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Chapter 4

AI–Aided Teaching Model in Education 5.0

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ABSTRACT

In the educational setting, artificial intelligence (AI) technology, notably chatbots, has made substantial improvements in English learning. This study aims to determine the effectiveness of using the Artificial Intelligence Virtual Dream Friend and John English Boot applications on learning English in the 5.0 revolution era in English courses for first-semester students at university. The assessment method used is a quantitative research method and research design (quasi-experiment design). Based on the results of the study, it can be concluded that the results of the comparison test showed that My Virtual Dream Friend and John English Bot were both effective for use as computer tutoring in English courses and also increased interest in learning English in the 5.0 revolution era compared to previous conventional methods. The outcomes of this study might be used to direct future research into utilizing chatbots outside of the classroom as learning companions, and educators could use them to adapt evaluation and feedback procedures.

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INTRODUCTION

Education has undergone profound changes as a result of the widespread use of digital technologies and the proliferation of connected information networks. Better tools are becoming available to facilitate the more complex activities that have traditionally been a part of the educational process (Wright et al., 2023; Fullan, 2023).

Giving students timely feedback like this helps them assess their progress and learn more efficiently (Huang et al., 2023). Technology's contribution to bettering the teaching and learning process is growing in significance as educational models adapt to new learning technologies. One of the most pressing concerns of the last decade has been the use of technology to improve the teaching and learning process (Ekin et al., 2023) and numerous learning management systems (LMS) that accomplish this goal keep being proposed (Alfalah, 2023) to do so in a variety of ways (Anderson, 2023).

Academics have stressed that while learning technologies can significantly improve learning and teaching, they will also produce a range of issues related to student-system interactions due to their many forms and sizes (Elme et al., 2022). Students' learning processes and outcomes with the help of modern learning aids are strongly influenced by their attitudes, emotions, and learning experiences (Kuleto et al., 2022).

A growing body of research has sought to clarify the ways in which educational chatbots can enhance learning in a variety of contexts, such as language learning (Kuhail, M. A., et al., 2022), vocabulary acquisition (Yunjiu et al., 2022; Huang & Wang, 2021), the development of communicative competence (Kim et al., 2022; Hu & Hu, 2020; Mohammed Mahmoud Ghoneim, & Elsayed Abdelsalam Elghotmy, 2021).

These chatbots used a question-and-answer format to motivate students to put in the effort required to acquire the requisite information or skill. In the same way that human reading companions may accompany and give emotional supports to help students read actively, chatbots can act like them and inspire students to think about the tales they are reading (Liu et al., 2022; Zhang et al., 2022).

Student responses to chatbots may differ from those to humans, according to the literature (Winkler & Söllner, 2018; Hill et al., 2015). The literature is silent on how students evaluate the chatbot's usefulness as a reading companion. The research isn't clear on whether or whether students believe chatbots made with modern natural language processing techniques, such co-reference resolution and dependency parsing approaches, to have intelligence about the books they've read and act like a human reading partner.

Scholars and professionals in the field of language study and teaching have started looking into Intelligent Computer Assisted Language Learning (ICALL) because of the promising future it holds for AI in education (Weng & Chiu, 2023). This topic expands Computer Assisted Language Learning (CALL) by introducing artificial intelligence (AI) into the language learning environment (Huang et al., 2023).

Differentiating itself from other LMSs, ICALL makes use of a number of different artificial intelligence (AI) techniques, including natural language processing (NLP) (Pokriváková, S. 2019), intelligent tutoring systems (ITS), and others to facilitate complex interactions between students and their learning environment (Swartz & Yazdani, 2012). These interactions were developed using automated feedback (Huang et al., 2023), intelligent tutoring (Furlan et al., 2021), and customization (Huang et al., 2022).

The best learning outcomes for students (Mitra & Banerjee, 2022) and 21st century skills may be achieved through their flexibility and adaptability, which allows them to meet the demands of each individual student (Muthmainnah et al., 2022).

For an ICALL environment to be successful, it must adhere to sound instructional design principles that direct learning practice and optimize student growth (Muthmainnah et al., 2023). For this purpose,

Merrill's suggested First Principles of Education (FPI) are adequate since they may be used to design instructional materials for any type of learning activity or program (Merrill, 2002).

