another technology, which is currently gaining popularity – Telegram bots. Figure 2 illustrates the AI-powered FalaBola bot. It can recognize speech, generate both speech and text and correct mistakes. FalaBola isn't fully gamified. However, there are a lot of games, e.g. roleplays of certain life scenarios.
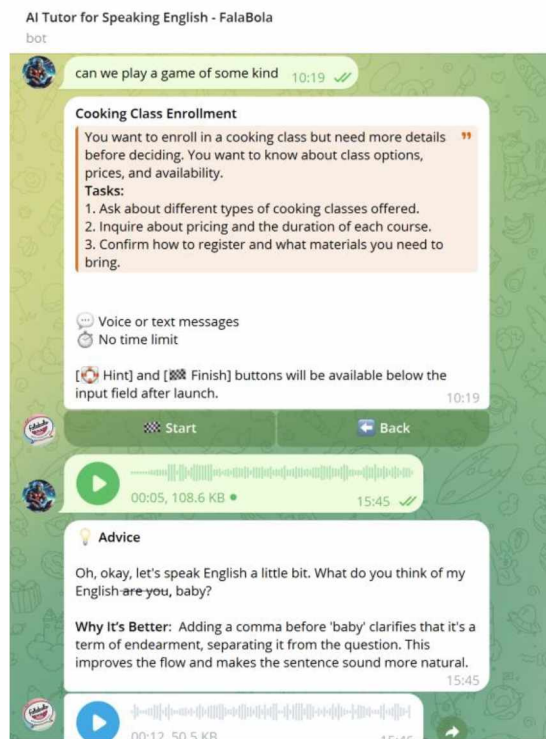

Figure 2 — AI tutor for speaking English

Telegram bots are widely recognized as effective tools for education for several reasons. Firstly, they are highly accessible, as they are integrated into a leading messaging and social media platform, making them a seamless part of daily life. Additionally, they offer strong integrative capabilities, allowing for easy integration into various chats and providing flexibility in feature expansion through existing technology. Powered by AI and incorporating gamification, Telegram bots are approaching the quality of traditional educational platforms in both knowledge delivery and user engagement. Furthermore, they are remarkably user-friendly and, perhaps most importantly, cost-effective. They minimize financial and human resource expenditures by leveraging an optimized frontend, enabling automatic scaling to accommodate a growing number of users, requiring minimal updates, and eliminating the need for multiple payment services due to the built-in Telegram payment service.

As a practical extension of this research, we propose a structured plan for developing a similar AI-powered language teaching bot, followed by its actual implementation. The core functionality of a Telegram bot is relatively simple to develop, even for first-year university students. It can be done in Python using the Aiogram library, which is specifically designed for Telegram bot development. To integrate AI capabilities, the bot can leverage free large language models (LLMs), such as those provided by the TogetherAI service. Initially, for a limited number of users, the developer's personal computer could serve as a hosting server. The most important and unique aspect of this bot would be its gamification. It can be achieved either through the LLM's response structure or directly within the code of the bot. A variety of mini-games could be introduced, all part of a larger narrative-driven learning quest. This approach would not only increase engagement and motivation but also help develop critical thinking skills alongside language proficiency. Future iterations of this system, could offer highly customizable learner quests, allowing users to adjust settings, narratives, pacing, and challenges according to their preferences. However, advanced features such as these, along with speech recognition and a robust database system, are not the primary focus at this stage. Instead, the initial version can stand out from competitors by emphasizing IT and business vocabulary, aligning with the specialized approach of BSUIR English curriculum. We suppose that even a single motivated student, with a clear vision and sufficient effort, could develop a functional demo version of such a system within a few weeks.

The use of modern AI tools, such as ChatGPT or R1, could assist with coding, content generation, and structuring the learning experience. Initially serving as a practical application of this research, the later versions of the system could offer commercial potential, providing an innovative and cost-effective solution for language learning.

References:

1. An optimistic research on gamification [Electronic resource]. – Mode of access: https://www.sciencedirect.com/science/article/pii/S1071581920300987?__cf_chl_tk=_YHawWL5Q_ABOUMQYHglWo17Rq.hl.nnBEqy. DS6CBs-1741671028-1.0.1.1-kgtvByUHZF43FFhAN.kZJ0Cd4zcHLjfjC5Nlcob7EYY. – Date of Access: 06.03.2025.

2. A study on different effects of gamification [Electronic resource]. – Mode of access: https://slejournal.springeropen.com/articles/10.1186/s40561-019-0098-x. – Date of access: 08.03.2025.

3. The Cambridge paper on AI applications for language learning [Electronic resource]. – Mode of access: https://www.cambridge.org/sites/default/files/media/documents/The_Role_of_AI_in_Language_Learning_Research_Evidence_and_Strategies.pdf. – Date of access: 08.03.2025.