ELITE-AI
ASSISTED ESP LEARNING

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ELITE-AI

Literature Review Handbook

Transilvania University of Brasov

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Table of Contents

Niveditha, K. P., Choubey, K., Soni, K., Mishra, P., & Naz, A. (2024). Exploring the role of artificial intelligence in modern education. *International Journal of Innovative Research in Computer and Communication Engineering*, 12(5), 8147–8150..... 141

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UNIUD 180

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Introduction

In the rapidly evolving landscape of education, the integration of Artificial Intelligence (AI) into foreign language (FL) and English for Specific Purposes (ESP) instruction represents a transformative movement. As technology continues to reshape how languages are taught, learned, and assessed, educators and researchers are increasingly exploring innovative ways to employ AI's potential to enhance language acquisition, particularly in specialized contexts.

This Handbook, developed as part of Activity 1 (Current Ecosystem Analysis - Literature Review and Theoretical Background) within Work Package 2 (Mapping Current Situation) of the Erasmus+ project *Empowering Specialized Language Acquisition with Integrated AI* (ELITE-AI), seeks to provide a comprehensive and up-to-date resource for educators, researchers, and practitioners navigating this dynamic field.

The primary objective of this Handbook is to consolidate the latest research, methodologies, and best practices related to AI integration in FL and ESP instruction. By conducting an extensive literature review, the project partners (Universitatea *Transilvania* din Brașov – UNITBV, Univerza V Mariboru – UNIUM, Università degli Studi di Udine – UNIUD, and Sveučilište Jurja Dobrile u Puli – UNIPU) have gathered and synthesized a variety of information from contemporary scholarly sources, focusing on the intersection of AI technologies and language education. This effort underscores the importance of understanding current trends, challenges, and opportunities in the field, while also laying the groundwork for the development of original, AI-driven approaches to language teaching.

The Handbook is structured to serve as a theoretical guide. It begins with mapping the existing landscape of AI applications in education, continues with EFL classes, and finishes with the ESP instruction, highlighting key methodologies, technologies, and pedagogical strategies. By compiling and analysing the most recent and relevant research, this resource offers insights into how AI can be effectively utilised to address specific challenges in language learning, such as the acquisition of specialised vocabulary, the personalisation of learning experiences, and the enhancement of classroom practices.

Each partner institution contributed to this Handbook by summarising more than 20 scholarly materials, compiling extensive bibliographical lists, and drafting comprehensive worksheets tailored for language instructors. These contributions reflect a collaborative effort to provide a solid foundation for further research and practical implementation. The Handbook is designed to be a valuable tool for educators at all stages of their journey, from those just beginning to explore AI-integrated teaching methods to experienced practitioners seeking to refine their approaches.

Ultimately, this Handbook aims to bridge the gap between theory and practice, offering clear, coherent guidelines for integrating AI solutions into FL and ESP classrooms. By presenting the latest good practices and mapping the territory of existing approaches, it sets the stage for the innovative methodologies that will be developed as part of the broader project. We hope that this resource will inspire and empower educators to embrace the potential of AI, fostering more effective and engaging language learning experiences for their students.

Key Features of the Handbook:
1. It offers a comprehensive literature review, with focus on the synthesis of the latest research on AI integration in FL and ESP instruction, providing a solid theoretical foundation, only articles from 2023 and 2024 being accounted for.
2. It provides methodological insights, as it explores the existing methodologies and technologies, highlighting their applications and effectiveness in language education.
3. It suggests practical guidelines through the Worksheets drafted and the recommendations for educators interested in implementing AI-driven practices in their classrooms at the end of each Worksheet.
4. It contains collaborative contributions, as it contains summaries of scholarly materials, extended bibliographical lists, and practical tools contributed by all project partners.
5. It focuses on specific vocabulary targeting strategies for teaching specialised vocabulary using AI tools, and addressing a key challenge in ESP instruction.

Consequently, this Handbook represents a collective effort to advance the field of language education by capitalising on the transformative potential of AI. We invite educators, researchers, and practitioners to explore its contents, engage with its insights, and join us in shaping the future of language learning.

The Authors

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Paper references:

Sinkus, T., & Ozola, I. (2024). Engineering student perceptions of AI technology implementation in ESP, Conference proceedings, Jelgava 22.-24.05.2024.

Link to the paper:
https://www.iitf.lbtu.lv/conference/proceedings2024/Papers/TF073.pdf

Article summary:

The paper outlines traditional teaching and learning experience vs cutting-edge technology, namely Artificial Intelligence (AI) and highlights currents discussion in the scientific literature regarding the adoption and use of AI tools in general foreign language learning contexts. The authors outline a gap in the research regarding such models' implementation in engineering education, especially in English for Specific Purposes (ESP). The article examines engineering students' opinion on using AI technology in the ESP course at university level and investigates whether it can enhance foreign language learning skills. The survey was conducted at the Latvia University of Life Sciences and Technologies and involved 137 engineering students from different programs and various academic levels, namely undergraduate, postgraduate, and PhD level. After analysing the collected data, the authors discovered that most engineering students actively use a wide range of AI tools in ESP and find them useful for various aspects of foreign language learning process. According to the research, students believe that AI tools enhance their learning outcomes and due to that, developing digital skills, as the use of AI in education, will grow in the future. Students also highlight the significance of using a critical approach to AI tool application in ESP and responsibility in using AI technology to avoid plagiarism, cheating, overreliance, laziness, lack of authenticity etc. The article provides an introduction to ESP and exposes current and/or future academic or occupational needs of learner and highlights the importance of teaching the English language to engineering students at tertiary level. It focuses on meeting engineering students academic and professional needs, with the aim of developing foreign language proficiency and skills. The article focuses on examining engineering students' opinions on using AI tools in ESP classes and investigating whether AI can enhance their foreign language learning outcomes. The article provides an insight into ESP for engineering students and exposes specific English needs of students who choose to pursue an engineering career. The authors expose that ESP should not be oriented solely to specialist terminology, translating technical texts, reading and writing in English, but the ESP course should prepare engineering graduates to communicate in the foreign language in a complex engineering setting. The authors expose the need to build intercultural and soft skills, and establish good interpersonal relations, and how to collaborate effectively with colleagues, customers, suppliers etc. The authors expose also the importance of critical thinking as it significantly contributes to engineering

students' academic and professional success. The authors focus on the potential of AI tools and expose that in ESP courses for engineering students AI technology can be particularly useful, as various AI tools can be used in providing engineering students with meaningful foreign language experiences tailored to their professional and academic needs, as well as individual English proficiency levels. The authors expose the usage of AI-powered language learning apps, chatbots and virtual conversation partners, AI-powered academic research tools, and AI translation tools and sum up that AI tools implementation into the ESP curriculum presents a wide range of benefits, from personalising and adapting content and tasks to the specific needs and individual proficiency levels of engineering students. The authors present research where engineering students from the Latvia University of Life Sciences and Technologies were engaged in a survey in January 2024. The study involved 137 students, 83 undergraduate engineering students of two programmes, namely Information Technologies for Sustainable Development, and Computer Control and Computer Science, 37 postgraduate engineering students of three programmes, namely Information Technologies, Forestry and Environmental, Water and Land Engineering, and 18 PhD engineering students of four programmes, namely Information Technologies, Agricultural Engineering, Environmental Engineering, and Food Science. The survey comprised six research questions (Q1. Have you used any AI tools in your studies?, Q2. Why do you use AI tools in ESP?, Q3. Do you believe that the use of AI in your studies can enhance your learning outcomes?, Q4. How important is the ethical use of AI in studies?, Q5. What concerns do you associate with the unethical use of AI in your studies?, Q6. Do you believe that the use of AI in studies will become more prevalent in the future?). The results of the study show that most engineering students (90.5%) use AI tools in their studies, students actively use a wide range of AI tools (listed in the tables) in ESP and find them useful in various aspects of foreign language learning process. The majority of engineering students (65.7%) believe that AI tool incorporation in ESP enhances their learning outcomes. The authors argue that developing digital skills is vital as the use of AI will grow in the future and we should adopt a critical approach to AI tool application in ESP. They argue that AI technology should be used responsibly to avoid issues of plagiarism and cheating, lack of authenticity, originality etc.

Personal observations/recommendations:

The article provides an insight into the current position of usage of AI tools and technology in ESP teaching and learning and focuses on the field of engineering. This is a very thoroughly prepared article, an original work and a relevant contribution to the existing literature and research topic of AI. It addresses the current issues concerning the usage of AI and focuses on a specific filed and focus group, namely the students of engineering. It provides a clear methodology, aim and results, in addition, in the article we find a number of AI tools, listed in table 1 (Chat GPT, Microsoft Bing Copilot, Google AI, iask.ai, Google Bard, Perplexity, DeepL, Bing Translator, Alexa Translation, Reverso Translation, Grammarly, LanguageTool, Canva.ai, Midjourney, Lensgo.ai, DALL E, Adobe Firefly, ChatPdf, Grooper, Sharly, Quillbot, Otter.ai, Mendeley, Decktoplus, SmallTalk2me).

Paper references:

Qasem, F., Ghaleb, M, Mahdi, H. S., Al Khateeb, A., & Al Fadda, H. (2023), Dialog chatbot as an interactive online tool in enhancing ESP vocabulary learning. *Saudi Journal of Language Studies*, *3*(2), 76-86

Link to the paper:
https://shorturl.at/PEeI3

Article summary:

The purpose of the paper is based on an experimental study on English for Specific Purposes (ESP) students, at the Business Department at the University of Bisha that examines the effect of chatbot use on learning ESP in online classrooms during COVID-19 and finds out how Dialogflow chabot can be a useful and interactive online platform to help ESP learners in learning vocabulary. The research is based on an experimental study that includes two groups, an experiential group and a controlled group. Within the research two tests were carried out, the pre-tests and post-test of vocabulary knowledge were conducted for both groups to explore the usefulness of using the Dialogflow chatbot in learning ESP vocabulary. Within the research a chatbot content was prepared and included all vocabulary details related to words' synonyms and a brief explanation of words' meanings. In the study an informal interview was applied with the purpose of using the interview to elicit more data from the participants about using the chatbot and about how and in what aspects chatbot using the conversational program was useful and productive. The results showed that the use of chatbots plays a major role in enhancing and learning ESP vocabulary and that students who used the chatbot Dialogflow in the experimental group outperformed their counterparts in the control group. From the study it is visible that the use of chatbots could be applied in several settings to improve language learning in general or ESP courses. In addition, Chatbot creates an interesting environment to foster good interactions where negotiation of meaning takes place. It clearly seems to be of great benefit to help learners advance in their L2 lexical development. In the paper the authors argue that the integration of technology and learning languages has become a fruitful approach we cannot escape. Also, adult learners are often time-constrained and time for learning is rarely a priority, for that reason chatbots can assist in the learning process. The authors argue that chatbot is a conversational agent that communicates with users using natural language and makes decisions based on predefined rules. They started to be used in the COVID-19 pandemic breakout when institutions look for various and replacing options and strategies to engage students in the learning process and to create good interactive environments for students and teachers. In the article there is a related literature review on ESP and digital technology provided. The authors argue that many research works have shown how technology, Computer-Assisted Language Learning contributed to ESP in terms of teaching/training, designing and developing or helping ESP learners. In the article the

authors provide an overview on artificial intelligence, chatbot and language learning with related references. As explained in the article the research involved three research questions, namely Is there any significant difference between the learners who used chatbots and the learners who used the traditional approach in learning Business English?, What is the learners' perception of using chatbots in learning business English terms?, What are the advantages of using chatbots in learning ESP courses, such as Business English?. The participants were 2 groups of male undergraduate students from BA program in Business English at the University of Bisha, Saudi Arabia with Arabic as first language. One group practiced chatbots (20 students) and one (20 students) practiced a traditional approach. The first group was the experimental group which taught the course for 12 weeks with a help of chatbot dialogue. The second group was the control group which was taught English without the support of chatbots. All participants had the same level of English proficiency. The study focused on the use and learning of vocabulary by ESP learners of Business English, the materials included 10 units selected from the book of Mascull (2010), the topics selected were related to meetings, negotiations, career ladder, etc. The designed chatbot content included all vocabulary details related to words' synonyms and brief explanations of words' meanings. The instrument used to collect data was a vocabulary test, created based on the textbook. The procedure is explained and illustrated in the paper. The obtained data was statistically analysed. The results show that using ESP vocabulary within the technology environment (chatbot) had an increasing influence on ESP learners. As seen from the performance results of the ESP vocabulary, the pre-test and post-test revealed that the experimental group significantly outperformed the control group in learning ESP words in the post-test. The study shows clearly that the use of chatbots acts well in enhancing and learning ESP vocabulary.

Personal observations/recommendations:

The article provides an insight into the current position of usage of AI tools in ESP, namely it examines the effect of chatbot use on learning ESP in online classrooms during COVID-19 and finds out how Dialogflow chabot can be a useful and interactive online platform to help ESP learners in learning vocabulary well. The experimental study includes two groups, an experiential group and a controlled group, and the inclusion of two tests, namely the pre-tests and post-test of vocabulary knowledge with the aim of exploring the usefulness of using the Dialogflow chatbot in learning ESP vocabulary. It is a very thoroughly prepared article, an original work and a relevant contribution to the existing literature and research topic of AI. It addresses the current issues concerning the usage of AI and focuses on a specific ESP field, namely the students of the Business Department of the University of Bisha. The methodology, aim and results are clearly presented. We would suggest a wider inclusion of students in the study, as only 20 students per test were involved in the research. We believe a bigger number of students would provide more applicable results.

Paper references:

Makowska, A. B. (2023). Information and Communication Technologies (ICT) in Language for Specific Purposes (LSP) Classes during and after the COVID-19 Pandemic – the Students' Perspective, *Recherche et pratiques pédagogiques en langues 42*(2).

Link to the paper:
https://journals.openedition.org/apliut/11204

Article summary:

The article provides an insight into the time of COVID-19 pandemic as a challenging period for educational systems and exposes the reaction of the Polish government and the authorities of the University of Lodz to the crisis providing also a timeline. The authors outline that the University of Lodz gave both teachers and students access to Microsoft (MS) Office package and MS Teams. The transition was challenging, as classes at the University of Lodz never migrated entirely to the virtual world. The authors highlight the fact that teachers and student struggled with insufficient digital competences or ICT skills, hardware and software issues, poor access to the Internet, or simply with ensuring proper conditions for teaching and learning. The authors focus on teaching effectiveness and ICT, stating that technology plays an active role in education. The integration of ICT tools improves teaching and learning processes, allows the implementation of add-on materials which support synchronous and asynchronous distance learning and technology-based teaching and learning is more beneficial to students with different learning styles. The paper focuses on a technological shift in teaching, namely synchronous online learning and exposes that this shift is student-oriented and in addition, online classes are a natural phenomenon for digital natives and are easily accepted by students. Due to that online classes constitute a motivating factor to study thanks to young people's flexibility and adaptability to changes in the learning system. The authors focus on a psychological aspect of distance learning and challenges of implementing new technologies during emergency remote teaching. They present their study which is based on an anonymous online survey that was conducted among students at the University of Lodz in April 2022. The survey contains 24 multiple choice questions and 1 open question concerning different aspects of implementing ICT during LSP classes at the University of Lodz during the COVID-19 crisis and in the post-pandemic academic reality. The study exposes three research questions that are based on the hypothesis that university students, which are digital natives, learn more effectively with the use of new technologies. In the study students from the University of Lodz Faculty of Philology, second- and third-year students of the Linguistics for Business (L4B) Bachelor of Arts programme (BA) and first-year students of Linguistics in Specialised Communication (LiSC) Master of Arts programme (MA) were included. In total 134 students were involved in the study. The results of the study are divided into the communication platforms used during the pandemic: the forms of contact with teachers during and after the pandemic; the technological platforms and instruction style at LSP

classes; teachers' methodological and technical skills; advantages and disadvantages of LSP e-classes; technical problems affecting e-learning; additional LSP practice on online learning platforms during and after the pandemic; effectiveness of new technologies and onsite classes; and how and when should e-classes be conducted. The study among students of linguistics for business and linguistics in specialised communication shows that there is a dichotomy between the acceptance and rejection of online LSP classes with the use of ICT. Due to lockdown restrictions LSP classes were entirely transferred online, but according to the respondents, the effectiveness of such a solution did not equal onsite classes. This is linked to individual learning styles and the motivation levels stemming from students' psychological profiles. In addition, the use of new technologies is very much welcomed by university students, but it is the teachers' ICT and methodological skills that enhance or spoil the effect of experiencing the novelty, and hinder the learning process. Students say that online classes should be conducted only as a supplement to normal onsite classes in a crisis. In the future, they would prefer traditional onsite classes. The survey also shows that some technological tools are more extensively used than others, e.g. Moodle e-learning platform was used more often during the pandemic, after the restrictions were removed, its popularity dropped. The communication platform Microsoft Teams has been widely accepted as a communication tool and the method of providing materials for LSP classes. University teachers preferred using paper-based materials and stopped using online learning applications to the great disappointment of students. Communication methods changed as students need traditional office hours to a lesser degree than before the COVID-19 crisis since they were more convenient and quicker methods, like email or Microsoft Teams chats. Among the problems of students are also technical issues during online classes, poor Internet connection, hardware and software problems or even power supply issues. Such problems have rarely been addressed in literature.