Computers and Education: Artificial Intelligence suggests studying FPI's integration into the ICALL setting as part of AI in education research to reveal the associated pedagogical advances. Learning environments as diverse as flipped classrooms (Weng & Chiu, 2023) and video-based physics instructional games have been found to benefit from the implementation of the five FPI principles, which include problem-centered, activation, demonstration, application, and integration (Kuba, Rahimi, Smith, Shute, & Dai, 2021).

Most language classes have four distinct parts: the warm-up, the pre-practice, the control exercises, and the post-practice. For students who have already understood or mastered the procedures involved, this method's constant repetition from lesson to lesson can quickly become tedious. It's time for college and university language instructors to reevaluate their methods of instruction in light of recent developments in the use of technology in language learning. As a matter of fact, there is a wealth of information in the pedagogical sector from ITC applications utilized in the context of language teaching and learning.

Anastasios Karakas and George Kartal (2020). In order to improve language teaching and learning, ELT educational applications have made use of a wide range of information and communication technologies (ICTs), such as the interactive web, ELT software, synchronous chat, etc. (Huang et al., 2023). To distinguish themselves from other types of software, chatbot developers focused on creating applications that could hold an intelligent conversation with human users using either speech or text (Zhou, 2023; Lin & Wu, 2023).

In reality, AI chatbots can aid education by allowing instructors to customize lessons to individual students' linguistic abilities. The development of an AI chatbot is a sophisticated and large-scale undertaking that calls for a lot of expertise in the field of information technology. For this reason, it has been accepted by certain language instructors for classroom usage.

A learner who wants to use an AI chatbot for instruction must also have the patience to react to the chatbot's predetermined series of automated questions. Students at the university level are of an age when they may be motivated to study independently, thus the idea of utilizing technology to teach a foreign language makes sense.

With the rise of mobile and social media, it is essential for language instructors to integrate IT into their classrooms to keep students engaged and improve the quality and efficiency of the learning process. An empirical research was conducted utilizing AI chatbots like "My Virtual Dream Friend" and "John English Bot" to teach undergraduate students about "self-introduction" in a foreign language.

ICALL INSTRUCTIONAL DESIGN

CALL is a well-established area with documented application outcomes in boosting student engagement and delivering improved language acquisition before AI was integrated into language teaching (Zhang & MacWhinney, 2023).

Both wide and narrow CALL review studies have been conducted by researchers. Topic modeling analysis was used by Chen, Zou, Xie, and Su (2021) to learn more about the topics and technologies that have caught the attention of CALL researchers. In particular, the researchers (Chen, Zou, Xie, & Cheng, 2021) investigated students' customized language learning in the context of technology-enhanced language learning and the use of artificial intelligence (AI) in the classroom.

However, ICALL breaks through the generic and one-size-fits-all instructional philosophy, offering new opportunities for providing learners with seamless intelligent support/feedback and catering to student differences in proficiency levels and learning preferences, as was found in the review study by Huang et al. (2021). With the use of NLP and ITS in AI, for instance, students are able to use language in more organic contexts (Shardlow, Sellar, & Rousell, 2022).

Artificial intelligence techniques like machine learning, data mining, and deep learning make possible personalized learning systems that cater to each learner's unique needs, interests, learning style, and speed.

There are three ways in which artificial intelligence (AI) aids language activities: (1) automated feedback in the form of corrections and prompt responses; (2) intelligent tutoring in the form of answers to questions and explanations of concepts; and (3) customization in the form of information tailored to the specific needs of users.

ICALL settings were developed to accommodate students from a wide range of linguistic backgrounds and interests. Several studies have shown that instructors and students in ICALL settings have different perspectives on the learning processes and results that are optimal for each (De la Vall & Araya, 2023).

Weng and Chiu (2023), for example, revealed the use of the concept of activation in intelligent tutoring, the principle of problem-centeredness in individualized instruction, and the principle of demonstration in automatic feedback.

In the meanwhile, we talked about the difficulties encountered in these research endeavors and provided some insights into instructional design as well as some empirical ideas for use in ICALL classrooms. De la Vall and Araya (2023) examine the pros, cons, and potential future developments of ICALL language learning technologies, such as the dependence on enormous amounts of data for training, the need for greater human contact, and the contextual nuances of language.

