Simulation Games based on Artificial Intelligence for English Language Learning

Abstract

This research was conducted in a National University of western part in Taiwan. It guided students to select language learning games of language learning (Amur et al. (2024; Huang & Liaw, 2021; Srinivasan & Reddy 2023) on Facebook or other websites to improve English Language proficiencies in listening, speaking reading and writing. Below is a description of the recommended Facebook games (2024) in English that can help enhance vocabulary, and English four skills, including listening, speaking, reading, and writing.

Artificial intelligence and gamified learning, digital games related to language acquisition, can help students improve English. They have many interesting applications in the field of English teaching and learning, more connections related to AI games can be as follows.

First, Intelligent Chatbot: An English chatbot developed using artificial intelligence technology can provide a situational conversation environment to help learners practice their speaking skills. For example, Taiwan's 'CoolE Bot" uses Microsoft Azure Open Al service to allow students to improve their English pronunciation and enhance their speaking skills by interacting with the app. Secondly, Interactive Game Applications can be download into cell phone, laptop and even robot pet. Some English game applications incorporate artificial intelligence assistive technology to allow students to engage in English conversation and communication in

the game.

Cell phone can be the most applicable instrument. (Godwin-Jones, 2023) For example, "Lingumi" is an app created by English teachers. Students can improve their English pronunciation through the app's built-in pronunciation recognition system. Thirdly, Natural Language Processing Technology is also useful if English Language Learners apply it
Artificial intelligence can analyze students spoken expressions and provide instant feedback and suggestions. This helps improve students' speaking fluency and accuracy. Moreover, Situational learning related to games of acting pilots, farmers, businessmen...etc. Games can simulate real situations and allow students to use English in different situations, such as role-playing. This helps to improve students' language skills. In short, artificial intelligence and games can be effective English teaching tools, helping students learn English more easily and interestingly

Key words: Game-based Language Learning, Role-playing, Interactive games, Motivation-stimulating, Games in FB or the other websites

Introduction: Investigating the pedagogical roles

Liaw and Huang (2021) write a book by collaborating with 170 students, mentioned in their chapter: "Exploring learners' acceptance of game-based learning: An extension of the technology acceptance model" mentioned computer game can simulate motivation of language learning. As a result they suggest a model to use games to teach and learn. Similarly, this research was aimed at investigating the pedagogical roles of computer games, and it explored the impact of computer mixed with language training using simulation games, upon language acquisition and diverse daily life knowledge in a teacher preparation university of western Taiwan, the researchers had collected data to explore the effectiveness of students' language learning and oral presentation improvements.

For aiming to achieve persuasive qualitative and numerical data from academic performance grades, the researcher demonstrated several games, interacting with foreign players to her students. It sought noteworthy cases and persuasive qualitative and numerical data from academic performance grades, implying the computer assisted learning by games does contribute to improve learners' English language proficiencies for science and art and humanity majors in the teacher preparation university.

By both (1) in-class instructions promoting games to be language learning materials by the teacher, and (2) students' applications of the video games in-class and out- class, the project had finally resulted non-English majors' improvements in English language presentations, especially the Information Administration majors.

Literature Review

Hoe Xin Yi of Universiti Kebangsaan Malaysia had in 2024 suggested game to be used in the language learning, and mentioned: the integration of Augmented Reality (AR) within game-based learning for English as a Second Language (ESL). Based on empirical studies spanning its impact on ESL education is positive. The findings recommended its potential to enhance language attainment through mobile applications, fostering learner satisfaction, engagement, and motivation. Games did raise language learners' language proficiencies, especially in oral presentation abilities. It implied computer games should be approved to be English learning materials, because it contributes to students' language proficiencies, especially in oral presentation abilities. Under the administrators' permissions by language trainers' designed syllabi and curricula. English language learners can be allowed to apply in and out of classes as English learning tools.

Research Gap

Although lots of publications suggest simulation games can stir intrinsic motivations and contribute to educational purposes, yet there is still a research gap awaiting investigation. That is, newer field works are needed, providing more specific evidence and proving the constructive influence of simulation games upon students' knowledge learning. To respond the above statement, in the field of English language learning, students' proficiencies of speaking and listening is the targeted abilities that this research aimed to investigate.

Methodology

This is a qualitative and statistical study, since students were interviewed for three minutes after doing demo of their game playing and their reading and listening proficiency tested after being trained by two pedagogies. In the first semester, they do presentation by topics of a great man biography in the first eighteen weeks of the thirty-six weeks of a year. The topics were freely selected based on students' own willing, such as some US presidents or singers in their own ages.

In later eighteen weeks, Facebook games were selected by the teacher preparation university students. During the second semester, the participants were provided the following concept map and directed to prepare presentations. In fall and spring semesters the teacher as well as the author had invited students to sign their consent form based on IRB regulation and then start to learn by game-based projects. Each week, students spent twenty minutes learning. The researchers reminded them to freely talk about their feelings toward these pedagogies.