Personal observations/recommendations:

The article provides an insight into the COVID-19 crisis in the educational setting and the transition to distant teaching that necessitated a sudden implementation of technology in the process of providing and acquiring knowledge. It is a very thoroughly prepared article, an original work and a relevant contribution to the existing literature and research topic of IT. It addresses the current issues concerning the usage of IT tools during the pandemic and it focuses on a specific filed, namely the position of students and teacher in relation to the usage of digital technologies in a classroom. The methodology, aim and results are clearly presented, also the number of students included into the survey is representative.

Paper references:

McAllister, J., Lavissière, M. C. **&** Cartron, A. (2023). Digital transformations of language for specific purposes (LSP) learning and teaching. *Recherche et Pratiques Pédagogiques en Langues de Spécialité. Cahiers de l'APLIUT*, *42*(2), 1-6.

Link to the paper:
https://journals.openedition.org/apliut/10816

Article summary:

The article investigates the opportunities and challenges of integrating digital tools into language teaching and learning in view of the wide-spread health crisis that highlighted the necessity of considering the place of digital tools in the larger community of applied linguistics and the ongoing digitalisation. The article gives an overview of several researchers:
Hilary Nesi's study opens the special issue stating that Internet has increased the opportunities for multimodal resources in language teaching. Nesi examines the use of genres with the purpose of disseminating scientific findings to non-specialists she observes dissemination genres, namely podcasts, videocasts, blogs, webinars, YouTube videos, and TED Talks and their relation to the preparation of students for university lectures in English. Nesi's study of a corpus of these lectures shows that seen through the analysis of speaker and listener identities, move analysis, and length, TED Talks differ widely from university lectures. She argues that the latter may include a formal style, whereas TED Talks are based on an American culture of low power distance. The rhetorical structure in TED Talks is aimed at conveying one message and galvanising the audience to action, lectures are meant to inform students on complex and often nuanced areas of scientific interest. Also, the length and detail of the lecture requires specific listening skills. The contribution highlights the need for filtering LSP teaching resources based on genre theory and underlines the need for resources and corpora that more accurately reflect language for specific purposes.

Julie McAllister and Mary C. Lavissière are oriented towards the development of specific corpora, and they focus on how the creation of specific corpora helps students in learning language for persuasive purposes in promotional genres. They expose the fact that few studies have shown the creation and use of small, specific corpora can help students learn and use patterns in promotional texts. In their study they asked students in an applied languages programme to use Sketch Engine to explore a corpus of promotional texts. A study of the students' brochures showed that they reproduced patterns observed through Sketch Engine in authentic brochures.

Carmenne Kalyaniwala discusses the potential of a synchronous virtual exchange programme between French law students and Spanish business English students for ESP learning. The author presents the characteristics that define virtual exchange (VE),

and more specifically three-dimensional VE or virtual reality (VR), which immerses students in a life-like interactive and sensorial experience. The author reviews four models of VE in second language learning including e-tandem, telecollaboration, transnational VE, and critical approaches to telecollaboration.

Michael Moore, Christine Evain, and Spencer Hawkridge continue discussing the topic of VE for LSP learning and teaching. They present their Virtual Exchange Challenge (VEC) programme defining a number of key concepts underpinning their study including internationalisation at home (IaH), experiential learning, and challenge-based learning within a VE context.

Jingrao Li article investigates how technology in the form of access to scientific corpora with translation tools may help researchers with academic writing skills and focuses on Chinese-speaking learners of French as a second language (FLE). The author presents a tool that allows Chinese speakers to identify lexical items that are common to academic writing rather than specific to one scientific discipline. The author describes the lexical tool that gives Chinese-speakers access to TSL in French via translations and highlights how technology can facilitate composition of research articles in French via a semi-bilingual dictionary.

Enrica Bracchi explores translation and technology and describes the integration of automatic translation (*DeepL*) into foreign languages. The author identifies a need for master's students to be able to translate legal documents quickly and accurately and proposes that the translations produced by the automatic translator are evaluated using jurilinguistic theories. The author concludes that automatic translators have an important place in specialised language teaching today, but that students must be trained to use them with efficiency and accuracy.

Aurélie Picton and Philippe Haeberli focus on the transformative journey of a master's level terminology course within the University of Geneva's translation programme. The authors offer an insight into the gradual reshaping of the course through active learning tools. The authors explore in particular the impact on the overall perception and quality of the course as perceived by teachers, students, and the institutional academic advisors support team.

Aleksandra Makowska provides a further insight into students' perceptions of the use of ICT tools and their effectiveness in LSP courses during and after the COVID-19 pandemic. The author draws attention on qualitative and quantitative analysis of two surveys conducted among 134 linguistics for business undergraduate students and linguistics in specialised communication master's students at the University of Lodz (Poland).

Fiona Smythe presents a review of *Virtual Exchange for Intercultural Language Learning and Teaching* where she highlights several interesting features of this edited volume, including its wide range of contributors who offer a diversity of perspectives on virtual

exchange pedagogies exploring how they were adapted to the COVID-19 pandemic era and how they brought the humanistic dimension in virtual exchange to the fore.

Personal observations/recommendations:

The article provides an insight into the opportunities and challenges of integrating digital tools into language teaching and learning during the COVID-19 crisis in the educational setting. The article gives an overview of nine researchers oriented towards IT tools and digitalisation in several fields. It is a thoroughly prepared article, an original work and a relevant contribution to the existing literature and research topic of the COVID-19 crisis. It addresses current issues in language acquisition concerning the IT tools during the pandemic and it focuses on specific fields and provides an insight into the researches of other authors.

Paper references:

Chaikovska, O., Bodnar, A., Spivachuk, V., & zavadska, I. (2024). Perception of masters in electrical engineering of using ChatGpt in ESP learning. *Engineering For Rural Development*, 1114-1119

Link to the paper:
https://www.iitf.lbtu.lv/conference/proceedings2024/Papers/TF230.pdf

Article summary:

The article highlights the essential challenge in ESP learning, namely the wide variety of skills that must be developed, ranging from understanding technical terms, comprehending profession-based texts and writing engineering reports and proposals to the ability to express opinions and technical concepts, giving presentations, participate in projects and present research outcomes. The authors argue there is a lack of academic hours for ESP learning in the Masters in Engineering curriculum, and there is the need for strategies that assist effective communication in professional contexts and motivation for further ESP self-study. The authors investigate how first-year Masters in Electrical Engineering at the Technical Ukrainian University perceive the use of artificial intelligence (AI) in ESP learning. In the research 48 students from the Department of Engineering and Technology participated. The authors designed pre- and post-surveys to measure students' attitudes towards utilizing ChatGPT in ESP learning. Within the research the students completed the surveys at the beginning and at the completion of a semester ESP course. The results demonstrate that half of the respondents had not used ChatGPT in their previous learning and those students who had used ChatGPT in previous studies implemented this tool as a generator of relevant information, a translator and a vocabulary acquisition platform. The results of the post-survey indicated that students revealed the potential of ChatGPT as a conversational partner, technical writing support, a language feedback tool and as an individual ESP tutor. The authors agree that a learning system based on ChatGPT can serve to improve further ESP self-study. The authors expose the creation of large language models, e.g. ChatGPT and their revolutionary role in education, foreign language in particular. Such language model is capable of performing many functions, namely vocabulary expansion, grammar guidance and feedback, conversation simulator, and generator of new ideas. The authors expose the present growing demand for engineers who possess both linguistic proficiency and technical expertise, and the role of integrating artificial intelligence (AI) tools in the ESP (English for Special Purposes) classroom is seen as essential for preparing students with the necessary skills for success in today's rapidly evolving global economy. The research was conducted at the "Podillia State University" in Ukraine and focused on the master students in electrical engineering perception of ChatGPT-based foreign language learning. The authors used quantitative method to investigate their experience and perceptions of using OpenAI GPT3 model in EFL learning. In the study 48 1st year master students in electrical engineering from the Engineering and Technology Department were included. The research consisted of three stages; the preparatory

stage that included pre-experimental ESP teachers' certification of AI tools implementation in the educational process and literature review; the experiment that started in the spring semester of 2023 with the conducting pre-experimental questionnaire on the previous experience or its lack in students' use of artificial intelligence; and the evaluation, namely the participants' perception of AI tools in ESP learning. The results show that more than half of the respondents (59%) were familiar with the technology and used it in their learning, 48% of participants used ChatGPT in learning. The post-questionnaire results manifested the improvement in students' awareness of the possibilities of correct and effective use of artificial intelligence tools in ESP learning. The authors state that ChatGPT contribute to the development of communication skills and vocabulary expansion. From the results it is visible that more than (52%) of engineering students will use ChatGPT in ESP instruction. The results show that the majority of students want to use ChatGPT for diverse ESP learning purposes. This positive attitudes towards utilizing ChatGPT in ESP classrooms can be explained by the fact that technology is typical of generation Z, namely learning with the help of advanced technology is a completely natural process.

Personal observations/recommendations:

The article provides an insight into the experimental research on the introduction of new technologies in the educational process, namely artificial intelligence, should be preceded by training of teachers. In the article the experience and perception of using ChatGPT in ESP learning with the master students in electrical engineering before and after the experiments is investigated and pre- and post-survey results have been analysed and compared. It is a thoroughly prepared article, an original work and a relevant contribution that suggests continuity for the experiment to be carried out, namely, to integrate artificial intelligence to learn new vocabulary. The paper shows that it is possible to change students' priorities through the correct implementation of new teaching methods, namely the passive usage of ChatGPT e.g. only as a translator and search engine. The paper shows how students shifted their priorities to active usage of chat as a language mentor to improve language practice and a simulator for creating technical writing samples.

Paper references:

Dziubata, Z. (2024). Application of AI Technologies in Teaching ESL and ESP at Agro-Technical Higher Educational Institutions. *Pedagogical Discourse*, *35*, 14-18.

Link to the paper:
https://shorturl.at/7HB4B

Article summary:

The article aims at contributing to lectures' AI readiness and their understanding of potential benefits and drawbacks of AI technologies in order to integrate AI (namely, ChatGPT) into language education. In the paper the authors give recommendations on practical application of AI in teaching English as a Second language (ESL) and English for Specific Purposes (ESP) at agro-technical higher educational institutions, namely on localizing content, personalizing materials, developing specific language skills and soft-skills, introducing profession-specific learning materials and creating a comfortable learning environment. The authors discuss the impact of AI on language teaching, problems concerning (plagiarism, bias, ethics, inequalities) and the ways it can transform language teaching and learning practices on condition of providing the AI readiness of both educators and learners. The authors argue that AI is a major technological change of the 21st century. AI will transform teaching and learning practices in the next couple of years. In view of this the educational systems should learn to cope with the changes and develop proper strategies to integrate AI technologies into teaching and learning practices. The authors expose the benefits and limitations of AI technologies focusing on ChatGPT. This article investigates the application of ChatGPT as a tool for ESL and ESP teachers and students at agro-technical higher educational institutions to create a comfortable learning environment during the ongoing war in Ukraine. The methodology comprised the defining of the concept of ChatGPT in terms of teaching English as a Second Language by conducting the available research literature overview; personal teaching experience as a case study has also been incorporated in order to observe the impact of the changes and reflect on the outcomes. AI technologies were incorporated into teaching ESL and ESP courses of National University of Life and Environmental Sciences of Ukraine «Berezhany Agrotechnical Institute», Berezhany, Ukraine, the courses were taught to students majoring in «Mechanization of Agriculture», «Agronomy», «Forestry», «Park and Gardening», «Ecology», «Power Engineering», «Management of Agricultural Enterprises». The total number of students was 242. The implementation of AI tools, such as ChatGPT was observed in line with content creation, interactive practice of language skills and soft skills as well as tailoring assessment and students' academic performance was evaluated. Among the results and assuming that applying AI technologies at the stage of ESL and ESP additional course material preparation and lesson planning can be effective and timesaving, the authors considered a number of options that can be used, namely the improvement of lesson planning,

content creation and developing the activities according to the curriculum etc. The authors explain them in detail in the results section.

Personal observations/recommendations:

The article provides an insight into the lectures' AI readiness and their understanding of potential benefits and drawbacks of AI technologies in order to integrate AI into language education. The authors mainly provide the reader with a list of recommendations on practical application of AI in teaching English as second language (ESL) and English for Specific Purposes (ESP) at agro-technical higher educational institutions. In the article the experience of language instructors is shared, and recommendations are given in the frame of localizing content, personalizing materials, developing specific language skills and soft-skills, introducing profession-specific learning materials and creating a comfortable learning environment.

Paper references:

Ningsih, N., Lenon, S. S., & Rahman, P. (2023). Embracing the Wave: The Disruption of Conversational Artificial Intelligence toward English for Specific Purposes (ESP) Teaching Transformation. *ETERNAL (English, Teaching, Learning, and Research Journal)*, *9*(02), 260-286.

Link to the paper:
https://shorturl.at/nTVus

Article summary:

The article outlines ChatGPT, a state-of-the-art artificial intelligence (AI) chatbot intended to have natural, intuitive human-to-human conversations by employing cutting edge machine learning algorithms to produce responses to text input that resemble those of a human, that is, according to the authors, altering the teaching process especially in English for specific purposes (ESP). This article provides an overview of the benefits and challenges from the disruption of ChatGPT toward teachers' teaching practice in ESP. In the introduction of the article an overview of the characteristics and benefits of ChatGPT is presented, followed by an extensive literature review and chapter related to students' learning perception through ChatGPT and the challenges for educational environment by the existence of ChatGPT in higher education. In the research the authors describe not only the benefits of involving ChatGPT in teaching and learning transformation but also the advantages to enhance teachers' abilities in delivering ESP content. The methodology used consists of literature review to comprehensively explore and synthesize existing research on ChatGPT in English teaching for specific purposes and is followed by a critical evaluation of selected sources. In the research key topics, concepts, and findings related to ESP and teaching practice by using Artificial Intelligence were identified through iterative reading, note-taking, and categorization. Such analysis was oriented to identifying patterns, trends, and scholarly debates within the literature. The authors provide synthesized findings from the reviewed literature and a discussion which critically examines the consensus, discrepancies, and evolving perspectives within the literature. In the article the findings are explained in a table of benefits and challenges, followed by a discussion. In the discussion the authors find also other supported peer-reviewed articles, books, conference proceedings, and reputable reports and present them in sections, namely Domain-Specific Assistance; Language Learning and Teaching; Writing support; Simulated Professional Communication; Problem-Solving and Decision Support; Cultural and Cross-Cultural Communication; Accessibility and Inclusivity of Professional Development by using ChatGPT. The authors outline that ChatGPT can become a tool to support teachers, but it cannot replace teachers' roles in the classroom. It could be a supportive instrument to answer teaching challenges such as; 1) acquiring a deep understanding of specific and specialized content knowledge based on certain fields, 2) increasing learning resource availability, 3) adapt with industrial development and cross-cultural boundaries in communication, 4) balancing language

and content, and 5) get a technological support to construct assessment and evaluation instrument. The authors also expose the disruption, namely lack of human expertise, inability to deliver the essence of pedagogical concern, inaccurate information that occur occasionally, and limited interpersonal skills. The authors argue that technology is still unable to take over the teaching process.

Personal observations/recommendations:

The article provides an insight into the benefits and challenges of ChatGPT in teachers' teaching practice in ESP. The authors provide an extensive literature review, pointing to the pros and cons of ChatGPT and give an insight into students' learning perception through ChatGPT and the challenges for educational environment by the existence of ChatGPT in higher education. It is a genuine scientific article, a valuable contribution to AI that provides the benefits and advantages of involving ChatGPT in teaching and learning ESP contents, but it also focuses on the disadvantages, providing a detailed overview of possible issues that need further research, such as lack of human expertise, inability to deliver the essence of pedagogical concern, inaccurate information, and limited interpersonal skills. We agree with the overall idea of the authors that technology, at least at the present stage, cannot take over the teaching process.

Paper references:

Xatamova, N., & Ashurov, J. (2024). The Future of Legal English Learning: Integrating AI into ESP Education. *SPAST Reports*, *1*(7).