There are a number of ways that these AI tools could improve in the future. These include the incorporation of virtual reality and augmented reality technologies, the development of better natural language processing algorithms, and the creation of more sophisticated adaptive learning algorithms.

AI learning systems have the potential to become even more powerful and impactful tools for language learning if these problems and limitations are resolved, and their integration is essential for developing more efficient and effective learning user experience solutions.

Freeman (2023) shows that educators value classroom activities that encourage students to actively participate in learning grammatical concepts both internationally and in Sweden particularly. Furthermore, Blake (2023) conducted an ICALL study to assist and engaged in their work with ICALL tools, Question Generator is a first of its kind online application as it allows students to construct questions based on user input.

Previous reports of a variety of ICALL learning objectives/contexts and associated learning results proved the usefulness of ICALL applications. Positive results cannot be achieved just by using technological applications; their implementation is what makes the difference (Kale, Roy, & Yuan, 2020; Marek & Wu, 2020; Kuosa, 2014). Therefore, it is important to examine the instructional design for ICALL as a factor that influences the results of ICALL applications.

Instructional design for AI-based language learning (ICALL) is the process of developing instructional strategies, resources, and activities that help students learn a language in an artificial intelligence (AI) setting (Shu & Gu, 2023).

Instructional designers at ICALL will use methods including need analysis, environment design, system development, and evaluation to build and test their environments and ensure they provide the desired effects on students' learning (Archuby, Sanz, & Manresa-Yee, 2023). To make their lessons

more successful and flexible, instructional designers developed these steps into a number of different instructional design models and concepts.

The principles and ideas of instructional design may be applied in an ICALL context since they are consistent with technology-supported learning methods (Koszalka et al., 2013). For instance, Johnson (2019) used the Data-Driven Development method as the instructional design principles of the artificial intelligence (AI) driven system eSkill, and found that students who practiced with the system had improved their public speaking abilities.

An intelligent tutoring system was developed by Fang et al. (2022) to facilitate the PACES curriculum for students with low reading competence (e.g., predicting, acquiring, clarifying, evaluating, and summarizing).

They found that the method led to the greatest comprehension increases among careful readers. In addition, Huang and Wang (2021) combined Total Physical Response (TPR) language teaching instruction with artificial intelligence in their creation of the TPRAI motion sensing teaching system for learning French vocabulary. Academic performance on the delay exam was high in the experimental groups, according to the study's findings.

Researchers have reported their hands-on experiences with ICALL instructional design, and several instructional design strategies for ICALL have been proposed. Unfortunately, there hasn't been a lot of research done to systematically look at how different pedagogical approaches may improve ICALL.

Even fewer scholars have looked at a single instructional framework for ICALL and all the challenges that come with it in terms of implementation.

CHATBOTS AS COMPUTER TUTORING IN LANGUAGE TEACHING

Artificial intelligence (AI) chatbots are information applications that can understand human speech using natural language processing (NLP) methods and respond accordingly (Zhong, Scarinci, & Cicirello, 2023). Thanks to developments in natural language processing (NLP), Chatbots have progressed from simple pattern matching to coping with increasingly complex interactions and reasoning, even replacing certain discussions with human beings.

Users were satisfied and positive about chatbots because of their practicality, simplicity of use, entertainment value, aesthetic appeal, and socializing capabilities (Shum et al., 2018). There has been a lot of focus on how useful chatbots can be in the classroom.

According to the studies conducted, the majority of the learning systems out there have interfaces that are set in format, limiting the user's ability to be creative and interactive. Students are less engaged when they are required to follow a set method or respond in a predetermined way (Mukhiya et al., 2020).

Edwards et al. (2018) found that students' attitudes toward learning and their interactions with social robots were correlated with how quickly teachers provided teaching. When compared to interactions with teachers, both verbal and nonverbal, learning system exchanges feel fake and distant (Kim et al., 2020).

Unlike learning management systems (LMSs), chatbots allow for both human and automated direction of the interaction. Having a discourse like this with their peers is a great way for students to feel like they belong in a community (Jiang, Yang, & Zheng, 2023).

Even if chatbots' vocabularies are limited, people are nevertheless interested in and eager to have conversations with them because of how easy they are to engage with and how they make them feel like they are part of the conversation (Fryer et al., 2019).