Assumption

The teacher preparation students for going to be senior high school students' teacher might not accept game, but only accept formal app of AI. The students might not be honest to answer, based on the concerns of their grades. Instead, they might pretend and tend to support any pedagogies since the teacher as the researcher have a right to grade them.

For the challenging of administrator's views, an article reviews recent advancements in game-based learning specifically within the context of language education, discussing both challenges and opportunities.(Srinivasan & Reddy, 2023).

Limitation

This school is a top school and more conservative school that the students might not admit their progress is from game interaction with foreigners, but from more expensive AI tools.

The group of population aimed on teacher occupation, who are different from other majors of language learners.

Game examples: guessing song king and city ville

During the second semester, numerous games such as GUESSING SONG KING and CITY VILLE were exposed to students by the teacher herself, firstly. The games were demonstrated by the teacher in the first three weeks for twenty minutes in each class, by singing and speaking in English.

For example, the QUESSING SONG KING was first of all played by the teacher as well as the author in front of all students using classroom instruments. English lyrics

were read, songs were sung and their titles were guessed. Some more games like the following are also suggested by students.

1. Wordscapes: This is a word puzzle game where players must create words from a set of letters. It helps enhance vocabulary and spelling skills through engaging puzzles set in beautiful landscapes. 2. QuizUp: This trivia game allows players to compete in various topics, including English language and literature. Participating in English-related topics helps improve reading comprehension and quick thinking in English. 3. Scrabble GO: This classic word game allows players to create words on a game board. It enhances spelling and vocabulary as players try to score points by forming words strategically on the board. 4. Duolingo Game: While not a traditional game, Duolingo provides an interactive language learning platform with gamified lessons. Its engaging exercises help users practice English skills in a fun and interactive way.

An intelligent chatbot AI for Teaching English as a Second Language (TESL) can be a valuable tool for both educators and learners. Here are some key features and potential applications of such a chatbot, a Bing, or a ChatGPT that students use beside using only games. They perceived the following benefit that artificial intelligence can provide. First, Conversational Practice: The AI can engage learners in real-time conversations to improve their speaking and listening skills. Secondly, Grammar and Vocabulary Assistance: The chatbot can help users understand grammar rules, suggest vocabulary, and provide examples in context. Thirdly, Personalized Learning Plans: By assessing the user's proficiency level, the chatbot can create tailored lesson plans to meet individual learning goals. Fourthly, Feedback and Correction: The AI can provide immediate feedback on speaking and writing, correcting mistakes in pronunciation, grammar, and usage. Fifthly, Cultural Context: The chatbot can offer insights into cultural nuances and idiomatic expressions, enhancing learners' understanding of language use in different contexts. Also, Interactive Quizzes and Games: Engaging quizzes and language games can make learning more enjoyable and reinforce knowledge. Finally, Resource Recommendations: The AI can suggest additional reading materials, videos, and exercises based on the learner's interests and proficiency level.

Computer games create to Enhancement of Vocabulary Skills

They make students Engage in interactive word-based games such as Wordscapes fosters an extensive vocabulary acquisition process. Players are continuously exposed to new words, which enhances their lexical repertoire. Such games require participants to think critically as they formulate words from a limited assortment of letters, thus

reinforcing their understanding of phonetic structure and spelling conventions. From perspectives of Improvement in Listening and Speaking Proficiency, they provide simulation games that incorporate audio elements compel players to actively engage with spoken language. For instance, games that provide real-time feedback and pronunciation guides promote the development of listening comprehension skills. By simulating real-life conversations and scenarios, learners are afforded the opportunity to practice their speaking abilities in a risk-free environment. This immersive approach significantly boosts fluency and confidence in verbal communication. From views of development of Reading Skills, many simulation games are designed with narrative elements that require players to read and comprehend substantial amounts of text. This not only enhances reading skills but also encourages critical thinking as players must analyze storylines and make decisions based on textual information.

By integrating educational content within an entertaining framework, these games can effectively motivate learners to engage with written material. Computer game offers cultivation of Writing Competencies, since games that challenge players to craft messages, participate in forums, or complete writing tasks help reinforce writing skills. By offering diverse prompts and encouraging collaboration, players are exposed to various writing styles and formats. This practice not only improves their ability to articulate thoughts clearly and coherently but also fosters creativity in expression. As can be seen, motivation and Engagement through Gamification can be stirred. The use of gamification in language learning appeals to the natural human inclination for competition and achievement. Points, rewards, and leaderboards incentivize continued participation. When learners perceive progress and success, their intrinsic motivation to learn and improve is heightened. This leads to sustained engagement with the language learning process, maximizing educational outcomes.