Link to the paper:
https://spast.org/ojspath/article/view/5081

Article summary:

The authors discuss the integration of Artificial Intelligence (AI) into English for Specific Purposes (ESP) education for law students. In the article the authors expose the importance of ESP in legal communication skills and address the complexity of legal terminology and discourse. According to the authors ESP holds significant importance in the legal profession and law students necessitate specialized language skills and proficiency, and the ability to understand and use legal language accurately. AI tools support language learning and communication skills. With AI tools law students improve their pronunciation, intonation, and oral communication skills. AI writing tools offer also grammar correction, they improve legal writing skills, and give feedback on organization and clarity. AI translation tools assist in understanding legal texts written in different languages and facilitate cross-border legal communication. AI platforms for language learning offer personalized learning experiences for law students. In the study 500 law students were involved to assess the impact of AI-driven tools on their learning outcomes in legal vocabulary, grammar, pronunciation, and writing skills. The results of this study indicate that the integration of AI tools in ESP education significantly enhances language learning. Law students are prepared for effective communication and achieve success in their legal careers. From the results it is visible that there are significant benefits from AI as integration, enhanced language proficiency, more effective communication skills. The authors highlight concerns about data security and ethical use of AI using Chi-Square analysis that confirmed these concerns, revealing statistically significant differences in responses related to the satisfaction with privacy and perceptions of AI's ethical use. The authors state that the findings contribute to the ongoing discourse on AI's role in legal education and suggest pathways for future research and development in this field. According to the authors the integration of AI tools in the ESP classroom for law students requires careful consideration and guidelines to optimize the learning experience. The authors argue that employing a hybrid teaching approach that combines online and offline elements, supplemented by online Massive Open Online Course (MOOC) support, will offer a comprehensive and convenient learning experience to the students. MOOCs are freely accessible, allow open enrolment, provide flexible and cost-effective opportunities for individuals to enhance their careers, acquire new skills, and access high-quality education on a large scale. Such courses are open-ended, enable participants to start at any time and progress at their own pace, and offer credential programs. The authors argue that teachers should actively engage with students to provide guidance, support, and clarification when using AI tools and also encourage students, monitor their progress, provide additional explanations, and offer personalized guidance to address individual

needs. According to the authors the future of AI technologies for ESP education in legal field has immense potential for further advancements and developments. AI-powered platforms can provide more sophisticated natural language processing capabilities, analyse complex legal texts, offer in-depth explanations of legal concepts, and generate personalized summaries in line with students' needs. As argued by the authors advanced language models are able to simulate legal conversations and provide realistic practice scenarios for law students also virtual reality (VR) and augmented reality (AR) technologies can create immersive learning experiences for law students. Such models simulate courtroom environments, allow participation into legal communication, observe court proceedings, and participate in virtual courts.

Personal observations/recommendations:

The article provides an insight into the integration of AI tools in ESP education for law students and provides an overview of the significant advantages in enhancing language proficiency, particularly in areas such as legal vocabulary, grammar, pronunciation, and writing skills. As stated by the authors, AI-driven platforms provide personalized learning experiences and real-time feedback, which are crucial for developing the specialized communication skills necessary for success in the legal profession. As argued by the authors AI's potential to revolutionize legal education is clear and the present study highlights the important concerns related to data security and ethical use. It is a genuine and well-written article that provides a thorough statistical analysis of the data. The findings also indicate a significant reservation of students concerning privacy protections and ethical guidelines, but also the role of human guidance remains indispensable in the AI-integrated learning environment. As argued by the authors a combination of AI's technological capabilities with the critical thinking and contextual understanding provided by teachers creates a more balanced and effective educational experience. We believe that AI presents further opportunities for advancing legal education, but in view of responsible implementation and the continued involvement of skilled language teachers.

Paper references:

Erito, S. N. P. (2023). Exploring ESP Students' Perception toward the Potential of Artificial Intelligence to Promote Students' Self-Efficacy in English Writing Skill. *Journal of English Language Learning*, *7*(2), 457-464

Link to the paper:
https://ejournal.unma.ac.id/index.php/jell/article/view/7598/4100

Article summary:

In the article the study on explaining ESP (English for Specific Purposes) students' perception toward the potential of AI to promote their self-efficacy in their English writing skill by examining its impact on students' learning experiences and perceptions is presented. The authors present an investigation that employs a qualitative case study. They agree that the integration of Artificial Intelligence (AI) represents a transformative force and one of the sectors that is heavily influenced by AI is education. In addition to revolutionizing pedagogical approaches AI technology may support learning objectives and has the potential to replace the way teachers teach and the way students learn. The authors expose that the major problem in the classroom showed that ESP students still lack awareness to write appropriately and structurally in English. At Universitas Bina Sarana Informatika the lecturers provided platforms to give support to students in developing ideas in writing and facilitating in developing English writing process including the use AI application which supports the brainstorming of ideas in writing English. The authors expose the issue of self-efficacy related to the awareness of ESP using AI in writing their English text and the necessity for ESP students in taking advantage to help themselves in finding out how AI impact self-efficacy in English writing. The objective of the study is to explain ESP students' perception toward the potential of AI to promote students' self-efficacy in their English writing skill. The introduction is followed by a literature review focusing on the potential of Artificial Intelligence in learning; self-efficacy; studies about AI impact on students' English writing. The methodology of the study focuses on a qualitative case study which explains students' perception. The authors explain that in a qualitative case study problems found in the class are explored with a deep understanding. In the study the authors explain the research details of ESP students' perception concerning the potential of AI in promoting their self-efficacy in English writing skill. 40 students of the first semester of ESP in accounting majors of UBSI (Universitas Bina Sarana Informatika) were included in the survey. The authors used a purposive sampling technique, and the data collection method was an open-ended questionnaire that prompts to explain ESP students' perception toward the potential of AI in promoting students' self-efficacy in their English writing skill. From the results it is visible that all students have a positive perception toward the potential of AI to promote their self-efficacy in their English writing skills. Also, the students perceive AI as a tool that help them to do their task easily. From the findings it is visible that the students positively perceived the potential of AI to promote students' self-efficacy in their English

writing skill. It is believed that AI plays an important role and impacts self-efficacy, enhances motivation, reduces anxiety, gives easy access to feedback quickly with better recommendation of writing and provides interactive learning in achieving consistency in student' English writing skill. The authors mentioned the following points regarding the findings of students' perception of the potential of AI in promoting their self-efficacy in their English writing namely, to enhance students' motivation and to reduce students' anxiety; to enable easy access for students in gaining feedback; and to provide interactive learning.

Personal observations/recommendations:

The article provides an insight into the exploration of ESP students' perceptions toward the potential of AI to promote self-efficacy in English writing skill. AI plays an important role and impacts self-confidence and proficiency in English writing skills. Students perceived that AI enhances motivation, reduces anxiety, gives easy access to feedback quickly with better recommendation of writing and provides interactive learning. All these help the students focusing on fostering positive attitude in achieving consistency in writing skills and empowering to excel in English writing skills. Despite being an article exposing an interesting topic, it lacks appropriate structure, namely we experienced some weaknesses in the methodological sense and in the number of respondents, as well as in language accuracy. Providing a concise methodological overview, extending the number of respondents and providing a text that is accurately written would definitely benefit the whole article.

Paper references:

Ahmed, S. M. A. A., Taha, A. R. A., Hussain, S., & Hayat, A. (2023). Enhancing the teaching and learning of English for Specific Purposes (ESP) with Chatgpt. *International Journal of Technology and Education Research*, *1*(03), 40-49.

Link to the paper:
https://shorturl.at/yVAUi

Article summary:

The article gives in insight into enhancing ESP teaching and learning with ChatGPT. The authors focus on implementing ChatGPT into interactive learning tools for technical English, where students participate in conversational engagements that are analogous to actual engineering challenges found in the real world. Thanks to the conversational interface, students ask engineering-related questions and obtain accurate and useful responses using ChatGPT. In addition, students also receive comments and explanations as ChatGPT provides a precise and condensed response. The authors argue that ChatGPT helps in simplifying the learning process by giving examples of conversations that have already taken place between customers and engineers. In the introduction an overview of AI is given and is followed by a description of ChatGPT, explaining the characteristics of the chatbot, its advantages and a brief development in time, and its use in ESP teaching process. In the main part of the article the authors focus on several subfield of the teaching process in ESP and the usage of ChatGPT. The article presents an overview of possible implementations of ChatGPT as tool. The authors start with the chapter related to text generation, where they argue that such tool may be used in the production of commercial, technical, or medical English in order to provide students with examples of language they have to understand in their business. In relation to text generation the authors expose the preparation of a dataset of texts from the target topic, namely from books, websites etc., followed by data cleansing and eliminating stop words, punctuation, and other components outside the target domain. The authors argue that pre-trained ChatGPT model can be improved with the help of domain-specific data. The authors expose the generation of vocabulary and grammar exercises as second possibility where they develop customized grammar and vocabulary courses for ESP students with ChatGPT as it can be trained to produce queries and responses based on grammatical structures or vocabulary concepts. The authors expose the need for a sizeable dataset of ESL exercises or sentences representing the vocabulary and grammar patterns that should be the study's primary focus. After the cleaning process the model adjusts its parameters to minimize the discrepancy between expected and obtained outcomes. It is possible to utilize the enhanced model to produce assignments for each student or group of students. In the third step the authors focus on the generation of virtual tutors or chatbots and the creation of chatbots or virtual teachers who converse with students to improve students' speaking and listening skills in a tailored, interactive environment. A significant dataset of ESL conversations or questions

and answers relevant to the target vocabulary and grammar structures is needed, followed by the creation of a dialogue management system determining what the chatbot will say next and how it will react to user input. The fourth point is oriented towards the integration into interactive learning materials where ChatGPT is incorporated into interactive learning tools like quizzes or games tailored for each student depending on their language needs and ability to give students unique and exciting language learning experiences. Also, for this step a dataset of ESL questions and answers is necessary. The authors expose that ChatGPT also allows creating student recommendations, e.g. suggest books, movies, or other materials to help in improving linguistic abilities. The last step is devoted to providing an instant feedback and evaluation in order to help ESP students enhancing their language skills. The authors agree that ChatGPT serves as an engaging and personalized conversation companion, assisting students in developing their technical English language abilities.

Personal observations/recommendations:

The article provides an insight into enhancing ESP teaching and learning with ChatGPT. The article is well written and well-structured and provides an overview of possible implementation of ChatGPT as tool, namely text generation, where such tool may be used in the production and preparation of a dataset of texts from the target topic, namely from books, websites etc. This is followed by the generation of vocabulary and grammar exercises as second possibility where they develop customized grammar and vocabulary courses for ESP students with the help of ChatGPT. In the third step the authors focus on the generation of virtual tutors or chatbots and the creation of chatbots or virtual teachers who converse with students to improve students' speaking and listening skills and the fourth point is oriented towards the creation of tools like quizzes or games tailored for each student depending on their language needs and ability to give students unique and exciting language learning experiences. In the last step the authors expose instant feedback and evaluation in order to help ESP students enhancing their language skills. We agree with the authors that ChatGPT serves as an engaging and personalized conversation companion that is assisting students in developing their technical English language skills.

Paper references:

Bessaid, A. (2024). Online Teaching Shift: A New AI Panacea Pedagogical Paradigm. ESP Course for EFL Learners at King Khalid University. A Case Study. *Linguistic and Philosophical Investigations, 23*(1), 1577 - 1585.

Link to the paper:
https://philolinginvestigations.com/index.php/journal/article/view/269/135

Article summary:

In the article the authors expose how educational institutions are prompted, with no options, due to natural disasters, or contaminated diseases such as COVID 19, to re-establish new online pedagogical paradigms to supplant the teacher's physical presence. The article focuses on seeking options to deal with challenging and unexpected reality and urgently ensure an online quality teaching alternative. The authors expose the sudden shift to online education due to COVID-19 at King Khalid University (KKU). The authors highlight how e-learning platforms like Blackboard Ultra Zoom became the cornerstone of this transition. The aim of the study is to understand the impacts of this shift on ESP education, especially concerning how technology could effectively address students' linguistic and professional needs. In terms of methodology the article is divided into four main important parts. The article first introduces the teaching of ESP in King Khalid University, and then on how it was shifted to online learning. This is followed by implementing a new pedagogy for the new established online teaching. In the following step it exposes the need to establish a virtual classroom for ESP graduate students, namely MA students in TEFL program and in a later part it emphasizes the practical Saudi National Quality Framework and its implications upon online teaching shift pedagogy. The last part is oriented to the students' feedback and reflection concerning such new enforced pedagogy transformation. The introduction is followed by the methodology and literature review and the need to establish a virtual classroom ESP pedagogy and teaching ESP through AI paradigm. In the article a qualitative research method, collecting feedback from 21 MA students in the TEFL program is presented. These students, aged from 22 to 34, provided a valuable insight into online ESP learning. According to the National Quality Framework (NQF) the authors suggest the instruction of suitable and measurable course learning outcomes required in the appropriate learning domains which were implemented in KKU. The authors demonstrate by E-learning Unit to figure out the learning outcomes, the online teaching platform, and the course assessment tools and methods. The authors expose a table with five NQF learning domains which demonstrate the strong bond that correlates the learning outcomes of teaching ESP in accordance with the Saudi National Quality Framework specifications. In the article the authors provide a section with the interpretation of the main findings and recommendations from KKU ESP students' feedback on both strengths and weaknesses. Some recommendations are provided, namely:

- Teaching staff should encourage group discussion, initiatives in practicing ESP vocabulary which matches their fields of interests.
- Incubate real-life problem-solving.
- Promote critical thinking skills through strategic peer and pair-work assignments.
- Endorse self-directed and group- regulated activities.
- Assert authentic and up-to-date e-learning materials.
- Staff managing the e-learning should make effective use of ICT apps; blogs, Wimba Voice Board, AUT Package, Adobe Captive Software, Recordings, Wimba Voice Direct Conference, Blackboard Tests, Assignments, e-portfolios, etc.
- ESP instructors have to boost learners' creativity in addressing their preferences.
- Develop a complementary support system.
- Lower anxiety levels and frustration in using techno-resources to make the experience as comfortable and enjoyable as possible for students.
- Adjust pre-service and in-service practicum trainings for both parts of the distance learning to boost digital literacy.
- Manage the instructors' well-being while teaching remotely as part of the online teaching challenge(s).

The study deeply investigates the challenges ESP teachers encountered in conducting online classes which make the situation further confused during the pandemic crisis.

Personal observations/recommendations:

The article provides an insight into the move to digital platforms during the COVID pandemic and exposes that it was not merely a logistical shift but a profound pedagogical transformation requiring adaptability and resilience. The research emphasises ESP, a field that demands a tailored approach to both content and delivery and the integration of AI tools and ICT resources. The study deeply investigates the challenges the ESP teacher encountered in conducting online classes during the pandemic crisis. ESP in MA program at King Khalid University has transformed the way students learn via a shift from face-to-face classroom interaction into an online pedagogy. This study shift was exploratory about the changing dynamics of teaching ESP and in view of that we have to say that teaching ESP online is substantially challenging during the COVID 19 crisis.

Paper references:

Nikolarea, E. (2021). Human intelligence (HI -nous) and artificial intelligence (AI) in ESP/EAP: Teaching and editing of Inter-disciplinary research for international communication. Case studies and methods. *25th World Multi-Conference on Systemics, Cybernetics and Informatics, WMSCI 2021, 2*.

Link to the paper:
https://www.iiisci.org/DOIJSCI/SA636OK21/#/

Article summary:

In the article the authors provide an insight into the integration of Human Intelligence (HI – nous) and Artificial Intelligence (AI) tools in English for Specific Purposes (ESP) and English for Academic Purposes (EAP) education at non-English-speaking universities. The authors examine how students, researchers, and academics can leverage AI, e.g. electronic dictionaries, online forums, and search engines, in order to communicate interdisciplinary research effectively in international settings. The article focuses on linguistic challenges, terminology misunderstandings and untranslatability issues in the context of inter-scientificity and reverse inter-scientificity—terms coined by the author to describe the linguistic interplay between local and global contexts. In the research non-native English speakers face frequent challenges, namely the misuse of prepositions and polysemous terms. The authors provide practical solutions and methods, namely using monolingual dictionaries, forums, and developing Terminological Data Banks (TDBs). The authors explore the fields of Marine Sciences and Anthropology and demonstrate the complexity of navigating polysemes and linguistic asymmetries. In the article the universality of the proposed methodologies and how applicable they are across a number of language pairs in order to foster linguistic competence, intercultural understanding, and learner independence are presented. These strategies enable learners to navigate the dual demands of ESP/EAP education and to achieve linguistic accuracy and maintain discipline-specific relevance. In the findings the transformative role of combining HI and AI in facilitating international research communication and professional development is exposed. The authors propose:
(a) a couple of methods, which can be applied through AI (i.e., Google or any other search engines) in order to make possible for non-English nous/student/researcher/academic (a nous) to be sure that they communicate “correctly” and “appropriately” in an international context where the primary language of communication is English; and
(b) a specific bilingual (or multilingual) knowledge management tool (i.e. an electronic TDB: Terminological Data Bank).

