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Exploring the Role of ChatGPT in English Teaching Within Higher Education Settings

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Abstract

In spite of the undeniable expansion of the use of generative pre-trained transformers in higher education, little has been published on the perspectives of the users. The aim of this study was to explore through a cross-sectional, non-experimental study the familiarity, experiences and overall opinion of professors and learners about the use of ChatGPT in the teaching and learning of English. Findings indicate that there is not much familiarity with the tool, and even less reported utilization in both facilitators and learners. Among the potential benefits mentioned by teachers are the alleviation of the work load in tasks such as planning, material selection and evaluation, even if they currently are not incorporating ChatGPT in their professional practice. Among the recognized threats, ethical issues and limiting critical thinking in pupils were predominant. Coincidently, students do not acknowledge using chatbots in their academic tasks; they mention as advantages of using Chat GPT in learning English the possibility to improve their written skills and doing research, while considering that using virtual agents without authorization constitutes fraud. They also mentioned loss of critical thinking as a negative consequence. In general, it is understood that this technology is here to stay and can be very useful if applied correctly, and therefore, more instructions on its proper use is needed as well as clear policies established by the academia.

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INTRODUCTION

The integration of computers in educational settings has an extensive historical trajectory marked by mixed results. As underscored by Reiss (2021), it is important to recognize that the value of technologies is neither intrinsically good nor bad; rather, their impact is contingent upon the manner in which they are employed. In contemporary times, the prevalence of Artificial Intelligence (AI) applications in education is on the rise, evoking divergent perspectives. Some proponents express unwavering optimism regarding its potential, while others predict adverse consequences (Reiss, 2021). Articulating the essence of artificial intelligence, Coppin, as cited in Chen et al. (2020), described it as the capability of machines to adequately engage with and adapt to novel situations, resolve complex problems, respond to inquiries, formulate strategic plans, and execute various cognitive functions traditionally associated to human intelligence.

In education, AI software applications are present in three domains according to Zawacki-Richter et al. (2019): a) individualized instruction (tutors), b) intelligent support for collaborative learning, and c) sophisticated applications in virtual reality. However, the utility of AI extends beyond these domains, encompassing facets such as the planning and execution of mediation activities, evaluative procedures, and administrative functions (Pinzolitz, 2024). The literature underscores several advantages associated with the incorporation of AI, including the utilization of advanced natural language models for real-time generation of plausible responses, inherent self-improvement capabilities, expedited access to information, and a reduction in the overall teaching workload (Aithal & Aithal, 2023; Farrokhnia et al., 2023; Grassini, 2023; Neumann et al., 2023; Rawas, 2023). Even in the field of research the use of AI has been slowly but steadily spreading in areas such as brainstorming, writing codes, conducting literature reviews, creating graphs and helping write research manuscripts (Van Noorden & Perkel, 2023).

One of the most popular uses of AI are chatbots. According to Mucci (2024, para. 1) a chatbot is a computer program or script designed to interact and respond with an end user. Modern chatbots have incorporated conversational AI techniques like natural language processing (NLP) to understand the user's questions and automate responses to them. Furthermore,

> virtual agents are a further evolution of AI chatbot software that not only use conversational AI to conduct dialogue and deep learning to self-improve over time, but often pair those AI technologies with robotic process automation (RPA) in one interface to act directly upon the user's intent without further human intervention (IBM, 2023, Chatbots vs AI Chatbots vs Virtual Agents, para. 4).

In the year 2020, OpenAI, an artificial intelligence research laboratory, unveiled the Generative Pre-Trained Transformer (GPT-3) as a pivotal advancement in Chatbot technology. This innovative tool, characterized by its accessibility and no-cost availability, offers a diverse array of applications. These applications encompass tasks such as summarizing, translation, grammar correction, question responding, email composition, and various others, as highlighted by Floridi and Chiriatti (2020). Subsequently, in 2023, during what has been characterized as the "war of the chatbots" (Rudolph et al., 2023b), several alternatives have emerged, for instance, DALL-E, Baidu's ERNIE Bot, PanGu-Bot (a Chinese version), Yandex (YaLM) Chatbot, BLOOMChat, , Elicit, iA Writer, Marmof, ChatGLM-6B, and Microsoft's Copilot Studio, Azure AI Studio, Bing's AI chat, and Google's Bard, (Concannon et al., 2023; Ilieva et al., 2023; Yu, 2023). Currently, the 4.0 version of ChatGPT is available at a relatively low cost, providing improved features. This proliferation of applications and product developments signifies the wide dissemination and utilization of Generative Pre-Trained Transformer technology.

As per Annamalai, et al. (2023), the prevalence of these tools demands an analysis of optimal use and incorporation of chatbots into language learning programs. McMurtrie (2022) contends that tools like ChatGPT, akin to the incorporations of calculators in mathematics, are destined to become

integral components of everyday writing. Similarly, Sharples (2022) advocates for the integration of these AI tools to enhance the learning experience, as opposed to restricting their utilization, hence the importance of exploring the current knowledge and usage of these developments in the academia.

In spite of the widespread use and appreciation for AI usefulness, concerns about academic integrity have been raised by several authors who have reservations about its use. For instance, Faraouzi et al. (2023) have cited studies by Cotton et al. (2023); Kirshner (2023) and Jane (2023) which have indicated adverse effects. Moreover, Biener and Waeber,(2021); Farrokhnia et al., (2023); Ibrahim et.al., 2023; Kostka and Toncelli, (2023); Nguyen et al. (2023); Oravec (2023); and Rudolph et al. (2023a) have also conveyed some strong arguments against the use of chat bots in education, mostly because of the easiness for students to generate a written assignment in seconds with a high proficiency and without triggering any plagiarism detector (Zhai, 2022), as well as potential fraud in assessment and evaluation. A second concern that instructors have is ChatGPT's inability to determine relevance or accuracy of the information because it is just a text-generating machine (Rudolph et al. 2023 a; Popenici, et al., 2023; Singh Gill, 2024). Generative Pre-Trained Transformer technology was trained on textual material sourced from the internet (Cooper, 2021 as cited by Rudolph et al. 2023a) which may contain unreliable information which can be biased, or deceptive (Birembaum, 2023; Mhlanga, 2023;). Additionally, there are concerns about social prejudice and toxicity that large language models might exhibit, as suggested by the findings of Zhuo et al. (2023), which could create broader inequality gaps (Luckin et al. 2022). Furthermore, Hockly (2023) has mentioned ethical concerns around privacy and surveillance in learning analytics while using AI. Furthermore, Cotton et al. (2023) have even pointed out that conditions become unfair when some students utilize ChatGPT to generate content while others do not.