Additionally, chatbots can provide interactive messages similar to real conversations in order to encourage students to access online materials (Pham et al., 2018). Thus, chatbots may now function as equals in the classroom (Neto & Fernandes, 2019).

Naturalistic dialogue with chatbots has been found by several academics to make students feel less alone and separated from their learning in conventional LMSs (Shamsi, 2021). Students are commonly involved in studying with chatbots because of how novel and interesting they find it to be (Kerly, Hall, & Bull, 2007).

Some students would rather communicate with a chatbot than a human teacher or other student (Kim, 2021; Zamora, 2017). Students' engagement, motivation, and teamwork can all benefit from the use of chatbots as a medium for education (Kumar, 2021).

Kohnke (2023) for example, employed chatbots to promote student interactions in online courses, and their findings showed that chatbots not only increased the percentage of students completing learning activities, but that most of students wished to use chatbots in additional courses as well.

Messenger bots, or "chatbots," are software programs that aim to simulate human conversation. Yildiz Durak (2022) stated in the field of education, chatbots present exciting new possibilities.

Chatbots have many potentials uses in the classroom, including the facilitation of interaction, the dissemination of information (of varying forms), and the provision of direction. It's true that chatbots have the potential to improve education by introducing more interaction into the classroom.

Students who reported more happiness with their chatbot experiences also reported greater competence in visual design. The extent to which you enjoy using the chatbot will have a favorable effect on how satisfied you are with many facets of the course.

User happiness with a chatbot has a bearing on how often it is used. Implications for future investigation and clinical use were highlighted. In this respect, the use of chatbots in education is gaining popularity and is regarded as a significant development trend.

METHOD

This study used a quasi-experimental design because it took samples from two classes at random (randomly) (Campbell & Stanley, 1966). Both groups were called "experimental classes," but they were given different ways to learn English. Quasi-experimental studies are used in educational research when random assignment of participants is impractical or unethical. These studies allow comparative research to be carried out in real-world contexts (Campbell & Stanley, 1966).

In addition, conducting quasi-experiments in outcome evaluation using a historical cohort control group design is a feasible approach that requires few resources and causes little disruption to daily classroom activities (Walser, 2014). In this study, we ensured that the experimental group and the control group were in the same position by selecting classes given by the same instructor and lasting for two consecutive semesters with identical curricula, course materials, and activities.

In this study, students in the experimental group in the Agribusiness study program (hereinafter referred to as the "AI-John English Bot group") and their colleagues in the control group in the government science study program (so referred to as the "AI-My Virtual Dream Friend group") used artificial intelligence applications during language learning, as many as four meetings.

The goal of this study is to find out what happens when first-year college students learn English with the help of AI and how the application affects their motivation to learn English. Among the many

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tools used in this study, one is observation, which is the act of looking at an object to learn about a phenomenon or event.

Data collection technique Researchers use a data collection technique to get the information they need to solve problems. In this study, the following methods were used to gather data:

1. Pre-test

A pre-test is an observation made before the experiment. This is done to get some initial data. Researchers make observations by giving tests to find out how well people learn English on average before they are treated or do anything else.

2. Treatment

After giving students their first test (pretest), the next step is to give them treatment or treatment to see how well artificial intelligence helps them learn English. Both classes got the same treatment and learned the same things, like how to use the contractions am/is/are, how to introduce yourself, how to say hello and goodbye, how to tell time, how to talk about countries and nationalities, and how to use position adjectives and possessive adjectives. The two classes will be taught in the following ways:

After installing artificial intelligence on their student devices, they then practice self-introduction gradually with their AI. The lecturer monitors and observes the class carefully. The two applications have advantages and disadvantages based on the observations of the two classes.