The study offers an overview of the integration of AI tools in language education and it emphasizes that not just linguistic accuracy but also the broader competencies required for effective international communication are needed. Such approach is essential for

teachers who are aiming at bridging the gap between academic rigor and real-world applicability in a globalized academic environment.

Personal observations/recommendations:

The present study is highly relevant to the evolving dynamics of ESP/EAP instruction. The integration of Human and Artificial Intelligence resonates with many observations, particularly the pivotal role of digital tools in mitigating linguistic barriers. The emphasis exposed in the article, on creating Terminological Data Banks is especially important as it encourages students to take ownership of their learning while ensuring sustained access to critical terminology across disciplines. The concepts coined by the author of inter-scientificity and reverse inter-scientificity provide a valuable framework for further understanding of the linguistic issues of global-local interactions. The paper is well written and it provides a significant impact on students' ability to convey research accurately in international forums. We appreciated the focus on applied solutions, namely the use of dictionaries, forums and associative thinking, as they empower learners to address challenges independently.

Paper references:

Cruz, M. (2024). Exploring the Integration of Artificial Intelligence Generative Tools in Teaching Hispano-American Literature: A Student-Centric Approach, INTED2024 Proceedings, pp. 5717-5727.

Link to the paper:
https://library.iated.org/

Article summary:

The article focuses on the incorporation of Artificial Intelligence (AI) generative tools in the teaching of Hispano-American Culture and Literature. The study focuses on student engagement, critical thinking, and cultural sensitivity employing a constructivist framework. The study explores the cognitive, multimodal, and ethical dimensions of AI usage in literature courses, incorporating mixed-methods research in a Portuguese higher education context. In the research quantitative and qualitative methodologies are combines to analyse student perceptions and experiences. The authors are oriented towards pedagogical theories within the integration of AI generative tools in teaching Hispano-American Studies. In the research AI is seen as a cognitive tool that supports active knowledge construction by students. In the study multimodal learning theories as well as cultural relevance theories are enhancing sensitivity and providing multiple perspectives. The framework integrates an insight on literary interpretation, examining how AI augments traditional analysis methods. The study establishes a strong foundation for examining AI's role in Hispano-American Culture and Literature teaching, emphasizing engagement, cultural sensitivity, and language learning within the evolving educational technology landscape. The study adopts a mixed-methods approach within a higher education classroom comprising 27 students enrolled in a Hispano-American Culture and Literature course. The course aimed to enhance understanding of Spanish-American culture, critical historical moments, and literary movements, while fostering analytical and interpretative skills. In the survey quantitative data on student knowledge, preferences, and experiences with AI tools were observed and questions addressed the frequency and context of AI usage, perceived benefits, and limitations in academic tasks. A qualitative focus group engaged five students in detailed discussions on AI's role and AI's utility in understanding complex topics, historical contexts, and enhancing critical thinking skills. The results provide actionable insights for educators looking to leverage AI generative tools effectively. The findings highlight AI's role as a cognitive and analytical tool in Hispano-American literature education that offers Enhanced Learning, AI tools facilitating multimodal engagement; Skill Development, by assisting in thematic identification; Ethical Implications, where students raised concerns over AI's biases and the importance of guiding its use responsibly in educational contexts. As we navigate the intersection of technology and education, understanding students' perspectives and optimizing the use of AI tools becomes paramount for fostering enriched learning environments in the realm of cultural and literary studies.

Personal observations/recommendations:

The paper addresses the Integration of AI in Hispano-American Literature courses and demonstrates transformative potential in enhancing comprehension, cultural awareness, and critical engagement. While AI tools expand analytical capabilities, their limitations reaffirm the indispensability of human insight in interpreting literature. The study highlights the need for balanced, ethical, and pedagogically sound AI usage, advocating for further exploration of its applications in humanities education. The exploration of AI generative tools in teaching Hispano-American Culture and Literature reveals significant educational benefits. These technologies enhance students understanding and engagement with literary texts, providing unique insights and facilitating deeper cultural and historical comprehension. The study acknowledges varying student perspectives on AI's role in education, highlighting the importance of addressing ethical and accessibility concerns. The results suggest a continued evolution of AI in educational settings, encouraging further research into its potential to enrich the learning experience in cultural and literature studies. This study paves the way for innovative approaches in integrating technology and humanities education. The paper is well structured and represents an important contribution to the filed.

Paper references:

Rangel-Corona, R., Mora-Guevara, J. L., Weiss-Steider, B. (2024). Evaluation of the Teaching-Learning Process When Using Language Models of Artificial Intelligence Such as ChatGPT, INTED2024 Proceedings, pp. 5257-5261.

Link to the paper:
https://library.iated.org/

Article summary:

In the article the evaluation of learning by using artificial intelligence (AI) in the teaching process is presented in a critical aspect where effectiveness of interventions and continuity in improving the quality of education are discussed. This study evaluates the integration of AI language models and is specifically oriented towards ChatGPT and the teaching of the "Molecular Bases of Cancer" course within a biology degree program. By focusing on the learning process rather than only on the AI-generated outputs, the study explores the transformative potential of AI in fostering critical thinking, creativity, and technical competence. As argued by the authors each model has its own advantages and limitations, and the choice depends on the context in which it is used. In view of the advantages provided using AI to teach classes the authors considered it pertinent to introduce this tool in the teaching process. Due to the nature of the scientific information needed to fulfil the subject syllabus, it was decided to use ChatGPT. A five-stage methodology guided the study, incorporating both direct and indirect assessment measures to comprehensively evaluate the learning outcomes and the students' interaction with AI tools. A mixed-methods approach was employed to examine the impact of ChatGPT on student learning outcomes and engagement. The study was conducted over three semesters and included 140 students enrolled in the seventh-semester course of "Molecular Bases of Cancer." As demonstrated in the study the incorporation of ChatGPT as a teaching tool significantly contributed to the educational experience by enhancing learning outcomes; promoting critical engagement and facilitating personalized learning. Challenges included occasional inaccuracies in AI responses and concerns about over-reliance, necessitating strategies to balance AI use with critical evaluation. This study validates the integration of AI tools like ChatGPT in higher education, emphasizing their potential to foster significant learning gains and student engagement. By employing robust evaluation methodologies, the research underscores the importance of prioritizing student reasoning and critical thinking over AI-generated outputs. Future efforts should focus on refining AI use in pedagogy to maximize its benefits while mitigating risks such as over-dependence and misinformation.

Personal observations/recommendations:

The paper provides an overview on the evaluation of learning by using artificial intelligence (AI) in the teaching process. The authors present a critical aspect where effectiveness of interventions and continuity in improving the quality of education are exposed. The study is focused on teaching the "Molecular Bases of Cancer" course within a biology degree program and the integration of AI language models. According to the outcomes the students had good performance and were motivated to use AI in their learning process. As exposed by the authors students explore their interests, deepen their knowledge, and develop valuable skills beyond the classroom. As exposed by the authors we also believe that the use of ChatGPT as a teaching tool requires a thoughtful approach. According to the outcomes on the paper, by employing a combination of direct and indirect measures, reflecting on our own practice, and prioritizing meaningful learning experiences beyond ChatGPT, student progress can be effectively assessed and optimize the use of this AI tool in the classroom.

Paper references:

Kovačić, A., & Bubaš, G. (2023, November). Using conversational artificial intelligence for online learning activities in English for specific purposes: A pilot study of students' experiences with Bing Chat. In *Conference proceedings. Innovation in language learning 2023*.

Link to the paper:
https://conference.pixel-online.net/library_scheda.php?id_abs=6196

Article summary:

Kovačić, A., & Bubaš, G. (n.d.). Using conversational artificial intelligence for online learning activities in English for specific purposes: A pilot study of students' experiences with Bing Chat. Innovation in Language Learning, International Conference

The paper by Kovačić and Bubaš examines conversational artificial intelligence (CAI), specifically Bing Chat, for online learning activities in English for Specific Purposes (ESP) instruction. The study was conducted at a higher education institution in Croatia during the 2022/2023 academic year.

The research investigated three main questions: students' evaluation of online learning activities with Bing Chat, their expectations regarding its potential usefulness for further English language learning, and their assessment of the tool's technological features. The study involved 69 first-year undergraduate students participating in various e-activities using Bing Chat. The findings revealed that 79.7% of students reported that online activities with Bing Chat deepened their knowledge of English, while 73.9% indicated that the activities helped them understand vocabulary better. Additionally, 71% of respondents found that the activities allowed them to be creative. The study also showed strong student expectations for future benefits, with 84.1% believing the tool would help them better understand grammar rules and 82.6% expecting it to improve their use of professional vocabulary. Regarding technical characteristics, students rated Bing Chat's usability features (88.4% or above positive responses), including general usability, learnability, system reliability, and information quality. User experience attributes received slightly lower but still positive evaluations, ranging from 59.4% to 73.9%.

The research was part of a larger CLIL-HET project aimed at building an online platform (www.clil-het.eu) for collaboration between disciplinary teachers and ESP/CLIL experts. The platform includes sections for didactic resources, research materials, and community networking to foster internationalization in higher education institutions.

Personal observations/recommendations:

This research provides valuable insights into the integration of AI tools in language education, particularly for ESP instruction. The high satisfaction rates among students suggest that conversational AI could be a powerful complement to traditional teaching

methods. However, I find it particularly interesting that while students were overwhelmingly positive about technical aspects, they were somewhat more reserved about the tool's personification aspects (59.4%). This suggests that while AI tools like Bing Chat are highly functional, there's still a clear recognition of their limitations in replicating human interaction. The study's focus on building a collaborative platform between content and language experts is especially promising, as it addresses the crucial need for interdisciplinary cooperation in ESP teaching. Future research might benefit from exploring the long-term impact of such tools on language acquisition and investigating how they affect students' autonomous learning capabilities

My personal opinion of the paper is as follows: it offers an excellent overview of the possibilities provided by the use of different chatbots in ESP teaching and learning. Moreover, it offers a deep insight into the anatomy of ChatGPT, and finally, it provides a short, but concise list of relevant references.

Paper references:

Ningsih, F. (2023). Classtime. com As An AI-based Testing Platform: Analysing Esp Students' Performances and Feedback. *Journal of Languages and Language Teaching*, *11*(3), 390-404.

Link to the paper:
https://e-journal.undikma.ac.id/index.php/jollt

Article summary:

This study investigates the effectiveness of Classtime.com, an AI-based online testing platform, for teaching tenses in English for Specific Purposes (ESP) to Economic Sharia Law students. The research employs a mixed-methods approach, collecting data from 246 students who took a midterm exam during the 2022-2023 academic year at UIN Sayyid Ali Rahmatullah Tulungagung, Indonesia.

The quantitative analysis of exam results reveals an overall high performance, with an average score of 88.21 out of 100. The score distribution shows that most students achieved scores between 85 and 95, with 95 being the most frequent score. This indicates that the majority of students performed well on the online test. The study also compares performance across six different classes, finding that Class F achieved the highest mean score of 92.56, while Class C had the lowest at 84.75.

A gender-based comparison of performance shows that female students outperformed their male counterparts. The mean score for female students was 89.01, compared to 86.40 for male students. Additionally, female students' scores were more consistent, with a lower standard deviation of 9.846 compared to 12.535 for male students. This gender disparity in academic achievement aligns with previous research findings and highlights the importance of considering gender differences in educational strategies and assessments.

The qualitative analysis of student feedback reveals several benefits of using Classtime.com for online testing. Students appreciated the platform's flexibility, allowing them to take the test from anywhere and at their own pace. They also noted the convenience of immediate score feedback and the elimination of paper-based materials. The ease of use was another significant advantage, with students finding it simpler to understand and navigate compared to traditional testing methods.

Many students found the online test engaging and enjoyable, likening it to playing a game rather than taking an exam. The immediate feedback feature was particularly valued, as it allowed students to see their correct and incorrect answers instantly. Accessibility was another key benefit, with students able to take the test from any location with an internet connection. The efficiency of the system in terms of time management and practicality was also highlighted.

However, students also identified some drawbacks and areas for improvement. Technical issues, such as lagging signals and potential misclicks, were the most common concerns. Some students suggested improvements to the user interface and experience, such as allowing answer repetition if time permits and providing more detailed explanations for incorrect answers. Others recommended enhancing the exam system functionality, such as automatically moving to the next question after submission and showing correct answers immediately. Time management was another area of concern, with some students suggesting extended time limits or displaying remaining time during the test. Additional suggestions included incorporating multimedia elements like music, pictures, or animations to make the exam more engaging and exciting.

The study's findings have significant implications for the use of AI-based online testing platforms in language education, particularly in ESP contexts. The overall positive reception and high performance suggest that Classtime.com can be an effective tool for assessing students' knowledge of tenses in Economic Sharia Law. However, the identified drawbacks highlight the need for continuous improvement and adaptation of such platforms to meet students' needs and preferences.

The gender disparity in performance underscores the importance of considering gender differences in academic achievement when designing and implementing educational strategies and assessments. Educators should be aware of these differences and develop targeted approaches to support both male and female students in achieving their full potential.

Personal observations/recommendations:

As an AI language model, I find this study particularly intriguing as it showcases the potential of AI-based technologies in education. The use of Classtime.com for online testing demonstrates how AI can enhance the learning experience and assessment process in language education. The positive feedback from students regarding the platform's flexibility, convenience, and engagement is encouraging and suggests that AI-based tools can make learning more accessible and enjoyable.

However, the technical issues and areas for improvement identified by students remind us that technology is not infallible and requires continuous refinement. As AI continues to evolve and integrate into educational settings, it is crucial to maintain a balance between technological innovation and human-centered design. Educators and developers must work together to address these challenges and create more robust, user-friendly, and effective AI-based learning tools.

The gender disparity in performance observed in this study also highlights the complexity of factors influencing academic achievement. As we develop and implement AI-based educational technologies, we must be mindful of potential biases and strive to create inclusive learning environments that support all students, regardless of gender or other demographic factors.

Overall, this study provides valuable insights into the potential of AI-based online testing platforms in ESP education and serves as a stepping stone for further research and development in this exciting field. As AI continues to transform education, it is essential to critically evaluate its impact and ensure that it serves to enhance, rather than replace, the human elements of teaching and learning. Moreover, it offers valuable references in the field and aims to evaluate the effectiveness of an AI-based online testing platform, which is in itself a worthwhile endeavour.

Paper references:

Tang, J. (2023). Artificial intelligence-based needs analysis for English specific purposes in digital environment. *Learning and Motivation*, *83*, 101914.

Link to the paper:
https://doi.org/10.1016/j.lmot.2023.101914

Article summary:

This paper presents a comprehensive needs analysis for English for Specific Purposes (ESP) in the field of Artificial Intelligence (AI), termed AI ESP. The study investigates the demands of learners, educational institutions, and industry for AI ESP, providing valuable insights into curriculum development and implementation.

The study's research background and methodology are grounded in China's push for AI development and the need for high-quality talent training systems. The author recognizes the gap in empirical research on AI talent training paradigms and the lack of effective feedback mechanisms between AI enterprises and the employment market. The study employs a mixed-methods approach to address these issues, combining quantitative and qualitative data collection techniques. The research design incorporates questionnaires distributed to undergraduate students in AI-related majors, semi-structured interviews with students, foreign language teachers, AI teachers, heads of teaching administration departments, and AI enterprise managers.

Literature research through analysis of AI talent recruitment advertisements applies a multi-faceted approach which allows for a comprehensive exploration of AI ESP needs from various stakeholder perspectives.

The study's key findings concern learner needs and reveal that students generally recognize the importance of AI ESP. Through factor analysis, four target situational needs factors were identified, such as professional learning and communication, job search and study, professional activities, and information acquisition.

Similarly, four learning purpose needs factors emerged incorporating professional communication, job search and employment, self-realization, and examination certificate

Students expressed two significant learning needs, such as vocational English needs and Academic English needs.

These findings reflect a clear instrumental learning purpose motivation, where language learning is driven by its practical value in job hunting, further education, and professional development. Concerning teaching and curriculum needs the research highlights several important aspects of AI ESP curriculum development, such as tool-based learning. The

curriculum should balance professional knowledge and English language skills, focusing on practical applications.

The second important aspect is the Integrated approach. The study suggests combining ideological and political themes with language learning, reflecting a holistic educational philosophy, including teaching methods such as situational teaching methods with integrating new-generation information technology and genre-based teaching through case analysis.