Worldwide attention to the use and misuse of chatbots in educational settings is reflected on the numerous articles published in 2023 concerning potential uses, challenges, and drawbacks; yet upon inspection of reported literature, it is notorious the scarce or non-existent research surrounding the impact of generative pre-trained transformers or virtual reality on the learning outcomes (Klimova, et al., 2023) and even lesser on the users´ point of view, namely teachers and students as confirmed by Belda-Medina and Kokošková (2023).

In the realm of English language instruction, Bannister et al. (2023) after a systematic analysis which yielded a limited number of publications, consider that GenAI may be beneficial in a number of educational settings, including language acquisition. Mushthoza et al. (2023) have praised the integration of Chat GPT conversation in language education, even though according to Hockly (2023), "most current English language chatbots are examples of weak AI, operating within very specific linguistic domains such as ordering a meal, asking for directions, or asking and answering simple pre-scripted questions" (p.5). Hatmanto and Sari (2023) consider that using Chatbots aligns with current methodologies in language teaching such as Communicative Language Teaching (CLT) and Vygotsky's theories of social constructivism. In this context, Chat GPT can be smoothly integrated into task-based activities, "serving as a valuable instrument for learners to interact with and receive feedback on their language proficiency as they complete communicative tasks" (Hatmanto & Sari, 2023 p.4).

Within the range of diverse perspectives, it appears pertinent to undertake an investigation concentrated on the viewpoints of educators and students concerning their understanding and utilization of chatbots or virtual agents in the context of their English teaching/learning endeavors. The primary objective of this research is to ascertain the current implementation status of the aforementioned innovation among faculty and students at private universities in San Jose, Costa Rica.

The established research questions are the following:

How familiar are teachers and students in the field of English teaching with the concept of chatbots or virtual agents in an educational setting?

To what extent do educators incorporate chatbots into their teaching methodologies?

What specific tasks or activities do teachers believe can be enhanced or facilitated through the integration of chatbots?

Are learners using chatbots for academic assistance or engagement?

Are there any perceived benefits or drawbacks associated with the incorporation of chatbots in the educational process, according to both teachers and students?

Do teachers consider that integrating chatbots into their teaching methods can impact student learning outcomes or engagement?

Are there any concerns related to privacy or data security in the context of using chatbots in education?

How open are teachers and students to further integration and development of chatbot technology in the field of English language teaching?

Are professors concerned with the unethical use of chatbots in students´ assignments?

Do students perceive the unauthorized use of chat bots as cheating?

These questions aim to explore various aspects of the use of virtual agents in English teaching, including awareness, comfort, perceived benefits, potential impact on learning outcomes, and the negative implications of their use.

METHOD

RESEARCH DESIGN

This study utilized a cross-sectional research design to collect data on the knowledge and perspectives of both facilitators and learners regarding the integration of Chat GPT in their educational experiences. Thus, the major participants in this study were some undergraduate students enrolled in the English teaching major, students from other majors that were taking EFL courses, as well as professors in charge of the courses.

DATA COLLECTION

The three questionnaires were developed through google forms. They consisted of a combination of closed-ended and open-ended questions to gather both quantitative and qualitative data. The teachers´ questionnaire consisted of three parts. The first part covered general info such as age, gender and teaching experience. The second part consisted on several Likert-scale items covering knowledge and utility of chatbots, perceived benefits and perceived challenges. The Likert scale ranged from strongly disagree (1) to strongly agree (5) with a neutral middle point (3). The last part included open questions regarding intent of future use, examples of chatbot use, ethical concerns and opinion on how to regulate the use of chatbots in higher education.

Similarly, the students' questionnaire, also was divided into three parts, containing demographic questions such as age, gender and number of years in higher education; several Likert-scale items covering knowledge and utility of chatbots, perceived benefits and perceived challenges, and an open-question section where students were asked to express their intent for future use of chatbots in their academic pursues, to provide examples of chatbot use, and to give their opinion on how to regulate the use of chatbots in higher education. The questionnaire applied to the faculty and the teacher trainees was in English while the one applied to students of EFL was developed in their native tongue, Spanish.

The study obtained informed consent from all participants, providing a clear explanation of the study's purpose, the voluntary nature of participation, and the confidentiality and anonymity of the participants' responses. An email was sent to selected faculty members in the English departments of two universities located in San Jose, Costa Rica. The instructors' collaboration was also requested to distribute the link to the second on-line questionnaire directed to students taking EFL courses. Cronbach´s Alpha was established in 0.846 which indicates a satisfactory level of reliability, as indicated by Rodríguez-Rodríguez and Reguant-Álvarez (2020).

Descriptive statistics, such as frequencies and percentages, mean and standard deviation were used to analyze the closed-ended questions, providing an overview of participants' opinions on various considerations. Open-ended questions were analyzed to find themes and interpret them following a grounded theory qualitative research design (Creswell & Poth, 2018).

SAMPLING

The sample of professors consisted of 25 individuals selected purposefully on the basis of academic experience in the field. All the teachers had at least five years of experience as university professors teaching English courses. The sample of students was also non-probabilistic in nature, consisting in the voluntary responses received on line. The inquiry yielded 71 responses in total, 23 belonging to the English major students and 48 from the EFL courses.

FINDINGS AND DISCUSSION

FINDINGS AND DISCUSSION RELATED TO FACULTY

The average age of the participants was 38 years. The average years of experience in English language teaching was 14 and the gender distribution is 39% male and 61% female participants.

Chocarro et al. (2021), Chuah and Kabilan (2021) and Yang (2022) have indicated a significant acceptance of chatbots within the teaching community, aligning with the positive perspectives expressed by educators in Kaplan et al.'s (2023) study on General Artificial Intelligence (GAI). Shubham et al. (2020) highlighted the belief that chatbots contribute to enhancing teaching methodologies and student engagement, while Mohammed (2023) discovered that some faculty members recognize their utility in providing quick and accurate responses to a broad array of questions. In the present investigation, it was observed that approximately 75% of facilitators expressed being either very familiar or familiar with chatbots, indicating a substantial level of awareness. The first table presents educators' responses to various aspects covered in the survey.