Figure 1. Teaching model using Artificial Intelligence

Source: Muthmainnah et al. (2022)

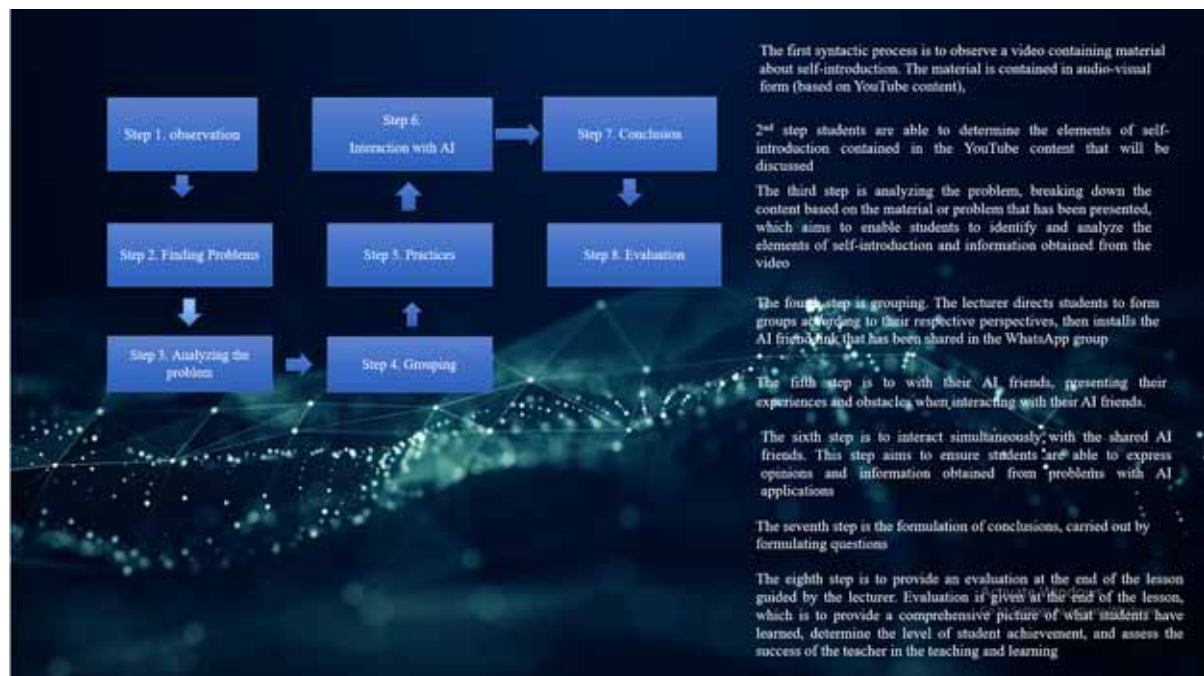


Figure 2. My virtual dream app



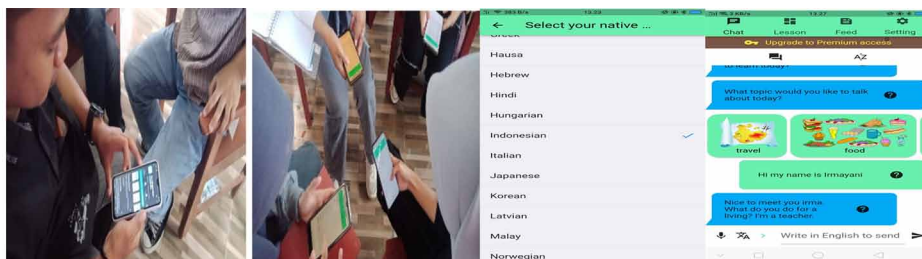
In the My Virtual Dream Friend group, students must discuss with their group mates to determine who they will choose to interact with or practice with, and of course this takes time. However, the excitement was found when they discussed with each other which robot to choose in terms of appearance, gender, and hair color.

Figure 3. My virtual dream friend feature



Meanwhile, in the John English Bot class, there were no other robot options to be found, only John English Bot. After installed, the students asked to choose native language or students' language (Indonesian)

Figure 4. John English Bot feature



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During the activity, students are allowed to use Google Translate or e-dictionary tools; besides that, they are also asked to connect the material obtained before to their artificial intelligence. During the interaction activities, the lecturer asks students to record their experiences and obstacles when interacting with artificial intelligence. Simultaneous interaction occurs with the shared AI.

In this finding, each group found that when they interacted, AI could facilitate their English practice activities, but AI My Virtual Dream Friend did not correct grammar mistakes made by undergraduate students. While in the John English Bot group, they found that the AI provided sample answer facilities and having corrected feedback to students.

At this stage, the lecturer ensures that students can express their English without feeling anxious or afraid of being wrong.