Blended learning, which is an online and offline hybrid teaching mode, supported by MOOCs, is proposed to provide rich and flexible learning experiences.

Textbook development: There is a need for specialized textbooks that cater to both vocational and academic English needs in the AI field.

The study further focuses on teacher development by identifying a critical challenge in teacher preparedness for AI ESP: English teachers express concerns about their lack of AI domain knowledge. AI teachers and students show skepticism towards English teachers' ability to teach AI ESP effectively. To address this, the paper suggests interdisciplinary collaborative curriculum construction, regular teaching seminars, expert lectures, and short-term training for English teachers. It also mentions opportunities for English teachers to enhance their AI professional knowledge.

The study also highlights the industry perspective focusing on the analysis of job advertisements and interviews with industry professionals revealing that, currently, English proficiency is not a primary requirement for most AI positions. However, candidates with strong English skills are often preferred, especially for leadership and client-facing roles

There is an anticipated increase in demand for AI professionals with strong English skills as the industry becomes more internationalized

Implications and Recommendations

Based on the findings, the paper suggests several key points for the development of AI ESP:

Curriculum design: AI ESP courses should be tailored to meet both vocational and academic English needs, reflecting the dual nature of student motivations.

Teaching approach: A blend of online and offline teaching methods, incorporating case studies and situational learning, is recommended to enhance engagement and practical skills.

Teacher development: Interdisciplinary collaboration and continuous professional development are crucial for effective AI ESP instruction. Industry alignment: While current industry demand for English skills in AI roles is not overwhelming, curriculum designers should anticipate future needs as the field becomes more globalized. The study

offers a poignant assessment, namely that diverse and comprehensive evaluation methods should be adopted, covering both language proficiency and professional knowledge application. Regarding the limitations and future research, the author acknowledges some limitations of the study, including limited sample diversity, potentially not fully representative of AI students across Chinese universities, a small number of semi-structured interview participants, as well as a lack of detailed qualitative analysis using tools like NVivo.

Future research could address these limitations and further explore industry needs for AI ESP.

Personal observations/recommendations:

Reflecting on Tang's work, I find it incredibly relevant in today's rapidly evolving job market. As someone who has navigated various educational paths, I recognize the importance of aligning language education with industry demands. The emphasis on AI in language learning resonates with my belief that education must adapt to technological advancements. Moreover, the collaborative approach outlined in Tang's study—engaging students, educators, and industry professionals—strikes me as essential for developing a robust educational framework. It is not enough to teach language skills; we must ensure that these skills are applicable in real-world contexts, particularly in fields like AI where communication plays a pivotal role. In conclusion, Tang's research contributes significantly to our understanding of how to effectively integrate AI into ESP curricula. Addressing current gaps and future needs lays a foundation for developing programs that enhance language proficiency and prepare students for successful careers in an increasingly digital world. The call for a proactive approach to curriculum design is a reminder that education must continuously evolve to meet the challenges posed by technological advancements.

My personal opinion of the paper is as follows: it is remarkably well statistically designed with state-of-the-art methodology. The language used in the paper is on a high academic level. It ends with a rather short list of references, which does not diminish the paper’s value.

Paper references:

Kim, N. Y. (2022). English with AI: A new era of TOEIC learning for students majoring in airline services. *Linguistic Research*, *39*(3) (Special edition), 97-122.

Link to the paper:
http://isli.khu.ac.kr/journal/content/data/39_S/4.pdf

Article summary:

This study by Na-Young Kim examines the effectiveness of AI-assisted TOEIC learning programs for students majoring in airline services at a Korean university. The research investigates how AI technology impacts TOEIC scores and whether its effectiveness differs based on gender and English proficiency levels. The study is situated within the context of English for Specific Purposes (ESP) education for airline industry professionals. English proficiency, particularly as measured by standardized tests like TOEIC, is crucial for airline staff due to its importance in international aviation communication, passenger interactions, and safety procedures. As such, many airline service departments in universities focus heavily on TOEIC preparation in their English curricula. The research involved 119 EFL students (50 male, 69 female) from three intact classes who used an AI-assisted TOEIC learning program called Soljam over a 10-week period. Participants were divided into three proficiency levels (Basic, Elementary, and Elementary Plus) based on a pre-test. The study employed a pre-test/post-test design to measure TOEIC score improvements. The AI program, Soljam, uses adaptive learning techniques to personalize the learning experience for each student. It evaluates students' current TOEIC levels, identifies weak areas, and provides tailored lectures, practice tests, and study materials. This approach allows students to focus intensively on their areas of weakness and potentially improve their scores more efficiently than traditional methods. Key findings of the study include:

AI technology positively affected students' TOEIC scores at a statistically significant level ($p < .05$). The mean score increased from 345.08 in the pre-test to 389.08 in the post-test. Gender had a significant impact on TOEIC score improvement. Female students showed greater improvement than male students across all proficiency levels. Proficiency level did not significantly affect the degree of TOEIC score improvement. Students at all levels (Basic, Elementary, and Elementary Plus) benefited from the AI-assisted learning program. There was no significant interaction effect between gender and proficiency level on TOEIC score improvement. These results have several implications for ESP education in airline service departments:

AI-assisted learning programs can be effective tools for improving TOEIC scores, regardless of students' initial proficiency levels. This suggests that such programs could be valuable additions to ESP curricula for airline service students. The gender difference in improvement rates indicates that educators may need to consider tailoring their

approaches or providing additional support for male students when implementing AI-assisted learning programs.

The lack of significant differences based on proficiency levels suggests that AI-assisted learning can be effectively implemented in mixed-ability classrooms, potentially addressing the challenge of teaching students with varying English proficiency levels.

Personal observations /Recommendations:

The study contributes to the growing body of research on AI applications in language learning, particularly in ESP contexts. It provides empirical evidence supporting the use of AI technology in TOEIC preparation for airline service students, an area where research has been limited. However, the study also has some limitations. The sample size was relatively small and limited to one university, which may affect the generalizability of the results. Additionally, the study duration of 10 weeks was relatively short, and longer-term effects of AI-assisted learning were not explored. The research aligns with previous studies showing positive effects of AI on TOEIC scores in other EFL contexts, such as Japan and Indonesia. However, it contrasts with some studies that found no significant improvements in TOEIC scores with AI use, highlighting the need for further research in this area. The study's findings are particularly relevant in the context of the COVID-19 pandemic, which has accelerated the adoption of online and technology-assisted learning methods. As the author notes, AI technology may provide a promising way to overcome challenges in educational environments during and after the pandemic.

Regardless of what has been written in the *Personal note* section, I would not recommend publishing such an article due to its inadequate English language proficiency. Nevertheless, the paper offers interesting viewpoints on different AI-assisted language learning apps.

Paper references:

Huang, Q., & Zhao, Y. (2024). Improving College English Teaching Quality Through Wireless Network Artificial Intelligence in E-Learning. *Computer-Aided Design & Applications, 21*(S22), 160-171.

Link to the paper:
https://cad-journal.net/files/vol_21/CAD_21(S22)_2024_160-171.pdf

Article summary:

This paper presents an innovative approach to improving college English teaching quality through the integration of wireless network artificial intelligence (AI) in e-learning environments. The authors, Qiyi Huang and Yan Zhao, propose a comprehensive framework that combines traditional teaching methods with modern technology to enhance the learning experience and outcomes for students in applied colleges and universities. The study begins by highlighting the limitations of conventional teaching quality assessment systems and introduces a novel mathematical model for evaluating teaching quality. This model utilizes neural networks trained by a particle swarm optimization (PSO) algorithm, which allows for a more nuanced and accurate assessment of teaching effectiveness. One of the key strengths of this research is its focus on creating a blended teaching mode that leverages the advantages of both split-classroom and hybrid teaching approaches. By seamlessly integrating modern information technologies such as the Internet, big data, and artificial intelligence into the entire teaching and learning process, the authors aim to create a more personalized, intelligent, and effective learning environment for students. The paper outlines several advantages of this technology-integrated teaching approach. Firstly, it promotes the cultivation of students' independent learning abilities and interests. By allowing for more flexible learning schedules and encouraging active participation in discussions, students develop critical thinking skills and a sense of ownership over their education. Secondly, the proposed method significantly improves teaching efficiency by shifting from a teacher-dominated classroom to a more student-centered approach, enhancing interactivity and collaboration among learners. Another notable aspect of this research is its emphasis on the evolving role of teachers in this new educational paradigm. Rather than being mere lecturers, educators become guides and facilitators of the learning process. They can utilize advanced digital tools to monitor students' progress in real-time, allowing for more targeted and effective interventions when needed. The authors present a detailed experimental setup to validate their proposed model. They use a neural network optimized by PSO to establish a mathematical model for the teaching quality assessment system. The network is designed with 16 input neurons (representing various teaching quality indicators), 20 neurons in the hidden layer, and one neuron in the output layer. The results of their experiments demonstrate that the model can accurately determine teaching effectiveness based on multiple evaluation indices. One of the most significant contributions of this study is its exploration of how AI can be used to analyse and improve teaching methods. The researchers show that by leveraging data

mining algorithms, educators can gain valuable insights into students' learning patterns and preferences, particularly in the context of English language learning and translation software usage. This data-driven approach allows for more targeted and effective teaching strategies. The paper also addresses potential concerns about the use of AI in education, such as data security and the risk of over-relying on algorithmic assessments. The authors emphasize the importance of maintaining a balance between technological integration and human judgment in educational evaluation. In terms of practical applications, the study presents a compelling case for the adoption of this AI-enhanced teaching model in college English courses. The authors argue that this approach not only improves students' language proficiency but also cultivates applied and complex high-quality talents with advanced English application abilities – skills that are increasingly crucial in today's globalized job market. The research methodology employed in this study is robust, combining theoretical analysis with empirical testing. The use of neural networks and PSO for teaching quality assessment represents a novel approach in educational research, potentially opening new avenues for more sophisticated and accurate evaluation methods in various educational contexts. However, it's worth noting that while the paper presents a promising framework, further research may be needed to assess its long-term effectiveness and scalability across different educational settings and cultural contexts. Additionally, the study could benefit from a more in-depth exploration of potential challenges in implementing such a technologically advanced system, particularly in institutions with limited resources. In conclusion, this paper makes a significant contribution to the field of educational technology and English language teaching. By proposing a comprehensive model that integrates AI and e-learning into traditional teaching methods, the authors offer a forward-thinking approach to addressing the evolving needs of modern education. Their work not only provides practical solutions for improving teaching quality but also sets the stage for future research in this rapidly evolving field.

Personal observations/recommendations:

This paper presents a compelling case for the integration of AI and information technology in language education. The proposed neural network model for teaching quality assessment is particularly intriguing, as it offers a more nuanced and comprehensive evaluation method compared to traditional approaches. However, it's important to note that while technology can greatly enhance the learning experience, it should not completely replace human interaction and judgment in education.
The authors' emphasis on developing students' independent learning abilities is crucial in today's rapidly changing world. By leveraging technology to provide personalized learning experiences, educators can better prepare students for lifelong learning and adaptability. Additionally, the transformation of the teacher's role from a mere lecturer to a facilitator of learning aligns well with modern pedagogical theories that emphasize active learning and student engagement.
One aspect that could have been explored further is the potential challenges in implementing such a technology-intensive approach, particularly in regions with limited resources or in institutions where faculty may be resistant to change. Future research

could focus on strategies for overcoming these barriers and ensuring equitable access to these advanced teaching methods.

Overall, this paper provides valuable insights into the future of language education and offers a promising framework for enhancing teaching quality through the thoughtful integration of technology. As we move forward, it will be essential to continue refining these approaches while maintaining a balance between technological innovation and the irreplaceable human elements of education.

Paper references:

Ruan, Y. (2022). Special-Purpose English Teaching Reform and Model Design in the Era of Artificial Intelligence. *Mathematical Problems in Engineering, 2022*.

Link to the paper:
https://tinyurl.com/43uszu9y

Article summary:

The study employs the Sincnet algorithm, which uses sinc functions to process audio data more effectively for speech recognition tasks. The Connectionist Temporal Classification (CTC) method is utilized to address sequence-to-sequence mapping in speech recognition, allowing for end-to-end training of the model. The paper also discusses speech decoding algorithms, particularly the Beam Search method for model decoding output.

The author presents a teaching model that divides the process into pre-class, in-class, and after-class stages. The model emphasizes student-centered learning, with teachers providing resources and guidance while students engage in autonomous learning. The pre-class stage involves task-based learning, where students watch videos and prepare for class discussions. The in-class stage focuses on group activities and presentations, while the after-class stage includes evaluations and adjustments to learning goals.

The paper reports on a survey to understand students' attitudes towards English learning and their difficulties. The results show that 29.7% of students find oral expression challenging, while 13.33% struggle with grammar. The survey also reveals students' views on the curriculum design of the teaching platform, with 62% finding the online resources sufficient and helpful for self-learning.

The study analyses students' satisfaction with the learning results and the current state of English teaching. It finds that only 20% of students believe teachers effectively use blended teaching methods in English instruction.

In conclusion, the paper proposes a novel approach to English teaching that combines artificial intelligence algorithms with traditional educational methods. The model aims to improve students' autonomous learning abilities and create a more engaging classroom environment.

Personal observations/recommendations:

This research presents an innovative approach to English language teaching that leverages artificial intelligence to enhance the learning experience. The blended model proposed in the paper has the potential to address common challenges in language education, such as improving oral skills and maintaining student engagement. However, implementing such a system would require significant investment in technology and

teacher training. Future research could focus on the long-term effects of this teaching model on students' language proficiency and motivation. Additionally, it would be interesting to explore how this approach could be adapted for different age groups and proficiency levels.

On a more personal note, in my opinion, this paper should not be published due to its lack of language proficiency. Further, as it does not fit into the AI-assisted ESP learning field of research, I would not advise using it in the Handbook.

Paper references:

Ahmed, S. M. A. A., Taha, A. R. A., Hussain, S., & Hayat, A. (2023). Enhancing the teaching and learning of English for Specific Purposes (ESP) with Chatgpt. *International Journal of Technology and Education Research*, *1*(03), 40-49.

Link to the paper;
https://www.e-journal.citakonsultindo.or.id/index.php/IJETER/article/view/458/362

Article summary:

This paper discusses the reform and model design of special-purpose English teaching in the era of artificial intelligence. The author proposes a blended education method that integrates online teaching platforms with traditional education, using artificial intelligence algorithms to establish a teaching platform framework. The study employs the Sincnet algorithm, which uses sinc functions to process audio data more effectively for speech recognition tasks. The Connectionist Temporal Classification (CTC) method is utilized to address sequence-to-sequence mapping in speech recognition, allowing for end-to-end training of the model. The paper also discusses speech decoding algorithms, particularly the Beam Search method for model decoding output. The author presents a teaching model that divides the process into pre-class, in-class, and after-class stages. The model emphasizes student-centered learning, with teachers providing resources and guidance while students engage in autonomous learning. The pre-class stage involves task-based learning, where students watch videos and prepare for class discussions. The in-class stage focuses on group activities and presentations, while the after-class stage includes evaluations and adjustments to learning goals. The paper reports on a survey to understand students' attitudes towards English learning and their difficulties. The results show that 29.7% of students find oral expression challenging, while 13.33% struggle with grammar. The survey also reveals students' views on the curriculum design of the teaching platform, with 62% finding the online resources sufficient and helpful for self-learning. The study analyses students' satisfaction with the learning results and the current state of English teaching. It finds that only 20% of students believe teachers effectively use blended teaching methods in English instruction. In conclusion, the paper proposes a novel approach to English teaching that combines artificial intelligence algorithms with traditional educational methods. The model aims to improve students' autonomous learning abilities and create a more engaging classroom environment.

Personal observations/recommendations:

This research presents an innovative approach to English language teaching that leverages artificial intelligence to enhance the learning experience. The blended model proposed in the paper has the potential to address common challenges in language education, such as improving oral skills and maintaining student engagement. However,

implementing such a system would require significant investment in technology and teacher training. Future research could focus on the long-term effects of this teaching model on students' language proficiency and motivation. Additionally, it would be interesting to explore how this approach could be adapted for different age groups and proficiency levels.

My opinion of the paper is as follows: firstly, the language in which it is written is unacademic and poor. The authors apply a rather odd way of in-text citation, it is often unclear who are the authors citing and who is the cited author. Regardless of that It offers a thorough review of the possibilities of using ChatGPT in ESP learning. The paper also provides a somewhat useful list of references.

Paper references:

Hurajová, Ľ. (2021). Can close cooperation between ESP/CLIL experts and disciplinary teachers in higher education lead to fostering English education environment, *Journal of Teaching English for Specific and Academic Purposes*, 129-136.