Table 1 *Facilitators´ perceptions*

Knowledge and usage	*Mean*	*S.D.*
Familiarity with Chat bots	3,96	0,93
Use it to plan lessons	2,52	1,24
Use it to create materials/activities	2,96	1,30
Use to create evaluations	2,78	1,31
Use it to do research	2,39	1,16
Use it to create reports	2,09	1,08
Use it to communicate with colleagues and superiors (emails/reports)	1,96	0,98
Perceived Benefits		
Assisting in formative assessment of students.	3,70	1,11
reducing teachers' work load	4	1,09
assisting in the planning process	4,09	0,85
helping learners' oral proficiency	3,35	1,27
Improving students' writing skills	3,52	1,08

Perceived threats		
Cheating in exams	2,74	1,65
Unauthorized use to write paragraphs/essay assignments	3,21	1,80
Translation of texts	3,78	1,31
Limits development of critical thinking	3,87	1,09

N= 25 S.D.= Standard deviation

Merely 25% of professors leverage this technology for lesson preparation, a notably conservative figure given the proclaimed familiarity of the majority of teachers with chatbots. Research by Bedoya-Ulla et al. (2023), Corp and Revelle (2023), as well as Van den Berg and Du Plessis (2023) exhibited positive attitudes in faculty towards ChatGPT and acknowledged its multiple applications, including lesson preparation and language activity creation. On the other hand, Iqbar (2022) presented a negative perception among teachers toward the use of ChatGPT in their profession, with the only potential application considered being, precisely, in the planning process. Despite the potential contribution to ease the burden of lesson planning, an activity often perceived as tedious and time-consuming, professors consulted in this investigation underutilize chatbots in this pre-class requirement.

In various other teaching related activities, the utilization of chatbots yielded the following proportions: 44% use them for material creation, 35% for assisting in evaluation creation, 17% for research purposes, and approximately 13% for written communication, such as reports and emails. This represents that so far faculty members include the use of artificial intelligence in non-didactic tasks related to education very sporadically, in spite of its convenience Mavropoulou et al. (2023) conducted a study in which ChatGPT was tasked with creating material for a specific university course. The material generated, after some minor revisions, proved satisfactory and reliable, earning approval from professors who revised it. The research also demonstrated a significant potential for reducing the time required for developing and finding teaching materials and related activities (Mavropoulou et al., 2023), echoing findings by Atlas as cited by Grassini (2023) and Bedoya et al. (2023). Overall, the current study suggests that, akin to Kaplan et al.'s (2023) observations and Klimova et al.´s findings (2023), professors, in general, appear hesitant to fully embrace chatterbots in their professional domain.

In regards to the top perceived benefit detected by the educators, reducing their work load was the most mentioned, which is similar to Grassini´s results (2023). In second place, they positioned assisting in the planning process, even though as discussed previously, a low percentage of them actually use the generators to plan lessons, indicating that even though they are aware of the advantages of using this technology, professors are still reluctant to use it.

The biggest threat according to 70% of responses was academic dishonesty which is coherent with the clamor of many scholars (Iqbal et al., 2022; Amin (2023); Bonsu & Baffour-Koduah, 2023; Farrokhnia, et al., 2023; Grassini, 2023; King, 2023; Tlili et al., 2023). Furthermore, Sullivan et al. (2023) in their systematic research discovered the primary theme raised in the articles was academic integrity concerns (n=88) mentioning cheating, dishonest practices or misuse by learners. Grassini (2023) reported that students utilizing ChatGPT for their assignments are more likely to engage in plagiaristic practices than their counterparts who do not use the tool. Similarly, Bonsu and Baffour-Koduah (2023) have emphasized on the risk of having blind reliance on generative AI tools which was favored as the biggest threat only by 9% of inquired teachers in this study. Other articles reviewed by Sullivan et al. (2023) referred to aspects such as how ChatGPT works, citing that “it make[s] stuff up, but it sounds plausible” (Chatbots ‘spell end to lessons at home’, cited in Sullivan et al., 2023) and may produce incorrect information; there is potential for chatbots to propagate harmful prejudices and discrimination (Huallpa et al. 2023) as well as the quality and dependability of the data, aspects that were not mentioned as threats by the participants. Limitation on critical thinking was considered the

biggest disadvantage by only 17%, contradicting Sullivan et al. (2023) who found it a salient theme confirmed by other research´s findings (Shubham et al., 2020; Mohammed, 2023; Hatmanto & Sari, 2023).

When asked about which they considered was the least important threat while using Chat GPT, the findings seem contradictory: facilitators mentioned academic dishonesty in 35%, followed by 22% of inaccurate information; 17% biased information, 13% over dependency, 9% reduced thinking.

In regards to their willingness to learn more and expand the use of generative pre-trained transformers, the disappointing results show 33% agreeing; 38% disagreeing and 29% having a neutral standpoint or not answering the item, which is coherent to findings reported by Iqbal et al. (2022). The general perspective of English educators seems to align with Chuah and Kabilan´s (2021) results: teachers were positive about the use of chatbots but remained reserved on their accuracy, therefore showing apprehensions in their use. This could be a consequence of what Ananthan et al. (2023) have investigated: one of the main reasons why English facilitators hesitate to implement AI is the lack of trust in technologies, thinking that they are not accurate enough or are too rigid. Consequently, teachers must be trained on how to effectively implement these tools in their EFL classes to support traditional instruction, as suggested by Klimova et al. (2023).

Fifty-five percent of the teachers indicated that they have detected the use of Chat GPT by their students; 30% have not and 15% did not answer. The potential misuse of chatbots is undeniable, and as studies have indicated it is becoming more common with the spread and improvement of virtual agents (Biener & Waeber ,2021; Greitemeyer & Kastenmuller, 2023). Furthermore, Tlili et al., (2023) have mentioned not only the possibility of students cheating but also the inconsequential manipulation of the system, which was confirmed by Spennemann (2023) who discovered that ChatGPT provided suggestions on how to cheat in university assignments.

The participants were asked to provide examples of how the use of chatbots can or have improved the students´ development of the English language. Thirty percent of them could not provide any example, which indicated that the use of virtual agents has permeated very little on their sphere of action. Among the received answers the following were mentioned: Exposure to language, use in the initial stages of research; students using it to proofread their own texts; to improve pronunciation and with grammar issues. Other Empirical studies have referred to actions such as simulating authentic conversations and providing immediate feedback on grammar, vocabulary, and pronunciation as well as provide extra practice thus promoting proficiency and boosting student confidence. (Amin, 2023; Annamalai, et al., 2023; Fauzi et al, 2023; Hockly, 2023; Yang, 2022; Yuan,2023).