Figure 5. Corrected feedback by John English Bot



At the conclusion formulation stage, it is carried out by formulating the results of the script that has been created while interacting with AI and before logging out so that students do screen screening. This stage is carried out to measure the level of student understanding after the learning process when practicing with AI, correcting mistakes made, and providing reflection.

Figure 6. Chatbots scan screening of artificial intelligence

Source: https://youtube.com/shorts/rNnGPJT6_a0?feature=share



At the evaluation stage at the end of the lesson guided by the lecturer. Evaluation is given at the end of the lesson, and namely, undergraduate students are asked to do a demonstration in the form of speaking. The lecturer provides a comprehensive description of the skills acquired during the learning process, starting with listening, writing, reading, and speaking.

3. Post-test

The post-test is the opposite of the pre-test. If the pre-test is done before a treatment or action is taken, then the post-test is done after the treatment or action has been taken.

INSTRUMENTS

1. Test

In the experimental class, a pre-test and a post-test are used to find out how well students could do before and after learning.

2. Observation

Rosenbaum, Rosenbaum, and Briskman (2010) says that observation is making direct observations of research objects to look closely at what is going on and consists of all activities in the class. If the goal of the research is to find out about behavior and actions, small respondents use natural phenomena, which are things that happen in the natural world.

The goal of this observation is to find out how My Virtual Dream Friend and John English Bot are used in English classes.

Figure 7. Class observation



DATA ANALYSIS TECHNIQUE

In this study, the collected data were analyzed using descriptive statistical techniques and inferential statistical analysis. The data processing procedures used are:

1. Descriptive Statistical Analysis

Descriptive statistics are statistics that are used to analyze data by describing data or describing data that has been collected as it is without intending to make general conclusions or generalizations (Nardi, 2018). Descriptive statistics are used to describe student activity scores, student responses, and scores of Indonesian language learning outcomes obtained from each class.

The next procedure calculates the sample frequency in each category using the formula:

$$P = f x / n \ 100$$

Keterangan:

P = percentage

f = frequency

n = sum

INFERENCE STATISTICAL ANALYSIS

Inferential statistical analysis was used to test the research hypothesis using the t-test. However, before testing the hypothesis, the normality and homogeneity tests were first performed.

The normality test used is the Kolmogorov Smirnov to find out whether the data follows a normally distributed population. The criteria used for learning outcomes are said to follow a normally distributed population if the value of $p > \alpha = 0.05$.

The description of the research data presented below is a description of the experimental and control group data. The description of the data for each group consists of initial ability data (pre-test) and final ability data (post-test) comparisons of My Virtual Dream Friend and John English Bot.

RESULTS OF THE DESCRIPTIVE STATISTICAL ANALYSIS OF THE MY VIRTUAL DREAM FRIEND GROUP AND JOHN ENGLISH BOT

Based on the analysis of descriptive statistical data using the computerized system program SPSS version 21.0 for Windows and frequency descriptive statistics, the following will present the results of the scores for the My Virtual Dream Friends group.

Table 1. Mean score of before and after treatment using Artificial Intelligence

Statistics					
		Pretest John English Bot Group	Pos Test John English Bot Group	Pretest My Virtual Dream Friend	Pos Test My Virtual Dream Friend
N	Valid	21	21	15	15
	Missing	0	0	6	6
Mean		65.67	71.71	65.33	85.20
Median		65.00	70.00	65.00	87.00
Mode		60 ^a	65	65 ^a	83 ^a
Std. Deviation		7.559	7.309	8.338	8.436
Variance		57.133	53.414	69.524	71.171
Range		25	31	25	30
Minimum		50	60	50	65
Maximum		75	91	75	95
Sum		1379	1506	980	1278
a. Multiple modes exist. The smallest value is shown					

On Table 1 it is known that the two groups, after receiving treatment to learn English using artificial intelligence, experienced a significant increase in English learning outcomes. In the trial group using the Pretest My Virtual Dream Friend with a pretest of 65.67 and a post test of 71.71. while the John English Bot group had a pre-test of 65.33 and a post-test of 85.20.

Based on the trials of the two artificial intelligence applications, it is known that John English Bot contributes more to improving English learning outcomes due to the superiority of the grammar feedback feature during undergraduate interactions.