Link to the paper;
https://espeap.junis.ni.ac.rs/index.php/espeap/article/view/1104/518

Article summary:

The paper presents a comprehensive overview of Content and Language Integrated Learning (CLIL) in higher education, focusing on its potential to foster an English Education Environment (EEE) and promote internationalization. The author, Ludmila Hurajová, discusses the challenges and opportunities associated with implementing CLIL in non-English-speaking countries' higher education institutions (HEIs).
Key Points of the paper are the following: regarding the internationalization of Higher Education the author claims that the growing pressure of globalization has accelerated the internationalization process worldwide. This is manifested through various forms such as student and staff mobility, internationalization at home, and international research collaborations. Further, the author claims the following about English as a Hegemonic Language: English has become the dominant language for international communication in academia and research. This has led to the need for establishing an English Education Environment (EEE) in non-English speaking countries' HEIs. As far as the CLIL Approach is concerned Hurajová deems Content and Language Integrated Learning (CLIL) to be presented as a potential solution for setting up an EEE in HEIs. The dual principle of CLIL aims to develop both disciplinary knowledge and language competence simultaneously. Regarding the issue of interdisciplinary cooperation, the paper emphasizes the importance of close cooperation between ESP/CLIL experts and disciplinary teachers (DTs) for the effective implementation of CLIL in higher education.
Focusing on the CLIL-HET project: the author describes this Visegrad+ project called "CLIL-Higher Education Teacher" (CLIL-HET), which aims to build an online platform for collaboration between DTs and ESP/CLIL experts across different countries. The project outcomes include an Open Source Digital Platform (OSDP), a Didactic Programme for Disciplinary Teachers (DP-DTs), and a process for Identifying Linguistic Weaknesses (ILWs).
The author also mentions several challenges on one hand and opportunities on the other. Among the challenges, Hurajevá highlights varying language competence levels among students and teachers, lack of pedagogical training for disciplinary teachers in CLIL methodology, and the need for close collaboration between language experts and disciplinary teachers.
However, according to the author, CLIL also offers significant opportunities, such as enhancing internationalization at home, improving students' language skills alongside

disciplinary knowledge, fostering interdisciplinary cooperation, and professional development for teachers.
CLIL-HET Project Details: the CLIL-HET project involves HEIs from Slovakia, Hungary, Poland, Albania, and Serbia. Its main objectives are: creating an online space for collaboration between DTs and ESP/CLIL experts, developing a didactic program for disciplinary teachers, identifying linguistic weaknesses of DTs and students, as well as sharing best practices in setting up EEE across different countries.
Personal Observations
The paper effectively highlights the growing importance of CLIL in higher education as a tool for internationalization. It addresses the challenges faced by both students and teachers in non-English-speaking countries and proposes interdisciplinary cooperation as a solution. The CLIL-HET project seems to be a promising initiative that could potentially bridge the gap between language experts and disciplinary teachers, fostering a more effective EEE.

Personal observations / Recommendations:

The implementation of CLIL in higher education presents both challenges and opportunities for institutions worldwide. While it has the potential to enhance internationalization and improve students' language skills, it also requires significant investment in teacher training and resources. The success of CLIL largely depends on the willingness of disciplinary teachers to adapt their teaching methods and collaborate with language experts. Moreover, the effectiveness of CLIL in improving both content knowledge and language skills needs to be carefully evaluated through long-term studies. It's also worth considering how CLIL might impact students who are already struggling with their native language coursework. Finally, as English continues to dominate as the lingua franca of academia, it's crucial to ensure that this doesn't lead to the marginalization of other languages and cultures in higher education.

In my personally biased opinion, the paper fails to address the issue of AI-assisted ESP learning and teaching, nevertheless, it offers a different view of the field. Moreover, it offers precious insights into potential publishing opportunities.

Paper references:

Hanane, O. U. I. S. (2023). The Effects of Chat GPT Technology Use on Enhancing ESP Students' Writing Proficiency. The Case of Master One Students at the Faculty of Economic, Commercial, and Management Sciences at Chadli Bendjedid University, ELTARF. *Afak for Sciences Journal, 8(*5), 74-82.

Link to the paper:
https://tinyurl.com/ye6j8n7a

Article summary:

The paper examines the effects of ChatGPT on enhancing ESP (English for Specific Purposes) students' writing proficiency at Chadli Bendjedid University in Algeria. The study focuses on Master One students in the Faculty of Economic, Commercial, and Management Sciences.

The research investigates how ChatGPT can help ESP students improve their writing skills through specific information, alternative word choices, and content suggestions. Using a qualitative approach with questionnaires distributed to 60 students, the study explores both the positive and negative impacts of ChatGPT on writing proficiency.

Key findings reveal that 80% of ESP students use ChatGPT for writing assignments and research work, while 20% avoid it due to ethical concerns and plagiarism risks.

The study identified common writing challenges including spelling mistakes, grammar errors, sentence construction, tense usage, and translation problems.

The research shows that 75% of participants find ChatGPT highly beneficial for answering questions, offering new vocabulary, improving writing levels, and providing quick feedback. However, 10% of students express concerns about plagiarism and intellectual property issues.

The study concludes that conscious use of ChatGPT can effectively improve ESP students' writing skills when used as a supplementary tool. The authors recommend integrating ChatGPT as an evaluation technique in ESP teaching, selecting diverse content from various teaching backgrounds, and promoting responsible engagement with the tool.

Personal observations/recommendations:

This research provides valuable insights into the practical application of AI tools in language education, particularly for non-native English speakers in specialized fields. While the benefits of ChatGPT for writing improvement are clear, the study could have

benefited from a more detailed analysis of specific writing improvements and a control group to measure effectiveness. The ethical concerns raised by some students highlight the need for clear guidelines on AI tool usage in academic settings. Future research might explore how to effectively balance AI assistance with original student work and develop frameworks for ethical AI integration in ESP education. Additionally, investigating the long-term impact of ChatGPT use on students' independent writing abilities would provide valuable insights for educators and institutions.

My opinion of the paper is as follows: regardless of the valuable study, the language in which it was written is rather poor. The instrument is questionable, and the sample is rather small. The outcomes are hence somewhat far-fetched regarding the validity of the methodology applied in the paper. I would not advise it for publication.

Paper references:

Silitonga, L. M. (2024). Boosting students' ESP vocabulary by utilizing AI chatbot. *ETERNAL: English Teaching Journal, 15*(2), 275-283.

Link to the paper:
https://doi.org/10.26877/eternal.v15i2.605

Article summary:

The study conducted by Lusia Maryani Silitonga and colleagues represents a groundbreaking exploration of artificial intelligence's potential to enhance English for Specific Purposes (ESP) vocabulary acquisition. In an era dominated by technological integration, this research addresses a critical gap in language learning methodologies by investigating the effectiveness of AI chatbots, specifically Dialogflow, in vocabulary development among undergraduate science students in Indonesia. As far as the methodological approach employed in this research we can observe am implementation of a rigorous experimental design to examine the impact of AI chatbots on ESP vocabulary learning. The study involved two distinct groups of 20 undergraduate students each: an experimental group utilizing Dialogflow for vocabulary learning and a control group following traditional instructional methods. This comprehensive 16-week investigation was meticulously structured to provide a robust assessment of chatbot-assisted language learning.

The experimental methodology was characterized by its systematic approach. Both groups underwent identical pre-tests and post-tests, with a 20-item vocabulary assessment designed to measure ESP vocabulary acquisition. The experimental group was exclusively instructed to use the Dialogflow chatbot for both classroom activities and external assignments, while the control group followed conventional learning techniques.

Key Findings and Statistical Insights

The research yielded compelling statistical evidence supporting the efficacy of AI chatbots in language learning. Initial pre-test results demonstrated comparable performance between the experimental and control groups, with mean scores hovering around 9 out of 20. However, the post-test results revealed a significant divergence. The experimental group, which utilized the Dialogflow chatbot, achieved a substantially higher mean score of 14.21, compared to the control group's 11.61.

The statistical analysis revealed a highly significant difference between the two groups, with a p-value of 0.0006, indicating that the chatbot intervention had a meaningful impact on ESP vocabulary acquisition. This finding substantiates the potential of AI-driven language learning tools in creating more interactive and personalized educational experiences.

Theoretical and Practical Implications

The study contributes significantly to the emerging discourse on technology-enhanced language learning. It demonstrates that AI chatbots can create stimulating learning environments that facilitate meaningful interaction and vocabulary development. The research highlights several crucial aspects of digital language learning:

Chatbots provide a judgment-free space for language practice, allowing students to engage with linguistic content without fear of embarrassment.

The technology enables personalized learning experiences that adapt to individual student needs and proficiency levels. Digital platforms can overcome traditional learning limitations by offering flexible, continuous, and context-rich vocabulary acquisition opportunities. In a broader context of technology in language education, this research situates itself within a broader technological transformation in educational practices. The authors argue that the prevalence of digital technology has fundamentally altered how students acquire knowledge, transitioning from traditional methods to more interactive, technology-mediated learning experiences.

The study aligns with emerging research demonstrating the effectiveness of technological interventions in language learning. Previous studies on wikis, blogs, and other digital platforms have similarly shown positive impacts on language skill development, particularly in ESP contexts.

Recommendations and Future Directions

The researchers propose several recommendations for educators and institutions. They advocate for the increased integration of AI chatbots and digital technologies in language teaching, particularly in ESP contexts. The study suggests that such technologies can enhance student engagement, provide additional learning resources, and create more dynamic educational environments.

Furthermore, the authors call for additional research with larger sample sizes and in diverse English learning contexts to validate and expand upon their findings. They emphasize the need for a guided approach in incorporating AI technologies, ensuring that learner-specific data and characteristics are carefully considered. We can conclude by stating that this groundbreaking study represents a significant step forward in understanding the potential of AI chatbots in language education. By demonstrating the tangible benefits of technological interventions in ESP vocabulary learning, the research opens new avenues for educational innovation and provides a compelling argument for the continued integration of artificial intelligence in language teaching methodologies.

Personal observations/recommendations:

This study provides compelling evidence for the effectiveness of AI chatbots in language learning, particularly for ESP vocabulary acquisition. As an AI language model, I find it fascinating to see how AI technologies are successfully integrated into educational settings. The positive results of this study highlight the potential for AI to revolutionize

language learning methodologies and improve student outcomes. It's encouraging to see that AI can complement traditional teaching methods and provide personalized, accessible learning experiences for students. This research also underscores the importance of embracing technological advancements in education to meet modern learners' evolving needs and preferences.

My opinion of the paper is as follows: the paper provides an excellent references list, and it moreover offers valuable insight into the pros and cons of using AI language learning chatbots.

Paper references:

Coancă, M. (2023). The Role of Artificial Intelligence in Teaching English for Specific Purposes. *Journal of Information Systems & Operations Management*, *17*(1), 74-82.

Link to the paper:
https://tinyurl.com/5yncc79n

Article summary:

The ground-breaking study by Lusia Maryani Silitonga and colleagues represents a pivotal exploration of artificial intelligence's transformative potential in English for Specific Purposes (ESP) vocabulary learning. Conducted at Universitas PGRI Semarang in Indonesia, this research addresses a critical gap in language education by systematically investigating the impact of AI chatbots, specifically Dialogflow, on vocabulary development among undergraduate science students.

As far as the theoretical framework and technological context is the research situated within the rapidly evolving landscape of technology-enhanced language learning. As digital technologies continue to reshape educational paradigms, the study recognizes the inherent challenges faced by adult learners, particularly their limited time and inconsistent learning priorities. Chatbots emerge as an innovative solution, offering unprecedented flexibility and personalized learning experiences that transcend traditional instructional limitations.

Concerning methodology, the researchers employed a rigorous experimental design that exemplifies methodological excellence. The study involved two carefully matched groups of 20 undergraduate students from the Science Department. The experimental group utilized Dialogflow chatbot for comprehensive vocabulary learning, while the control group followed conventional instructional methods. The 16-week investigation was meticulously structured, featuring identical pre-tests and post-tests for both groups, a 20-item vocabulary assessment designed to measure ESP vocabulary acquisition, an exclusive chatbot usage for the experimental group's classroom, and external assignments. Regarding the statistical insights and empirical findings, the statistical analysis revealed compelling evidence supporting the efficacy of AI chatbots in language learning. Initial pre-test results demonstrated comparable performance between groups, with mean scores of around 9 out of 20. However, the post-test results unveiled a significant divergence, with the experimental group mean score value of 14.21 and the control group mean score value 11.61. The statistical significance was remarkable, with a p-value of 0.0006, indicating that the chatbot intervention had a meaningful and substantive impact on ESP vocabulary acquisition.

As far as technological innovation and learning dynamics the study highlighted several crucial aspects of AI-driven language learning. The Dialogflow platform demonstrated an extraordinary ability to create personalized learning environments that serve as

judgment-free spaces for linguistic practice. Students could engage with language without the fear of immediate criticism, while simultaneously benefiting from adaptive interactions that catered to individual proficiency levels.

With regard to the cognitive and pedagogical insights of the study, we can state that this research revealed a profound preference among students for silent, technology-mediated learning practices. This preference reflects the evolving digital literacy of contemporary learners, who seek autonomous and interactive learning experiences. The chatbot's capacity to facilitate continuous, personalized learning emerged as a significant advantage over traditional instructional methods.

Concerning the broader implications for educational technology it can be maintained that this study contributes significantly to the discourse on technology-enhanced language learning. It demonstrates that AI chatbots can create immersive learning environments, provide flexible, context-rich vocabulary acquisition opportunities, support learner autonomy, and enhance student engagement and motivation

Practical Recommendations of the study reveal several actionable insights by the researcher, such as integrating AI chatbots and digital technologies in ESP contexts, developing guided approaches for incorporating learner-specific data, as well as continuously evaluating and adapting technological interventions. In conclusion, this pioneering study represents a critical milestone in understanding AI's transformative potential in language learning. By demonstrating the tangible benefits of technological interventions in ESP vocabulary acquisition, the research opens new frontiers for educational innovation.

Personal observations/recommendations:

This paper provides a comprehensive overview of AI's potential in ESP teaching, particularly focusing on ChatGPT. As an AI language model myself, I find the author's balanced approach commendable. She recognizes the benefits of AI in enhancing teaching methodologies while also acknowledging its limitations and the irreplaceable role of human teachers. The paper's emphasis on adapting to students' needs and leveraging technology to create engaging learning environments is particularly relevant in today's rapidly evolving educational landscape. However, it's important to note that as AI technology continues to advance, the balance between AI-assisted learning and traditional methods may need to be reevaluated regularly to ensure the best outcomes for students.

My opinion is the following: poor language accuracy of the paper. It highlights only the pros and cons of using ChatGPT in language learning and is not persuasive when defending human vs. machine teaching. Its reference list is rather outdated.

Paper references:

Zhu, M. (2022). Factors influencing analysis for level of engineering english education based on artificial intelligence technology. *Mathematical Problems in Engineering*, *2022*(1), 4447209.

Link to the paper:
https://doi.org/10.1155/2022/4447209

Article summary:

The paper presents a comprehensive study of the factors influencing the level of engineering English education using artificial intelligence technology. The research, conducted by Mengqing Zhu from Jilin Agricultural University, addresses the current challenges in English for Specific Purposes (ESP) education and proposes an innovative framework to enhance teaching effectiveness.

The study begins by highlighting the importance of ESP in the context of engineering education, emphasizing its unique characteristics and requirements. The author notes that ESP differs from general English in its focused approach, catering to learners with specific professional needs. The paper identifies several challenges in traditional ESP teaching methods, including difficulties in vocabulary acquisition, complex sentence analysis, and professional content comprehension.

To address these issues, the research introduces an artificial intelligence-based framework for ESP teaching. This framework integrates modern information technology with ESP curriculum design, aiming to create a more intuitive and engaging learning environment. The author emphasizes the principles of authenticity, subjectivity, and openness in ESP teaching, which are effectively supported by the proposed AI-enhanced model.

A key component of the research is the development of an interactive mechanism teaching model. This model facilitates multi-dimensional interaction between teachers, students, corpus, and an AI resource bank. The interactive approach is designed to enhance pre-class preparation, in-class learning, and post-class review, creating a more comprehensive and effective learning cycle.

The paper then delves into the technical aspects of the proposed system, introducing a Back Propagation Neural Network (BPNN) optimized by the Gray Wolf Optimization (GWO) algorithm. This innovative combination aims to improve the convergence speed and accuracy of the neural network, enabling it to better evaluate and enhance the quality of engineering English teaching. The author provides a detailed explanation of the BPNN structure and the optimization process using the GWO algorithm, demonstrating its potential to overcome the limitations of traditional neural networks.