All of the instructors agree that there should be clear policies that each institution must determine, consistent with appreciations by Pavlenko (2021), Lobel (2023) and Yu (2023). The majority of participants were concerned by the fact that currently very few higher education institutions have created written standards and regulations on the use of AI, aligned with Barret and Pack (2023) who reported that 94% of teachers complained their university did not have a policy regarding the use of AI, thus leaving a void or loop hole where unethical students could take advantage of the situation. Educators considered that generative artificial intelligence use could be allowed, but restricted to specific tasks, such as consultation and research. One of the respondents recommended that the universities should provide training for instructors and students on the use of ChatGPT and particularly pay attention to implementing detection strategies, something that Newman et al. (2023) also emphasize.

FINDINGS AND DISCUSSION RELATED TO LEARNERS

As mentioned before, the study encompassed two distinct cohorts of students: those enrolled in English majors and those undertaking English as a Foreign Language (EFL) courses. The deliberate inclusion of these cohorts aimed to juxtapose the learning experiences of individuals pursuing English language proficiency as a subject of academic specialization, indicative of a predisposition towards linguistic appreciation and commitment, against those compelled by curricular mandate.

Within the first group, the mean age of participants was 31 years, with a gender distribution of 58% male and 41% female, on average having spent four years in higher education. Conversely, the second cohort, taking levels one and two of the mandatory EFL courses, exhibited an average age of 27 years, comprising 52% female and 48% male participants.

Table two summarizes the responses garnered from the applied questionnaires.

Table 2 *Learners' perceptions*

	English major students		EFL students	
Knowledge and usage	**Mean**	**SD**	**Mean**	**SD**
Familiarity with Chat bots	3,33	0,98	3,13	1,31
Use it to translate texts	2,42	1,31	2,50	1,37
Use it to create reports or written assignments	2,33	1,15	1,98	0,98
Use to find answers in evaluations	1,92	0,90	1.86	0,99
Use it to do research	2,58	1,17	2,53	1,37
Perceived Benefits				
Chat bots help in reading comprehension tasks.	3,67	1,07	3,29	1,14
Chat bots could help to do research	3,83	0,83	3,73	1,07
Chat bots promote oral proficiency	2,42	1,24	2,98	1,13
Chat bots could help improve written skills	2.67	1,23	3,37	0,97
Perceived threats				
Using chatbots in exams is cheating	4.33	0.98	3,49	1,25
Unauthorized use of chat bots to write paragraphs/essay assignments is cheating	4	0,95	3,27	1,23
Using chatbots to translate texts is cheating	3,16	1,19	2,74	1,13
Using chatbots limits critical thinking	3.64	1,20	3,39	1,05

students in the major N=23; students in EFL N=48 S.D.= Standard deviation

Despite the rapid integration of generative agents into the array of options offered by artificial intelligence (AI), learners exhibit a lower level of familiarity with their use than anticipated, as the majority selected a neutral position (mean = 3), with even fewer instances of application across various tasks. This discrepancy may stem from a lack of information or an apprehension regarding the potential risks associated with their utilization following numerous publications that have underscored the dangers of overreliance on chatbots across different domains, including concerns such as ethical lapses, diminished critical thinking, dissemination of inaccurate information, and suboptimal outcomes in tasks such as translation, with some even reporting fabricated references in text generation (Birembaum, 2023; Coancă (2023); Ghosh & Caliskan, 2023; Lathrop & Johnson, 2023; Mhlanga, 2023; Popenici et al., 2023; Rudolph et al., 2023a). These findings resonate with Sing Gill et al. (2024), whose research suggests that a significant portion of students have never utilized such tools for language-related tasks, citing a lack of clear usage policies or unfamiliarity with leveraging the technology (Singh Gill et al., 2024).Conversely, some studies have reported a noteworthy understanding of generative AI technologies among their respondents, indicating a positive attitude towards integrating them into learning practices (Al-Abdullatif, 2023; Ilieva et al., 2023).

The responses obtained in this study reflect a prevalent perception that the use of ChatGPT constitutes cheating within academic contexts, not only in seeking answers for evaluations but also in completing tasks requiring written responses, consistent with Garrote Jurado et. al.´s (2023) research in the U.S., a viewpoint somewhat surprising given the apparent prevalence of academic fraud in higher education (Keegin, 2023). In alignment with this feeling, Bego's investigation (2023) revealed that among students who had employed ChatGPT to complete homework assignments, only the minority thought they were acting unethically. Notably, 52% of students in the teaching major believed that professors could detect the use of generative agents, while 29% expressed a neutral stance on the matter, but among the cohort of EFL students the great majority considered that the use of ChatGPT is easily detected.

Among students studying English, the foremost concerns were a perceived reduction in critical thinking (44% of responses), followed by issues of dishonesty and overdependence (22% each), with 8% citing inaccurate information as a negative outcome. EFL pupils, on the other hand, highlighted plagiarism (38%) and diminished critical thinking abilities (35%) as primary threats, with 15% expressing concerns about negative repercussions such as point deductions or evaluation nullification. Privacy issues and overdependence were the least cited concerns among English majors., followed by inaccurate information. EFL students exhibited a more varied spectrum of concerns, with 21% expressing concerns about information accuracy, and 21% with ethical issues, and limitation of critical thinking, and privacy issues each occupying 19% of opinions. In contrast, Hmoud et al., (2024) study revealed that higher education students expressed high satisfaction with chatbot usage, citing increased motivation, effectiveness, and contributions to higher-order thinking.

Regarding their willingness to use generative pre-trained transformers in the future, students largely responded negatively or neutrally. However, Shaikh et al.'s (2023) study suggests that ChatGPT is perceived as a useful tool for language learning by students.

Manifest positive outcomes associated with the use of the tool include text generation, information retrieval, and autonomy, as well as improvement in speaking competence, echoing findings reported by Kim et al,. (2021), Hatmato and Sari (2022); Annamalai, et al. (2023); Firaina and Sulisworo (2023); Shaikh et al. (2023) and Yuan (2023). Nonetheless, more than half of the participants were unable to provide examples of how chatbots might be beneficial in English learning and recognize that they have never or in very few occasions utilized this tool.