When compared to My Virtual Dream Friend, which does not provide feedback to undergraduate students and is only comfortable for chatting. The results of learning English using artificial intelligence My virtual dream friend and John English Bot are then assessed based on the assessment criteria that have been prepared by the researcher.

The categories of learning outcomes for writing, listening, reading, and speaking experienced an increase, and grammar improvements occurred in the John English Bot group. This is caused by; (1) A desire to learn, succeed, be appreciated, and engage in engaging activities are all necessary components of a learning environment, as are (2) a desire to do so, (3) encouragement from others, (4) future hopes and aspirations, (5) an appreciation for learning, and (6) interesting learning activities.

Inferential Statistical Analysis Results

Inferential statistics are statistics used to analyze sample data, and the results are applied to the population. As previously stated in the previous section for hypothesis testing using inferential statistics, in this case the t-test with a significant level of $= 0.05$, the conditions that must be met for hypothesis testing are that the data obtained is normally distributed and has a homogeneous variance. Therefore, the normality test and homogeneity test were first carried out.

1. Normality Test.

Normality test to see whether the population seen is normally distributed or not. The normality test was carried out on the data of each of the two groups; all calculations were carried out with the help of the Statistical Package for Social Science (SPSS) version 22.0 for Windows, which showed that the John English Bot and My Virtual Dream Friend groups were normally distributed. The acceptance criteria that determine whether a data set is normally distributed or not are as follows:

If it is significant at 0.05, then the data is not normally distributed.

If significant ≥ 0.05 , then the data is normally distributed.

Table 2. Estimated distribution parameters

		Pretest John English Bot Group	Pos Test John English Bot Group	Pretest My Virtual Dream Friend	Pos Test My Virtual Dream Friend
Normal Distribution	Location	65.67	71.71	65.33	85.20
	Scale	7.559	7.309	8.338	8.436
The cases are unweighted.					

a) Homogeneity test.

The homogeneity test was carried out for two groups, namely the experimental group data and the control group data, by testing the similarity of the variances of the two groups. All calculations were carried out using the SPSS (Structural Package for Social Studies) computer program, version 22 for Windows, where hypothesis formula.

H₀: Variance of two groups of homogeneous data.

H₁: The variances of the two groups are not homogeneous.

The results of the calculation of the homogeneity test for the pre-test experimental pre-test control values and the results of the post-test experimental post-test control values can be seen in Table 3.

Table 3. Test of homogeneity of variance

		Levene Statistic	df1	df2	Sig.
Outcome	Based on Mean	.119	1	34	.732
	Based on Median	.022	1	34	.884
	Based on Median and with adjusted df	.022	1	31.863	.884
	Based on trimmed mean	.076	1	34	.784

Based on Table 3, the results of the calculation of the average homogeneity test for the two groups using SPSS were significant: 0.732 based on mean, 0.884 based on median, and 0.784 based on trimmed mean greater than 0.05, then H₀ is accepted, so it can be concluded that both variants were significant.

Determine table at a significance level of 0.05; $2 = 0.025$ (2-sided test) with DF (degree of cleanliness).

Table 4. Paired sample test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Before treatrment – after treatment	-19.867	6.664	1.721	-23.557	-16.176	-11.546	14	.000

3. Testing criteria

- If table is true, then H₀ is accepted and H₁ is rejected.
- If table, then H₀ is rejected and H₁ is accepted

Based on significance

If significance is > 0.05 , then H₀ is accepted.

If the significance is 0.05, then H_0 is rejected.

The results of the paired sample test showed that the use of artificial intelligence by the two groups effectively increased the English learning outcomes of undergraduate students at Universitas AI Asyariah Mandar.

Table 4 presents that there are differences in students' abilities results between the John English Bot and My Virtual Dream Friend groups with the chatbot application, for each English class.

For the three topic units Self Introduction, Telling Time and Hobbies, which shows the John English Bot group does a better job than the My Virtual Dream Friend group with an average difference rating from 65 to 85, based on a rating scale of 100.

From these statistics, the chatbots in the John English Bot group are very useful because of the availability of feature lessons so that they can help lecturers design teaching materials based on Artificial Intelligence. These findings contribute to the conclusion that chatbots are not only used to 'assess academic progress, predict future performance and see potential problem' but can be used to design teaching materials for students in tertiary institutions.