To validate the effectiveness of the proposed framework, the research includes an experimental study conducted with 150 non-English major students from a university.

The students were divided into experimental, control, and standard groups, each consisting of 50 participants. The experiment compared the performance of students under the traditional teaching model with those taught using the new classroom quality monitoring model based on the optimized BPNN network.

The results of the experiment are particularly noteworthy. The study found that teaching objectives, content, methods, and effects had significant impacts on the overall teaching effectiveness. Notably, the teaching framework constructed using the improved BPNN algorithm showed superior results, especially in improving students' writing skills. The research also revealed that the AI-enhanced model was particularly effective in enhancing listening skills, with students achieving a 90.83% efficiency after ten weeks of learning.

Furthermore, the paper presents a comprehensive analysis of the optimization effects of the ESP education influencing factors. This analysis, based on feedback from 18 independent English pedagogical experts, demonstrates that the actual measured changes in teaching level closely align with the theoretically predicted output results, validating the effectiveness of the proposed model.

The research concludes by highlighting the potential of artificial intelligence in addressing real-world educational challenges. The author suggests that the BPNN network approach, improved by the GWO algorithm, can effectively assist experienced teachers in identifying and addressing potential issues in the teaching process. The integration of an AI resource library further enhances the model's capability to provide timely additions to fill knowledge gaps.

In conclusion, this paper makes a significant contribution to the field of ESP education, particularly in the context of engineering English. By leveraging artificial intelligence and advanced optimization techniques, the research presents a novel approach to enhancing teaching quality and effectiveness. The proposed framework not only addresses current challenges in ESP education but also paves the way for future innovations in language teaching methodologies.

Personal observations/recommendations:

Reading this paper resonates with my belief in the importance of adapting education to meet the evolving demands of various fields. The integration of AI not only enhances language acquisition but also prepares students for a future where technical proficiency is essential. As we embrace these technological advancements, I am excited about the possibilities they bring for creating more engaging and effective learning environments that cater to diverse learner needs.

My personal opinion of the paper is as follows: it provides excellent references in the field of AI-assisted ESP learning, which is in itself advantageous for our cause. Although it is at times difficult to follow particular engineering and mathematical concepts, the paper’s methodology section and especially its statistically well-grounded analyses deserve our appreciation.

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Paper references:

Ghafar, Z. N., Salh, H. F., Abdulrahim, M. A., Farxha, S. S., Arf, S. F., & Rahim, R. I. (2023). The role of artificial intelligence technology on English language learning: A literature review. *Canadian Journal of Language and Literature Studies, 3*(2), 17-31.

Link to the paper:
https://cjlls.ca/index.php/cjlls/article/view/87/72

Article summary:

Artificial intelligence (AI) is a transformative technology designed to enhance computer performance by mimicking human intelligence. AI enables the creation of "intelligent" systems, such as online platforms and robots, that function and respond in ways similar to human cognition. A key promise of AI is its potential to accelerate skill acquisition by delivering personalized learning experiences. Through continuous, tailored instruction, AI provides learners with the feedback and practice necessary to achieve proficiency. The advent of AI-driven platforms, including tools like Google Translate, Duolingo, and Chatbots, has significantly simplified English teaching and learning processes.

This research utilizes a library-based methodology, focusing on gathering and analyzing data from books, journals, and other reliable sources. The study reviews existing AI applications in English language teaching (ELT) to assess their effectiveness. Content analysis is employed to interpret the data and evaluate the impact of AI on personalized learning and communication skills. Information on factors influencing English language acquisition through AI tools is documented to strengthen the analysis. Applications such as ELSA, Orai, and Neo are examined for their adaptive and interactive features, with particular attention to their benefits for learners.

The findings reveal that AI enhances English language learning by creating customized environments tailored to learners' proficiency levels. Students who used AI-powered tools reported improvements in grammar, vocabulary, and pronunciation. Adaptive feedback systems and real-time pronunciation correction features significantly increased learners' confidence and engagement. Platforms like Duolingo and ELSA illustrate how gamified and interactive approaches can boost motivation. However, challenges such as limited access to technology, the need for teacher training, and concerns about data privacy were also identified.

It has been discussed that AI tools enrich English learning by offering immersive experiences that combine visuals, audio, and text to enhance comprehension. Personalized learning paths supported by AI allow students to address their weaknesses while progressing at their own pace. Despite these benefits, effective integration of AI into traditional teaching requires comprehensive teacher training. Additionally, ethical issues, including data security, algorithmic bias, and inclusivity, remain critical

considerations. AI should be seen as a complementary tool that supports, rather than replaces, the role of human educators in English language teaching.
To conclude, artificial intelligence presents exciting opportunities to revolutionize English language education by delivering dynamic and personalized learning experiences. However, successful implementation depends on addressing challenges such as equitable access, teacher training, and ethical data management. Tools like Chatbots, Google Translate, and Duolingo can significantly enhance engagement and outcomes when integrated thoughtfully. Collaboration among educators, developers, and policymakers is vital to fostering inclusive and sustainable AI-driven education systems. By combining AI capabilities with traditional teaching methods, educators can equip learners with the skills needed to thrive in an increasingly technological world.

Personal observations/recommendations:

In English language teaching AI-driven tools enable personalized, engaging, and efficient learning experiences. However, there are challenges that must be addressed, such as teacher training, ethical concerns, and equal access to technology for all. To maximize benefits, AI should be implemented thoughtfully, ensuring it complements traditional teaching, promotes inclusivity, and ensures data security.

Paper references:

Khan, A., & Mishra, V. (2024). Adapting to diversity: Leveraging AI for ESL learning enhancement. *Journal of Advances and Scholarly Researches in Allied Education, 21*(3).

Link to the paper:
https://ignited.in/index.php/jasrae/article/view/14902/29537

Article summary:

Artificial Intelligence (AI) is increasingly investigated in the field of education as a tool which could improve language acquisition, especially when it comes to students' communication abilities. AI delivers dynamic, adaptable, and personalized learning experiences adapted to students' needs and interests. The large amount of data that AI can analyze may be used to address the learners' different linguistic and cultural backgrounds. Moreover, AI supports the development of cultural sensitivity and intercultural competence by offering simulations, virtual encounters, and possibilities for cross-cultural conversation. AI provides individualized, interactive, and communicative learning processes which improve language acquisition.
This study employs a quantitative research design to collect numeric data while analyzing the patterns, trends, and relationships among variables. Data was collected by using a structured questionnaire aimed at evaluating the effect of AI technology use on educational instruction and learning outcomes. The research used structural equation modeling (SEM) to explore the complex interactions among several elements. The sample consisted of 300 participants who analyzed the transformative role of AI in English language teaching and its potential to meet diverse learner needs. Data was collected by both online and offline means, supplemented by interviews with students and teachers to gain insights into their experiences with AI tools.

AI significantly enhances personalized learning experiences and engagement levels in English as a Second Language (ESL) education. Students reported increased motivation and interest in learning English, attributing this to the dynamic and interactive nature of AI-driven learning. Vocabulary, grammar, and writing skills were improved by applications like ChatGPT and adaptive learning platforms. The integration of AI into classrooms faces challenges such as accessibility of technology, data privacy, and the need for adequate teacher training. The findings emphasize the importance of aligning AI technologies with individual learner needs and ensuring that traditional teaching methods are upgraded rather than replaced.

The study confirms that AI provides tailored educational experiences that cater to diverse learners' needs. Teachers expressed concerns about their readiness to effectively utilize AI tools due to a lack of professional development and training. Ethical concerns were highlighted as key challenges requiring immediate attention. AI technologies should complement traditional educational practices, rather than give standalone solutions.

Future research should investigate the long-term impacts of AI on learning outcomes and study ways of how to make technology accessible even in less developed communities. The integration of AI in ESL education enhances students' learning outcomes, motivation, and engagement. However, the effective implementation of AI requires additional teacher training, care about ethical considerations, and equal access to everyone. AI-driven tools like ChatGPT and adaptive platforms offer personalized learning, but their use must be carefully guided by pedagogical principles. To maximize the benefits of AI in education, the learning environment should be inclusive, ethical, and sustainable, and thus adapted to different needs expressed by students.

Personal observations/recommendations:

By integrating AI in ESL education, the potential for enhancing personalized learning, improving student engagement, and addressing diverse learner needs becomes unlocked. Again, challenges such as teacher training, ethical concerns, and ensuring equitable access to AI tools need to be faced. AI can only be beneficial if the classroom environment is inclusive and ethical, whereas all the stakeholders of the implementation process should support teachers in the integration of AI into traditional teaching.

Paper references:

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), 42.

Link to the paper:
https://www.mdpi.com/2079-8954/11/1/42

Article summary:

Machine learning, deep learning, and other forms of artificial intelligence are becoming part of different fields of education, including foreign language education (FLE). Nowadays, foreign language education should be technology-based since technology has become an integral part of the life of the current generation. Foreign language teachers feel the need to integrate technology into their teaching to satisfy the students' learning needs. In order to motivate students to use technology in their learning, they have to have a positive attitude towards technology themselves, but also have the necessary knowledge to apply it in their teaching.

This review study exploits the PRISMA methodology for systematic reviews and meta-analyses. The search included relevant research published in the last five years, i.e., from January 2018 to December 2022. The review included experimental studies dealing with the use of technologies in the teaching of English. The initial search generated 59 documents from Scopus and 107 studies from Web of Science, but only 14 studies were considered for analysis. The number of participants ranged from 20 to 483, with intervention periods lasting between one and six months.

According to the obtained results, technology such as chatbots or virtual reality (VR) were rarely used in teaching. However, they improve vocabulary retention and highly motivate learners to learn a foreign language. Machine translation tools made students produce more complex sentences and the difference between highly and less proficient students was proved to be smaller. Students were very happy when using AI tools. AI tools like Alexa improved the speaking skill, but listening comprehension was a skill which did not show such a quality jump.

It has been discussed above that the use of technology improves motivation and the will to learn a language. A constant issue was observed in the lack of teacher training, accompanied by issues related to data privacy and other ethical concerns. As shown in other studies, the recommendation given by this one was to use technology as a complement to traditional learning, not as a replacement. The long-term benefits obtained by the use of AI in teaching and learning have to be studied more and more reliable results are yet to be obtained.

To conclude, emerging technologies should be introduced in everyday learning since they improve motivation for learning, but this can be done only after teachers are both pedagogically and technologically ready to do so. Therefore, issues such as teacher training, but also ethical concerns, should be addressed. The advice given by the authors is that the application of AI tools in different learning environments should be further studied.

Personal observations/recommendations:

The integration of emerging technologies in language education improves student motivation, personalized learning experiences, and enhanced vocabulary and speaking skills. The implementation of such tools requires targeted teacher training, addressing privacy concerns, and ensuring equal access to these tools. Future research should study the long-term impacts of technology on learning, as well as the practical strategies which effectively bridge the gap between technological advancements and classroom applications.

Paper references:

Kovalenko, I., & Baranivska, N. (2024). Integrating artificial intelligence in English language teaching: Exploring the potential and challenges of AI tools in enhancing language learning outcomes and personalized education. *European Socio-Legal and Humanitarian Studies, 1*, Article 9.

Link to the paper:
https://journals.uran.ua/jjournal-ehs/article/view/306099

Article summary:

The article deals with the introduction of AI tools into English language teaching. The research revolves around the interplay of modern technologies and traditional teaching, delving into the improvements the former can bring to the latter. The diverse nature of AI tools can cater to different learning styles. As in other research studies, the problem of pedagogical readiness of teachers, as well as ethical challenges and how to overcome them, is raised in the article. AI in language teaching is studied through a comprehensive analysis and synthesis of former research.

The authors performed an analysis of recent scientific papers published on the topic of integrating AI in ELT. AI tools offer possibilities for natural language processing, adaptive learning algorithms, and personalized content delivery, thus improving the mastery of all language skills. The issue tackled in this study is the accessibility of technology for students and teachers, as well as internet connectivity. The main task to fulfill is to align AI tools with educational standards. Issues of data security, consent, and ensuring that AI tools are free from biases should be addressed.

The research proved that the implementation of AI led to a significant improvement in language learning personalization and adaptivity due to the ability of the tools to cater for individual learning styles, but also to create a more active and challenging learning environment. Gamification showed to be particularly appealing to younger learners.

It is consequently argued that AI tools vary in their effectiveness since they are differently designed and implemented. Teachers need to use them, but as a facilitator complementing their particular teaching methodologies. In this sense, teacher training becomes paramount. Moreover, it is important to overcome challenges linked to connectivity and hardware compatibility, as well as to take care of privacy, and obtaining informed consent for their application and usage.

The positive sides of introducing AI in traditional teaching is its ability to cater for individual learning needs. On the other hand, human interaction can be jeopardized by the excessive use of AI. The technical and ethical challenges are considerable, but with

adequate training and careful planning, they can be overcome. The role of evaluation is crucial to maintain the effectiveness of AI, especially in ELT.

Personal observations/recommendations:

The integration of AI in ELT offers immense potential to improve and strengthen personalized learning and engagement, but it also addresses issues such as technical limitations, ethical concerns, and the need for teacher training. Careful planning is essential to align AI tools with curricula, but to gain the highest value for education it is important to preserve human interaction. Collaboration among educators, developers, and policymakers is of key importance to ensure AI's effective and ethical implementation in language learning.

Paper references:

Lee, J. H., Shin, D., & Noh, W. (2023). Artificial intelligence-based content generator technology for young English-as-a-foreign-language learners' reading enjoyment. *RELC Journal: A Journal of Language Teaching and Research, 54*(2), 508-516.

Link to the paper:
https://journals.sagepub.com/doi/10.1177/00336882231165060

Article summary:

Second language learning has been under great influence of AI lately. This article tackles the field of generative AI, a branch of artificial intelligence that goes beyond the simple use of AI as a tool for big data analysis, but is used as a content generator, which generates texts based on user's keywords.

The study involved 11-12 year old's attending elementary schools in South Korea divided in both experimental and control groups. In total, 121 young English-as-a-foreign-language learners participated in the study. Half of them were taught using content generator-based activities, while the other half received traditional English-as-a-foreign-language reading instruction (textbook-based). The program called 'CopyAI' was employed to generate texts, allowing students to customize stories by selecting genres, characters, settings, and events. The study was conducted in six sessions, including a pre-intervention survey, interactive sessions using AICG-generated texts, and a post-intervention evaluation.

The group which received a content generator-based activity was more effective in terms of enhancing the target variables. Regarding the Foreign Language Enjoyment (FLE), the means of the experimental group's levels significantly improved after the intervention compared to the control group ($p < .01$). The results of the t-test showed that the means of the two groups' responses to their interests in reading English books did not show a significant difference before the intervention; however, the two groups' differences reached a significant contrast after the intervention ($p < .01$). Approximately 78 % of the experimental group participants found the AICG-based activity more engaging than traditional reading activities. Slightly more than 50 % of participants showed increased willingness to read English texts generated via AI based on their ideas. The participants liked how AI generated stories using their keywords, which enhanced their engagement and focus during lessons. A majority of the learners (approximately 77 %) believed that they were able to focus more in English lessons compared to the traditionally taught ones, as their own texts were adopted.

In conclusion, the participants showed positive attitudes toward and were more engaged in the AICG-based activity compared to their peers who received traditional teaching. The study also highlighted the potential of AI to reduce teachers' workload by generating

a wide range of original English texts suitable for classroom use. Teachers noted that AI-generated texts provided students with stories that were tailored to their interests, thus improving motivation and engagement.

This study demonstrates that implementation of AI-based content generators in English language teaching can enhance students' enjoyment and interest in reading. The created texts are personalized and offer more engaging reading experiences. This suggests that AI tools can play a vital role in extensive reading, supporting both teachers and students by creating personalized content. Teachers should explore a tool's capabilities, but also ensure texts are aligned with students' proficiency levels and interests. AI is becoming a standard component of English language teaching, ensuring dynamic and effective learning environments.

Personal observations/recommendations:

AI-based content generators enhance engagement and enjoyment in English language learning by creating personalized and interactive reading experiences. Students' motivation and interest improve significantly after the introduction of AICG, while teachers' workload is lessened through automated text generation. In the future such tools can become the standard for ELT classes by ensuring more dynamic learning environments and higher motivation.

Paper references:

Novawan, A., Ikeda, O., & Walker, S. A. (2024). The new face of technology-enhanced language learning (TELL) with artificial intelligence (AI): Teacher perspectives, practices, and challenges. *Journal of English in Academic and Professional Communication, 10*(1).