As for their opinion on which should be the academia´s policy on the use of ChatGPT in pre-service EFL teachers the following was found: 40% favor using it with limitations and depending on the task, 30% of recommend prohibiting its use and 30% were in favor of its free utilization. On the other hand, EFL students agree with its free use in 27%; 8% rejected its use; and the remainder consider that it should be used with control, only for research and under some regulations similar to findings by Garrote Jurado et al. (2023) and Tiwari, et al. (2023)

CONCLUSIONS AND IMPLICATIONS

Aligned with the research inquiries, it can be deduced that both educators and learners lack familiarity with the utilization of ChatGPT and its diverse applications within educational settings. Consequently, educators are not harnessing the potential of this tool. Nevertheless, professors acknowledge the prospective benefits, such as workload reduction in routine tasks and its potential utility in assessment procedures. However, they do not perceive virtual agents as conducive to

students' enhancement in either oral or written proficiency. These results are a clear indication that more training is necessary to comprehend the enormous utility of

Educators express receptiveness towards further training and potential integration of AI into teaching responsibilities. Nonetheless, they harbor significant apprehensions regarding integrity and the prevalence of plagiaristic practices and the impact on critical thinking in students. Other drawbacks reported in literature such as over dependency or inaccuracy in the information were not considered by them. In general, they advocate for regulatory measures and the establishment of clear policies governing its utilization in the academy. It is imperative that institutions of higher education develop and implement comprehensive policies with regards to the acceptable use of artificial intelligence technologies for academic purposes, given the rapid advancements in AI capabilities and their increasing accessibility.

Learners, on the other hand report not using chatbots for academic assistance, admitting that it is essentially unethical. They perceive those texts generated by virtual agents are easily detectable. Coinciding with their teachers, students perceived the decrease in critical thinking development as a drawback of excessive chatbot use. Nonetheless, some learners perceive that ChatGPT could be useful in improving vocabulary and writing skills and for research purposes but do not consider this tool appropriate for developing oral proficiency. Opinions were divided as for the future use of pre-trained generative agents: some learners advocate for their free use, some consider that the use should be regulated and some are against their use in the university. Universities must proactively address the profound implications these technologies present for academic integrity, intellectual property, and ethical conduct within the educational sphere.

Within this context, it is evident that users are still shy in their integration of artificial intelligence in academic endeavors. Therefore, it is necessary to expand educators' and students´ understanding of the technology and its potential utilization within clearly defined guidelines and protocols which are crucial to upholding academic standards, safeguarding originality of scholarly work, and ensuring AI tools are leveraged responsibly and ethically by students, faculty, and researchers alike.

This matter necessitates prompt attention and decisive action from academic governing bodies to maintain public trust and preserve the integrity of university curricula and credentialing processes.

Limitations

This study was conducted in the context of English teaching and learning with a limited number of voluntary participants. Therefore, the relatively small sample size of participants may limit the generalizability of the findings to a larger population. The participants are from similar backgrounds which may limit the diversity of perspectives and experiences represented in the study. Since the sampling was non-probabilistic and only voluntary respondents were considered, results may not be representative of the broader population.

Additional research endeavors should aim to encompass a larger and more diverse sample size, thereby facilitating a more comprehensive and holistic understanding of the subject matter. Broadening the scope of inquiry to incorporate perspectives from other disciplines and fields of knowledge would prove invaluable, as it would reflect the multifaceted viewpoints and practical considerations of professionals across various domains regarding the utilization of conversational AI agents as tools within their respective areas of expertise.

REFERENCES

Aithal, P. S., & Aithal, S.(2023).Application of ChatGPT in Higher Education and Research –A Futuristic Analysis. *International Journal of Applied Engineering and Management Letters* (IJAEML), 7(3), 168-194. DOI: https://doi.org/10.5281/zenodo.8386867

Al-Abdullatif, A.M., (2023) Modeling Students' Perceptions of Chatbots in Learning: Integrating Technology Acceptance with the Value-Based Adoption Model. *Educ. Sci.*, 13(11) 1151 https://doi.org/10.3390/educsci13111151

Amin, M. Y. M. (2023). AI and Chat GPT in Language Teaching: Enhancing EFL Classroom Support and Transforming Assessment Techniques. International Journal of Higher Education Pedagogies, 4(4), 1–15. https://doi.org/10.33422/ijhep.v4i4.554

Ananthan, B., Sudhan, P. & Sukumaran, R. (2023). English Facilitators' Hesitation to Adopt AI-Assisted Speaking Assessment in Higher Education. (2023). *Boletín De Literatura Oral* , 10(1), 1324-1329. https://www.boletindeliteraturaoral.com/index.php/bdlo/article/view/311

Annamalai, N., Eltahir, M.E., Zyoud, S.H., Soundrarajan, D., Zakarneh, B. & Al Salhi, N.R. (2023) Exploring English language learning via Chabot: A case study from a self-determination theory perspective. *Computers and education: Artificial Intelligence*, https://dx.doi.org/10.1016/j.caeai.2023.100148

Bannister, P., Santamaría Urbieta, A., & Alcalde Peñalver, E. (2023) A Systematic Review of Generative AI and (English Medium Instruction) Higher Education. *Aula Abierta*, 52(4) 401-409 https://doi.org/10.17811/rifie.52.4.2023.401-409

Barret, A. & Pack, A. (2023) Not quite eye to A.I.: student and teacher perspectives on the use of generative artificial intelligence in the writing process. *International Journal of Educational Technology in Higher Education,* 20(59). doi.org/10.1186/s41239-023-00427-0

Belda-Medina, J. & Kokošková, V. (2023) Integrating chatbots in education: insights from the Chatbot-Human Interaction Satisfaction Model (CHISM). *International Journal of Educational Technology in Higher Education,* 20(1) 1-20 https://doi.org/10.1186/s41239-023-00432-3

Bedoya Ulla, M., Perales, W., & Ong Busbus, S. (2023) '*To generate or stop generating response'*: Exploring EFL teachers' perspectives on *ChatGPT* in English language teaching in Thailand. *Learning: Research and Practice*, 9 (2) https://doi.org/10.1080/23735082.2023.2257252

Bego, C. R. (2023) Using ChatGPT for Homework: Does it Feel Like Cheating? (WIP) IEEE Frontiers in Education Conference (FIE), College Station, TX, USA, 1-4, https://doi.org/10.1109/FIE58773.2023.10343397

Biener, C. & Waeber, A.(2021) Would I Lie to You? How Interaction with Chatbots Induces Dishonesty. https://ssrn.com/abstract=3881084 or http://dx.doi.org/10.2139/ssrn.3881084

Birenbaum M. (2023) The Chatbots' Challenge to Education: Disruption or Destruction*? Education Sciences*, 13(7):711. https://doi.org/10.3390/educsci13070711

Bonsu,E. & Baffour-Koduah,D. (2023).From the Consumers' Side: Determining Students' Perception and Intention to Use ChatGPT in Ghanaian Higher Education. *Journal of Education, Society & Multiculturalism*,4(1) 1-29. https://doi.org/10.2478/jesm-2023-0001