Students also offer some device that cell phone can be used and more potential applications like the following. First of all, Language Learning Platforms: Integrate the chatbot into online language learning platforms to enhance user engagement. Secondly, Mobile Applications: Develop an app that lets users practice English anywhere, anytime, with instant feedback. Thirdly, Classroom Assistant: Use the chatbot in classrooms to supplement traditional teaching methods and provide extra practice for students. Fourthly, Corporate Training: Utilize the AI for training employees in English communication in the workplace. Also, Community Support: Create forums or community groups where learners can interact with the chatbot and each other, fostering peer support.

Students talks about the artificial intelligence is really working, and also, they felt happy to pass the course after playing. Ninety-five students had passed this course with a high score. They admitted games are useful for language learning based on the following Implementation Considerations: 1. Natural Language Processing (NLP): Invest in robust NLP to ensure the chatbot understands and responds accurately to user inputs. 2. User-Friendly Interface: Design an intuitive user interface for easy navigation and interaction. 3. Continuous Learning: Regularly update the chatbot with new data and learning materials to keep it relevant and effective. With these features and applications, an intelligent chatbot AI can significantly enhance the TESL experience, making language learning more accessible, efficient, and enjoyable.

AI instruments

Many modern instruments such as CoolE Bot... etc. can also help language learners in learning immersed in real environment. Some following tools are suggesting to play:

CoolE Bot leverages Microsoft Azure's OpenAI services to provide advanced conversational capabilities. By using machine learning and natural language processing, CoolE Bot can understand and respond to user queries, facilitating seamless interactions and improved user experiences across various applications. When preparing topics for speaking and writing in a Teaching English as a Second Language (TESL) curriculum, it's important to consider the interests and proficiency levels of your students and recommend app like Bing. Here is some topic ideas categorized into various themes that you might find useful for both speaking and writing activities:

BING Experiences

When orally as Bing the typical topics, the answers by speaking and texts of 1000 words can be displayed. Diverse topics can be answered. First, Common Topics, they can be a title like 1. My Favorite Memory: Share a special moment from your past and why it's significant. 2. A Day in My Life: Describe a typical day in your life. 3. Travel Experiences: Discuss a memorable trip, including the culture, food, and activities.

Secondly, Cultural Topics, bing can answer titles like 1. Cultural Traditions: Explain a unique tradition from your culture and its significance. 2. Festivals Around the World: Compare and contrast different global festivals. 3. Food and Cuisine: Discuss favorite traditional dishes and their cultural relevance.

Thirdly, Social Issues, it can give details based on titles of 1. Importance of Education: Discuss why education is vital in today's society. 2. Environmental Challenges: Speak/write about current environmental issues and possible solutions. 3. Technology and Society: Explore the impact of technology on daily life and interpersonal relationships. Fourthly, Current Events, bing of Microsoft can provide ideas based on 1. Global News: Discuss a current event and its implications on society. 2. Social Media Influence: Analyze how social media shape's public opinion. 3. Health and Wellness Trends: Write about recent trends in health and wellness. Fifthly, Personal Interests, bing can provide a perfect writing achieve C1 or above in Cambridge Test skill topics such as: 1. Hobbies and Passions: Share a hobby and how it contributes to your well-being. 2. Favorite Books/Movies: Talk about a book or movie that influenced you. 3. Dream Careers: Describe your dream job and the steps to achieve it. 4. Pros and Cons of Online Learning: Discuss the benefits and drawbacks of online education. 5.Work-Life Balance: Share thoughts on maintaining balance in our busy lives. 6. The Future of Work: Speculate on how jobs might change in the coming years.

Conclusion

The result of the grades showed significant progress after training by artificial intelligent tools and students mostly feel they are friendly instruments that might replace human-beings in language learning. The artificial intelligence can be Implemented by the pedagogies like the following:

Enhancing students' language expression skills is essential. Small group discussions serve as an effective method for allowing students to engage in meaningful conversations on selected topics, thereby improving their speaking abilities. Additionally, writing prompts can guide students to explore their ideas more comprehensively in assignments or essays, fostering creativity. Furthermore, role-playing activities enable students to practice speaking in scenarios that mimic real-life situations, helping them build confidence and fluency. By integrating these approaches, educators can provide a rich learning experience that significantly boosts students' expressive skills.

These topic ideas aim to stimulate critical thinking and encourage students to express themselves in both oral and written forms, while also being relevant and engaging. Playing games did improve students to integrated into our global village and learn to be peacefully interact by game competition and typing or real talking online. Huang and Chang (2022) indicated in their article focuses on the effectiveness of mobile games in improving vocabulary acquisition in English language learners.

Hsieh and Chen (2022) in their research focuses on how gamification elements in language learning can enhance student motivation and engagement. This research focuses on how gamification elements in language learning can enhance student motivation and engagement. In this study, a student use star maker to sing together with many international singers, whose ages are in their 20s to 80s, which made students' interlocutors no more limited on the peers. This study suggests games can be included into formal curriculum and language learners can meet friends from all nations in the world, like India, Egypt or Pakistan. Further topic related to game-based teaching and learning can be what are the most interesting and motivation-stimulating games or tools of Acritical intelligence.

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