DISCUSSION

The purpose of this study is to answer the question, "How is the effectiveness of AI in language learning?" by utilizing two AI applications, AI-My Virtual Dream Friend and AI-John English Bot. The results show that both applications make use of chatbot features, and that there is a significant performance gap between the two groups of students when it comes to improving their command of English.

When comparing the post-test scores of the two AIs, however, it becomes clear that the AI-John English Bot makes a more significant impact on undergraduates' proficiency in English. The findings demonstrate that AI-John English Bot offers both lesson and grammar feedback options. As can be shown in Table 1, these resources allow undergraduates to learn, and they have also boosted their sense of self-efficacy.

Chou and Zou (2020) dug into the literature and found that students need external feedback to help them reflect on their learning performance and adjust their learning accordingly. The findings of this study have important implications for students' abilities to self-regulate and their approaches to learning a second language.

Students can better gauge their progress toward goals and get extra support if they're falling behind when they use data visualizations to track their progress. Figure 4 from the AI-John English Bot shows that the availability of a variety of materials and instructional material subjects also influenced the learning behavior of undergraduate students, suggesting that chatbot representations alone are not enough to assist students develop their language skills.

Instructors can use the provided content visualization and lesson options to train their materials using AI. Data visualization, as shown by Minovi'c et al. (2015), aids students in making sense of their coursework and enhancing their capacity for self-regulation.

According to Sun et al. (2023), students are more likely to reach their educational objectives when they use data visualizations created with those objectives in mind. For this instance's data-visualization capabilities. References can be found in the study and creation of sentences, paragraphs, and dialogue scripts when doing so, students are more likely to be successful in their pursuit of their academic goals.

Regarding assistance requests, the system does not have a built-in mechanism for keeping track of such actions. We observed that when both groups had difficulties, they turned to third-party tools for aid, such as Google Translate or Editing, or looked for answers elsewhere on the Internet.

Visualizations of chatbot robots, such as AI-My Virtual Dream, are proposed. Figure 2 shows how glad a group of students are to see the kind face of AI robot AI-John English Bot after the latter inspires them to study by keeping tabs on their online conversation activity.

The goal of the management strategy for these two AI features is to pique students' curiosity about education and encourage them to take charge of their own education based on the feedback they receive from the technology. It confirms the findings of a previous study by Nicol, Yilmaz-Na, and Sönmez (2023) that found that students who received feedback on their learning performance also showed increased levels of self-regulation.

Although there are numerous potential benefits to AI-assisted language learning, little is known about how students interact with AI agents for language learning or whether there are variances in human-AI interaction based on student demographics.

For this reason, we still don't know much about how AI aids in language learning; specifically, while research has looked at students' beginning and end-of-course language skills, the middle ground remains largely unexamined. Thus, it is necessary to develop suitable instructional design based on student learning needs in order to advance the pedagogy and design of AI agents for language acquisition.

It is possible that students and AI will form learning communities where the presence social, cognitive, and teaching that students feel in interacting with AI will form meaningful learning experiences and assist in mastering the target language (Yu, Lu, Yu, & Lu, 2021).

Hsu, Chang, and Jen (2023)'s findings may be used to investigate the nature of human-AI interactions, which in turn provide light on how AI-supported language acquisition works (Schmidt & Strasser, 2022; Tsvilodub et al., 2022).

While it's commonly assumed that today's young people are fluent in technology matters, this study reveals that they may lack the expertise required to effectively use digital technologies, especially artificial intelligence (AI) in the classroom.

CONCLUSION

The aim of this study was to examine the various chatbots out there and determine whether or not they can be used as a useful tool for language training. We now know that there are three different types of chatbots, each with their own strengths and weaknesses, thanks to these findings.

Many bots provide synthesized text and speech, allowing students to practice listening and reading skills; (4) Bots are new and interesting for students; (5) students have the opportunity to use various language structures.

However, there are also complaints that the novelty of the chatbot is flawed and needs improvement. My Virtual Dream Friend and John English Bot, the chatbot-based English learning platform, was also evaluated as part of this study.

Based on these findings, further research and development is needed into the technology and features of both of the AI-John English Bot so it can fulfill its promise as a tool for teaching English, especially grammar.

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