Chen L., Chen P., & Lin,Z. (2020) Artificial Intelligence in Education: A Review. *EEE Access*, 8, 75264-75278 https://doi.org/10.1109/ACCESS.2020.2988510

Chocarro,R., Cortiñas, M. & Marcos-Matás G. (2021) Teachers' attitudes towards chatbots in education: a technology acceptance model approach considering the effect of social language, bot proactiveness, and users' characteristics. *Educational Studies*, 49:2, 295-313, https://doi.org/10.1080/03055698.2020.1850426

Chuah, K.M. & Kabilan M.K., (2021) Teachers' Views on the Use of Chatbots to Support English Language Teaching in a Mobile Environment. *International Journal of Emerging Technologies in Learning*, 16(20) https://dx.doi.org/10.3991/ijet.v16i20.24917

Coancă, M. (2023). The Role of Artificial Intelligence in Teaching English for Specific Purposes. *Journal of Information Systems & Operations Management, 17*(1), 74-82. Retrieved from https://www.proquest.com/scholarly-journals/role-artificial-intelligence-teaching-english/docview/2876732384/se-2

Concannon, F., Costello, E., Farrell, O., Farrelly, T., & Graves Wolf, L. (2023). Editorial: There's an AI for that: Rhetoric, reality, and reflections on EdTech in the dawn of GenAI. *Irish Journal of Technology Enhanced Learning*, 7(1). https://doi.org/10.22554/ijtel.v7i1.116

Corp, A., & Revelle, C. (2023) ChatGpt is here to Stay: Using ChatGPT with Student Teachers for Lesson Planning. *The Texas Forum of Teacher Education,* 4 116- 124 https://txate.org/resources/Documents/Forum%202023%20Final%20Full%20Issue.pdf#page=122

Cotton, D., Cotton, P., & Shipway, J.R. (2023) Chatting and cheating: Ensuring academic integrity in the era of ChatGPT*, Innovations in Education and Teaching International*, https://www.tandfonline.com/doi/epdf/10.1080/14703297.2023.2190148?needAccess=true#:~:text=https%3A//doi.org/10.1080/14703297.2023.2190148

Cresswell, J.W. & Poth, N.P. (2018) Qualitative Inquiry and Research Design 4th ed. Sage. https://pubhtml5.com/enuk/cykh/Creswell_and_Poth%2C_2018%2C_Qualitative_Inquiry_4th/578

Farazouli,A., Cerratto-Pargman,T., Bolander-Laksov, K. & McGrath,C. (2023) Hello GPT! Goodbye home examination? An exploratory study of AI chatbots impact on university teachers' assessment practices, *Assessment & Evaluation in Higher Education*, https://doi.org/10.1080/02602938.2023.2241676

Farrokhnia, M., Banihashem, S.K., Noroozi, O. & Wals, A. (2023) A SWOT analysis of ChatGPT: Implications for educational practice and research. *Innovations in Education and Teaching Internationa*l, https://doi.org/10.1080/14703297.2023.2195846

Fauzi, F., Tuhuteru, L., Sampe, F., Ausat, A., & Hatta, H. (2023). Analysing the Role of ChatGPT in Improving Student Productivity in Higher Education. *Journal on Education*, 5(4), 14886-14891. https://doi.org/10.31004/joe.v5i4.2563

Firaina, R., & Sulisworo, D. (2023). Exploring the Usage of ChatGPT in Higher Education: Frequency and Impact on Productivity. *Buletin Edukasi Indonesia*, 2(01), 39–46. https://doi.org/10.56741/bei.v2i01.310

Floridi, L., & Chiriatti, M. (2020). GPT-3: Its nature, scope, limits, and consequences. *Minds and Machines*, 30(4), 681-694 https://link.springer.com/article/10.1007/s11023-020-09548-1

Garrote Jurado, R., Pettersson, T., & Zwierewicz, M. (2023) Students´ Attitudes to the Use of Artificial Intelligence. https://www.diva-portal.org/smash/get/diva2:1815616/FULLTEXT01.pdf

Ghosh, S., & Caliskan, A. (2023). *ChatGPT perpetuates gender bias in machine translation and ignores non-gendered pronouns: Findings across bengali and five other low-resource languages*. Ithaca: Cornell University Library, arXiv.org. https://www.proquest.com/working-papers/chatgpt-perpetuates-gender-bias-machine/docview/2815843323/se-2

Grassini, S. (2023). Shaping the Future of Education: Exploring the Potential and Consequences of AI and ChatGPT in Educational Settings. *Educ. Sci.*, *13*(7), 692; https://doi.org/10.3390/educsci13070692

Greitemeyer, T.& Kastenmuller, A. (2023) HEXACO, the Dark Triad, and Chat GPT: Who is willing to commit academic cheating*? Heliyon* 9 https://doi.org/10.1016/j.heliyon.2023.e19909

Hatmanto, E.D., & Sari,M.I. (2023) Aligning Theory and Practice: Leveraging Chat GPT for Effective English Language Teaching and Learning. E3S Web Conf., 440 05001 https://doi.org/10.1051/e3sconf/202344005001

Hockly, N. (2023) Artificial Intelligence in English Language Teaching: The Good, the Bad and the Ugly. *RELC Journal*, 54(2) 445–451 http://doi.org/10.1177/00336882231168504

Hmoud, M., Swaity, H., Hamad, N., Karram, O., & Daher, W. (2024). Higher education students' task motivation in the generative artificial intelligence context: The case of ChatGPT. *Information, 15*(1), 33.

https://www.proquest.com/pq1academic/docview/2918768025/F380BDFEB5734F5BPQ/18?accountid=163025&sourcetype=Scholarly%20Journals#:~:text=DOI%3A10.3390/info15010033

Huallpa, J. J., Flores Arocutipa, J.P., Diaz Panduro, W., Chauca Huete, L., Flores Limo, F.A., Espinoza Herrera, E., Alba Callacna, A., Ariza Flores, V.A., Medina Romero, M.A., Merino Quispe, I., & Hernández Hernández, F.A. (2023). Exploring the ethical considerations of using Chat GPT in university education. *Periodicals of Engineering and Natural Sciences*, 11(4), 105-115. http://dx.doi.org/10.21533/pen.v11i4.3770

IBM (2023) Chatbots vs. AI chatbots vs. virtual agents. *What is a chatbot?* https://www.ibm.com/topics/chatbots

Ibrahim, H., Liu, F., Asim, R., Battu, B.,Benabderrahmane, S., Alhafni, B., Adnan, W., Alhanai, T.,Alshebli, B.,Bagjdadi, R.,Belanger, J.J., Beretta, E., Celik, K., Chaqfeh, M., Daqaq, M.F., Bernoussi, Z.E., Fougnie, D., Garcia de Soto, B., Gandolfi A., & Gyorgy, A.(2023) Perception, performance and detectability of conversational artificial intelligence across 32 university courses. *Scientific Reports*, 13(1) https://doi.org/10.1038/s41598-023-43998-8

Ilieva, G., Yankova, T., Klisarova-Belcheva, S., Dimitrov, A., Bratkov, M., & Angelov, D. (2023). Effects of generative chatbots in higher education. *Information*, 14(9), 492. https://doi.org/10.3390/info14090492

Iqbal, N., Ahmed, H., & Azhar, K.A. (2022) Exploring Teachers´Attitudes towards using ChatGPT. *Global Journal for Management and Administrative Sciences,* 3(4),97-111, https://www.researchgate.net/profile/Kaukab-Azhar/publication/368836802_Exploring_Teachers'_Attitudes_towards_Using_Chat_GPT/links/63fca4540d98a97717c14d9a/Exploring-Teachers-Attitudes-towards-Using-Chat-GPT.pdf

Kaplan-Rakowski, R., Grotewold, K., Hartwick, P. & Papin, K. (2023). Generative AI and Teachers' Perspectives on Its Implementation in Education. *Journal of Interactive Learning Research*, 34(2), 313-338. Waynesville, NC: Association for the Advancement of Computing in Education (AACE). Retrieved December 18, 2023 from https://www.learntechlib.org/primary/p/222363/.

Keegin, J. M. (2023). ChatGPT is a plagiarism machine: So why do administrators have their heads in the sand? jonathan barkat for the chronicle. *The Chronicle of Higher Education,* Retrieved from https://www.proquest.com/trade-journals/chatgpt-is-plagiarism-machine/docview/2899423538/se-2

Kim, H., Cha, Y & Kim N.Y. (2021) Effects of AI Chatbots on EFL Students' Communication Skills. *Korean Journal of English Language and Linguistics*, 21 712-734 http://journal.kasell.or.kr/xml/30253/30253.pdf

King, M.R., (2023) chatGPT. A Conversation on Artificial Intelligence, Chatbots, and Plagiarism in Higher Education. *Cel. Mol. Bioeng.* **16**, 1–2 (2023). https://doi.org/10.1007/s12195-022-00754-8

Klimova, B., Pikhart, M., Polakova, P., Cerna, M., Yayilgan, S. Y. & Shaikh, S. (2023) A Systematic Review on the Use of Emerging Technologies in Teaching English as an Applied Language at the University Level. *Systems*, 11(1). https://doi.org/10.3390/systems11010042

Kostka, I. & Toncelli, (2023) Exploring Applications of ChatGPT to English Language Teaching: Opportunities, Challenges, and Recommendations. *TESL-EJ27*(3) https://doi.org/10.55593/ej.27107int

Lathrop, B. N., & Johnson, T. S. (2023). Researchers beware: ChatGPT is a bullshitter. *English Education, 55*(3), 219-221. https://www.proquest.com/scholarly-journals/researchers-beware-chatgpt-is-bullshitter/docview/2847080365/se-2

Luckin,R., Cukurova, M. Kent,C. & du Boulay,B . (2022) Empowering educators to be AI-ready, C*omputers and Education: Artificial Intelligence*, Volume 3, https://doi.org/10.1016/j.caeai.2022.100076

Mavropoulou, E. ., Koutsoukos, M. ., & Oikonomou, A. (2023). Integration of Artificial Intelligence on Teaching the Course of Didactic Methodology: A Case Study. *European Journal of Social Science Education and Research*, 10(2), 140–155. Retrieved from https://revistia.com/index.php/ejser/article/view/6992

McMurtrie, B. (Dec 13, 2022) Teaching experts are worried, but not for the reasons you think. *The Chronicle of higher education,* https://www.chronicle.com/article/ai-and-the-future-of-undergraduate-writing

Mhlanga, D.(2023) Open AI in Education, the Responsible and Ethical Use of ChatGPT Towards Lifelong Learning. Available at SSRN: https://ssrn.com/abstract=4354422 or http://dx.doi.org/10.2139/ssrn.4354422

Mohamed, A.M. (2023) Exploring the potential of an AI-based Chatbot (ChatGPT) in enhancing English as a Foreign Language (EFL) teaching: perceptions of EFL Faculty Members. Educ Inf Technol https://doi.org/10.1007/s10639-023-11917-z

Mucci, T, (January 17u, 2024) Chatbot examples: A beginner's guide.

https://www.ibm.com/blog/chatbot-examples-a-beginners-guide/

Mushthoza, D. A., Syariatin, N., Tahalele, O., Telussa, S. I., Rasmita, R., & Mokodenseho, S. (2023). Analyzing The Impact of Artificial Intelligence (AI) On the Future of English Language Teaching And Learning. *Journal on Education*, 6(1), 1549–1557. https://www.jonedu.org/index.php/joe/article/view/3115

Newman, M., Rauschenberger, M. & Schon, E.M.(2023) We Need To Talk About ChatGPT: The Future of AI and Higher Education. Hochschule Hannover (pre print). https://doi.org/10.25968/opus-2467

Nguyen, A., Ngo, H.N., & Hong, Y. (2023) Ethical principles for artificial intelligence in education. *Educ Inf Technol* 28, 4221–4241 (2023). https://doi.org/10.1007/s10639-022-11316-w

Oravec, J.A. (2023). Artificial Intelligence Implications for Academic Cheating: Expanding the Dimensions of Responsible Human-AI Collaboration with ChatGPT. *Journal of Interactive Learning Research,* 34(2), 213-237. Waynesville, NC: Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/primary/p/222340/.

Lobel, O.(2023) The Law of AI for Good . San Diego Legal Studies Paper No. 23-001 https://ssrn.com/abstract=4338862 / http://dx.doi.org/10.2139/ssrn.4338862

Pavlenko Z. (2021) Law in Digital Reality. The Bulletin of Yaroslav Mudryi National Law University. Series:Philosophy, philosophies of law, political science, sociology. https://dx.doi.org/10.21564/2663-5704.49.229779

Pinzolitz, R.F.J. (2024) AI in academia: An overview of selected tools and their areas of application. *MAP Education and Humanities*, 4, 37–50. https://doi.org/10.53880/2744-2373.2023.4.37

Popenici, S., Rudolph, J., Tan, S. & Tan, S (2023) A critical perspective on generative AI and learning futures. An interview with Stefan Popenici. *Journal of Applied Learning & Teaching* 6(2) https://doi.org/10.37074/jalt.2023.6.2.5

Rawas, S. (2023) ChatGPT: Empowering lifelong learning in the digital age of higher education. *Educ Inf Technol,* https://doi.org/10.1007/s10639-023-12114-8

Reiss, M.J. (2021) The Use of AI in Education: Practicalities and ethical considerations. *London Review of Education* 19(1). https://doi.10.14324/RE.19.1.05

Rodríguez-Rodríguez, J. & Reguant-Álvarez, M. (2020). Calcular la fiabilidad de un cuestionario o escala mediante el SPSS: el coeficiente alfa de Cronbach. REIRE https://revistes.ub.edu/index.php/REIRE/article/download/reire2020.13.230048/31484/73498

Rudolph J., Tan, S.& Tan S. (2023 a.) ChatGPT: Bullshit spewer or the end of traditional assessments in higher education? *Journal of Applied Learning & Teaching* 6(1) https://doi.org/10.37074/jalt.2023.6.1.9

Rudolph J., Tan, S.& Tan S. (2023b.) War of the chatbots: Bard, Bing Chat, ChatGPT, Ernie and beyond. The new AI gold rush and its impact on higher education. *Journal of Applied Learning & Teaching* 6(1) https://doi.org/10.37074/jalt.2023.6.1.23

Shaikh, S., Yayilgan, S.Y., Klimova, B. & Pikhart, M.(2023) Assessing the Usability of ChatGPT fro formal English Language Learning. *European Journal of Investigation in Health, Psychology & Education* (EJIHPE) 13(9), 1937-1960 https://doi.org/10.3390/ejihpe13090140

Shaikh, S., Sule, Y. Y., Klimova, B., & Pikhart, M. (2023). Assessing the usability of ChatGPT for formal english language learning. *European Journal of Investigation in Health, Psychology and Education, 13*(9), 1937. https://doi.org/10.3390/ejihpe13090140

Sharpless, M. (2022) Automated Essay Writing: An AIED Opinion. *International Journal of Artificial Intelligence in Education*. 32 1119–1126, https://link.springer.com/article/10.1007/s40593-022-00300-7

Shubham, J., Rambola R.K. & Churi, P. (2020) Evaluating Artificial Intelligence in Education for Next Generation. *Journal of Physics: Conference Series* https://doi.org/10.1088/1742-6596/1714/1/012039

Singh Gill, S., Xu, M., Patros, P., Wu, H., Kaur, R., Kaur, K., Fuller, S., Singh. M., Arora, P. Kumar Parlikad, A., Stankovski, V., Abraham, A., Ghosh, S.K., Lutfiyya,H., Kanhere, S.S., Bahsoon, R., Rana, O., Dustdar, S., Sakellariu, R., Uhlig, S. ,& Buyya, R. (2024) Transformative effects of ChatGPT on modern education: Emerging Era of AI Chatbots. *Internet of Things and Cyber-Physical Systems Open access.* 4 19-23. https://doi.org/10.1016/j.iotcps.2023.06.002

Spennemann, D.H.(2023) Exploring Ethical Boundaries: Can ChatGPT Be Prompted to Give Advice on How to Cheat in University Assignments?. Preprints 2023, 2023081271. https://doi.org/10.20944/preprints202308.1271.v1

Sullivan, M., Kelly, A., & McLaughlan, P. (2023). ChatGPT in higher education: Considerations for academic integrity and student learning. *Journal of Applied Learning & Teaching*, 6(1), 1-10. https://doi.org/10.37074/jalt.2023.6.1.17 https://doi.org/10.37074/jalt.2023.6.1.17

Tiwari,C.K., Bhat,M.A., Khan,S.T. Subramaniam, R., & Khan M.A.I. (2023) What drives students toward ChatGPT? An investigation of the factors influencing adoption and usage of ChatGPT. *Interactive Technology and Smart Education*. https://doi.org/10.1108/ITSE-04-2023-0061

Tlili, A., Shehata, B., Adarkwah, M.A. Boskurt, A., Hickey, D.T., Huang, R., & Agyemang, B. (2023) What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learn. Environ.* **10**, 15 (2023). https://doi.org/10.1186/s40561-023-00237-x

Van den Berg G, & Du Plessis E. (2023) ChatGPT and Generative AI: Possibilities for Its Contribution to Lesson Planning, Critical Thinking and Openness in Teacher Education. *Education Sciences,* 13(10):998. https://doi.org/10.3390/educsci13100998

Van Noorden, R. & Perkel, J.M. (2023) AI and Science: What 1,600 researchers think. *Nature*, 621 https://www.nature.com/articles/d41586-023-02980-0

Xiao, Y. & Zhi, Y. (2023) An Exploratory Study of EFL Learners' Use of ChatGPT for Language Learning Tasks: Experience and Perceptions. *Languages*, 8(3):212 https://doi.org/10.3390/languages8030212

Yang, J. (2022) Perceptions of preservice teachers on AI chatbots in English education. *International Journal of Internet, Broadcasting and Communication* 14(1) 44-52 https://www.mendeley.com/search/?page=1&query=Chatbots%20in%20english%20teaching%20&sortBy=relevance

Yuan Y. (2023) An empirical study of the efficacy of AI chatbots for English as a foreign language learning in primary education, *Interactive Learning Environments*, https://doi.org/10.1080/10494820.2023.2282112

Yu, H. (2023) Reflection on whether Chat GPT should be banned by academia from the perspective of education and teaching. *Frontiers in Psychology*, Vol 14. https://doi.org/10.3389/fpsyg.2023.1181712

Zawacki-Richter, O., Marín, V.I., Bond, M. & Gouverneur, F. (2019) Systematic review of research on artificial intelligence applications in higher education – where are the educators?. *Int J Educ Technol High Educ* 16 (39), https://doi.org/10.1186/s41239-019-0171-0

Zhai, X., (2022) ChatGPT User Experience: Implications for Education (December 27, 2022). Available at SSRN: https://ssrn.com/abstract=4312418 or http://dx.doi.org/10.2139/ssrn.4312418

Zhuo, T.Y., Huang, Y., Chen C. & Xingb, Z. (2023) Red teaming ChatGPT via Jailbreaking: Bias, Robustness, Reliability and Toxicity. *arXiv*. https://doi.org/10.48550/arXiv.2301.12867