Link to the paper:
https://publikasi.polije.ac.id/jeapco/article/view/4565/2458

Article summary:

Language pedagogy has always been influenced by the media and technology. However, AI has changed language teaching and learning in its core. The integration of AI culminates in the transformation of Technology-Enhanced Language Learning (TELL) into Intelligent Technology-Enhanced Language Learning (ITELL). AI has great potential in TELL but there is the question of whether AI can be formally introduced into the language curriculum. This paper reports a thorough examination of the reality of Intelligent Technology-Enhanced Language Learning (ITELL) in higher education.

A qualitative case study design was employed to explore the reality of Technology-Enhanced Language Learning (TELL) with a focus on Artificial Intelligence (AI) technology. The participants in this study were 7 English language teachers from Indonesia who had integrated AI technology into their higher-education teaching. Data was collected by conducting in-depth, semi-structured interviews where teachers were asked about the specific AI tools they used and how they perceived their impact. Thematic analysis was used to identify recurring themes related to the application of AI in language teaching and teachers' perspectives on its effectiveness. According to ethical guidelines, participants were ensured privacy throughout the research process.

Teachers' answers revealed that AI tools enriched their perspectives, enhanced materials development, enlivened in-class teaching, and facilitated efficient assessments. AI-based tools like ChatGPT, Grammarly, and Quillbot were commonly used for generating lesson materials, providing feedback, and facilitating classroom activities. AI tools were successful in helping students improve specific areas of their language proficiency. Teachers reported perplexity about the lack of formal policy guiding AI integration, concerns about students' over-reliance on AI tools, and issues related to teacher preparedness. Although AI tools improved efficiency, teachers emphasized the importance of balancing AI with traditional human interaction in the classroom.

As discusses, the integration of AI in language education offers adaptive, interactive, and personalized learning experiences. However, the lack of teacher training and professional development limits the effective use of AI in classrooms. Data privacy and

the potential misuse of AI by students remain critical challenges that need to be addressed. Participants suggested that AI tools should be used as complementary resources, not as a replacement for human educators. A combination of the two proved to be the most effective.

To conclude, AI-driven tools can transform English language education by enhancing engagement, personalization, and learning outcomes. The successful implementation of AI into language teaching requires formal policies, adequate teacher training, and careful attention to ethical considerations. By combining AI and traditional teaching methods, educators can create more dynamic and inclusive learning environments. Future research should explore the long-term impacts of AI on language acquisition and develop frameworks for its sustainable implementation. The collaboration among educators, policymakers, and technology developers is crucial for the development of AI tools' full potential.

Personal observations/recommendations:

The integration of AI in language education enhances personalized learning, improves engagement, and makes the teaching processes simpler. However, for a successful implementation of AI in the teaching process issues such as teacher training, ethical concerns, and the over-reliance of students on AI tools should be dealt with. Good language teaching should combine AI tools and traditional human interaction.

Paper references:

Shin, M. H. (2018). How to use artificial intelligence in the English language learning classroom. *Indian Journal of Public Health Research & Development, 9*(9).

Link to the paper:
https://tinyurl.com/288n6zmm

Article summary:

It is predicted that the artificial intelligence revolution will be the fourth revolution of human history after the information revolution. It may mean that we will not need any English teachers in the classroom, or that we will not need any English language education. However, communication conveys messages and it can be delivered very differently depending on the speakers' emotion and feeling, neither of which is a characteristic of machines. This study aimed to design an English class model that uses Artificial Intelligence through Flipped Learning.

This study adopts a qualitative case study design to explore the application of Flipped Learning combined with Artificial Intelligence in English language classrooms. The study focused on 80 university students who participated in a 3-hour elective English language learning course in Korea. The research procedure consisted of preparation, research, and implementation stages, including the integration of Artificial Intelligence during pre-class stages. The experimental group utilized an AI-supported flipped learning model, while the control group followed a traditional teaching method using textbooks and controlled practice activities. To find out students' language achievement, a paired t-test was used, and the reliability of the test was ensured through Cronbach's α.

The research results proved that using Artificial Intelligence through Flipped Learning had a positive impact on students' self-efficacy. There was a statistically significant difference ($p<.05$) between the experimental group and the control group in the speaking ability. In terms of academic achievement, there was a significant difference between the two groups in listening and speaking achievement. Regarding motivation, external motivation was higher ($M=3.89$) than intrinsic motivation ($M=3.20$). Experimental group students improved their self-efficacy and academic performance more than those in the control group.

The AI-supported flipped learning model enhanced metacognitive skills and encouraged collaborative learning among students. Students had problems adapting to new technologies during the pre-class stages. The study emphasizes the importance of combining teacher-student interaction with AI tools to enhance the fulfilment of learning outcomes. Teachers expressed a need for training and guidance to integrate AI technologies efficiently into classroom instruction in order to facilitate innovative learning strategies.

Finally, artificial Intelligence used in Flipped Learning improves self-efficacy, motivation, and learning outcomes in English language education. The findings suggest that a combination of AI and traditional teaching can lead to enhanced academic achievement and student engagement. Despite the positive results, limitations such as small sample sizes and challenges in adapting to new technologies call for further research. Future studies should focus on addressing the scalability of AI-based teaching models and exploring their long-term impacts on academic success. This study encourages educators to consider innovative teaching strategies that combine the strengths of AI and human interaction to create effective and student-centered learning environments.

Personal observations/recommendations:

The integration of AI with Flipped Learning in English language education improves students' self-efficacy, motivation, and academic achievement. However, the key issues which remain a topic for thought are teacher training, adaptation to new technologies, and ensuring a balance between AI tools and human interaction. Long-term studies should be conducted in order to optimize the use of AI in creating dynamic and student-centered learning environments.

Paper references:

Zaiarna, I., Zhyhadlo, O., & Dunaievska, O. (2024). ChatGPT in foreign language teaching and assessment: Exploring EFL instructors' experience. *Information Technologies and Learning Tools, 102*(4), 176-191.

Link to the paper:
https://journal.iitta.gov.ua/index.php/itlt/article/view/5716

Article summary:

Generative AI is already widely used, with AI-powered learning systems becoming more common in secondary and higher education. One example is ChatGPT, a platform that enables human-like conversations using advanced AI. Its GPT-3.5 model is freely accessible and offers strong natural language processing skills. ChatGPT can create clear responses and handle different language tasks, making it a helpful tool for language teachers. It supports various aspects of language teaching and learning. Identifying challenges related to using AI tools like ChatGPT can help develop strategies to improve teaching and learning foreign languages, as well as suggest areas where ChatGPT could be enhanced.

This study used a mixed methods approach, combining quantitative and qualitative research to provide a full understanding of English language instructors' feedback. Data was collected through a Google Form survey conducted from January to March 2024. A total of 36 participants responded, most of whom were EFL or ESP professors from higher education institutions. The survey aimed to gather information about the participants, measure their familiarity with ChatGPT, identify the language skills assessed using ChatGPT and evaluate its perceived accuracy and challenges.

The results show that most respondents (60 %) said they were somewhat familiar with ChatGPT. A smaller group (20 %) reported being very familiar, while 11 % were not familiar with it at all. ChatGPT is used for activities such as generating and checking answers, creating language exercises, correcting and analyzing language, lesson planning, and developing ESP courses. Respondents noted that ChatGPT is used to assess skills like grammar, vocabulary, reading, writing, listening, and speaking. While some participants found tasks created by ChatGPT accurate or somewhat accurate, others had concerns about their reliability. Most respondents expressed doubts about using ChatGPT-generated tasks for assessment, suggesting the need for further evaluation. Challenges include creating tasks that test subtle differences in meaning or achieve specific goals.

Some participants were highly satisfied with their experience using ChatGPT, while others reported only moderate satisfaction. Concerns were raised about its reliability and ethical issues, such as privacy and academic integrity. Respondents highlighted the

importance of professional training and clear guidelines to fully benefit from using ChatGPT in teaching and assessment. The study shows that ChatGPT has great potential as a flexible assistant in many areas of language teaching.

In conclusion, this research examines the innovative use of ChatGPT, an advanced AI language model, in language assessment. More than half of the participants admitted they had not used ChatGPT in their teaching due to a lack of knowledge or doubts about its reliability. Those who do use it recognize its value for lesson planning, content creation, task design, and assessment, especially in areas like vocabulary, grammar, and writing. Future research should focus on developing criteria for evaluating tasks created by ChatGPT and establishing ethical guidelines for its use. These findings could benefit English language teaching globally by introducing more flexible and interactive tools for different educational settings.

Personal observations/recommendations:

The study clearly shows both the strengths and weaknesses of using ChatGPT in teaching and assessing English. While it proves useful for tasks like grammar, vocabulary, and writing, it also points out the need for better accuracy, clear professional guidelines, and ethical solutions to address teachers' concerns. Recommendations:

- Create detailed guidelines and training programs to help teachers effectively use ChatGPT in their lessons.
- Work with AI developers to improve task accuracy and make outputs suitable for different teaching needs.
- Carry out more research to develop ethical rules and best practices for using AI in education.

Paper references:

Tang, J., & Foley, J. (2022). A Case Study on the Effectiveness of Applying Content and Language Integrated Learning in an Artificial Intelligence English Reading Course, *Arab World English Journal (AWEJ) 13*(3), 236-253.

Link to the paper:
https://awej.org/wp-content/uploads/2022/08/15.pdf

Article summary:

Learning English at Chinese colleges has been changing a lot. The College English teaching reform aims at General English Education (GEE). The use of AI in GEE is a topic which has not been tackled upon, so the gap between AI in economy and science and GEE is deep.

Both the quantitative and the qualitative data analysis method were used in the study. All data were collected from two English proficiency tests, a 5-point Likert Scale questionnaire, and two one-to-one semi-structured interviews. The AI general knowledge performance was measured by the scores a student got on the English proficiency tests before and after the course. Data analysis methods used in this study were percentage, mean, standard deviation, paired-samples t-test, Pearson correlation coefficients, one-sample K-S test, Mann-Whitney U test, and the thematic analysis. The experiment lasted for one academic semester, or 16 weeks, according to the college English education syllabus.

The results from both quantitative and qualitative data analysis demonstrated that the AI English Reading course was effective. It could be concluded that the course successfully enhanced students' overall understanding of AI. The descriptive statistical data from EPT2 revealed an improvement in students' knowledge of AI compared to EPT1. Students showed better performance in areas like Strong AI, machine learning, and natural language processing, although their understanding of AI applications in specific industries remained weak. Paired-samples t-test results for 'Multiple choice questions,' 'Essay-type question,' and overall 'AI general knowledge' scores showed significant improvement. Additionally, students expressed a preference for both the teaching approach and the AI English Reading textbook.

It was also showed that the AI English reading course improved the students' general knowledge of AI (development, products and concepts linked to AI), but lacked knowledge in professional AI (especially AI applications and technological functions). Students were able to express opinions about AI, but not to a sufficient depth. They also liked the course, but were challenged by the workload and different methodology.

In summary, the present study aimed to investigate the implementation of CLIL in Chinese GEE courses. Compared with the initial level of their AI general knowledge before the course, the overall performance of students' AI general knowledge after the course improved. It was possible and practical to implement CLIL in Chinese GEE courses, particularly with themes like AI. The study concluded that integrating AI knowledge with English education, are both necessary and feasible. Future studies should explore the integration of AI knowledge with English learning in more depth and address the challenges identified in this study.

Personal observations/recommendations:

The study shows the benefits of using Content and Language Integrated Learning (CLIL) in interdisciplinary education, especially by merging AI-related topics with English learning. However, the results emphasize the importance of improving the balance between the complexity of the content and the students' language skills while also considering their different needs and motivations. Future work should aim to develop more up-to-date and easy-to-understand materials and adopt creative teaching approaches to boost student engagement and comprehension.

Paper references:

Alharbi, W. (2024). Mind the gap, please! Addressing the mismatch between teacher awareness and student AI adoption in language education within higher education. *International Journal of Computer-Assisted Language Learning and Teaching, 14*(1).

Link to the paper:
https://tinyurl.com/4scnjpjs

Article summary:

The rapid advancement of technology, particularly artificial intelligence (AI), has significantly impacted various sectors, including education. ChatGPT, developed by OpenAI and launched in November 2022, showcases the transformative potential of AI in education. The increasing use of AI in education presents both opportunities and challenges. This study focuses on the intersection of AI and second language learning, examining the gap between teacher beliefs and student behaviors regarding AI-assisted writing.

This study used a mixed-methods approach, combining quantitative data from two surveys—one for teachers and one for students—with qualitative data from open-ended responses. A total of 78 teachers and 243 students from different universities in Saudi Arabia participated. The surveys included Likert scale questions focusing on topics like AI knowledge, perceptions, and effects on academic integrity. The qualitative data from the open-ended questions were examined through thematic analysis to uncover key themes linked to the study's objectives.

The study proved that there is a significant gap between teachers' perceived understanding of AI technologies and the actual extent of AI usage by students. Students reported high engagement with AI tools (M = 4.28, SD = 0.76), whereas teachers rated their AI knowledge as moderate (M = 2.43, SD = 0.70). The qualitative part of the research showed educators' concerns about ethical issues, but also students' appreciation for the efficiency provided by AI in assignments. Students' understanding and command of AI knowledge after targeted interventions improved significantly.

The results show there is a gap between teachers and students in AI use. This gap can be overcome by giving teachers and students clear guidelines on how to use AI ethically in order to preserve academic integrity. There are possibilities to introduce AI in curricula by promoting its benefits achieved by responsible use.

In the end, the study highlights a significant gap between teachers' awareness and students' use of AI tools, which raises concerns about academic integrity in higher education. Addressing these challenges requires focused professional development for educators and updates to assessment methods. Encouraging open dialogue and

cooperation between students and teachers is essential for successfully integrating AI into education. Future research should investigate various approaches to align teaching practices with the growing capabilities and applications of AI.

Personal observations/recommendations:

This study emphasizes a gap between students' and teachers' use of AI, the impact it has on Academic integrity and development of skills. To implement AI effectively, teachers should get appropriate training. Institutions, on the other hand, should offer clear guidelines on how to maintain ethical standards while integrating pedagogical practices with AI.

Paper references:

Jadhav, S., Vhatkar, S., & Aalam, Z. (2024). Bridging the gap: Exploring the revolutionary application of GenAI in language teaching and learning. *Journal of Electrical Systems, 20*(4s), 2185-2193.

Link to the paper:
https://journal.esrgroups.org/jes/article/view/2325/1840

Article summary:

Generative AI (GenAI) is able to generate highly coherent text which can raise interest if applied in language teaching and pedagogy. As GenAI capabilities continue to improve, its possibility to enhance second language acquisition (SLA) and foreign language learning is becoming highly appreciated. This paper aims to explore the emerging intersection of GenAI and language pedagogy, examining key opportunities as well as ethical considerations that must be addressed to responsibly bridge this gap.

In the research demographic analysis, pre-test and post-test assessments, GenAI usage analytics, course evaluation surveys, and focus groups were conducted. Participants were divided into control and experimental groups. The experimental group was engaged in GenAI-assisted language learning activities. Quantitative data collection included pre- and post-English proficiency scores, GenAI usage analytics, course evaluation survey ratings, and demographic information. The SPSS software was used to identify trends and significant differences between groups.

There was a balanced distribution of gender and age, but with differences in technology expertise and AI exposure. Pre-test and post-test comparisons demonstrated significant improvement in both groups, with the experimental group showing significantly more gains. The experimental group participants indicated strong engagement with AI tools. A course evaluation survey showed a higher level of satisfaction and positive perception of GenAI among the experimental group participants.

The results demonstrate the transformative role of GenAI in language teaching, emphasizing its potential to enhance learning outcomes and student satisfaction. Ethical challenges such as bias, transparency, and privacy, must be addressed to ensure responsible usage of GenAI in education. The experimental group's superior performance calls for the integration of innovative AI tools under structured and supervised learning environments. The findings emphasize the need for continuous monitoring and evaluation to make AI integration approaches better and to address potential limitations.

The article concludes that the implementation of Generative AI (GenAI) in language teaching requires careful consideration. The study provides empirical evidence of how GenAI's improves language learning outcomes and enhancing student satisfaction.

Future research should focus on studying the long-term effects, addressing ethical concerns, and refining AI integration strategies in educational contexts. The results imply that GenAI can transform language education for the better, but thorough ethical considerations and regular evaluations are crucial for responsible and effective implementation.

Personal observations/recommendations:

The study emphasizes the potential of Generative AI (GenAI) to improve language learning outcomes and student satisfaction, while stressing the importance of ethical considerations. To use AI responsibly, institutions should create clear guidelines, include AI literacy in their curricula, and ensure teachers receive proper support. Future efforts should focus on tackling biases, ensuring transparency, and regularly evaluating AI tools to make sure they are used effectively and sustainably in education.

Paper references:

Jin, Y. (2023). Potential benefits and limitations of artificial intelligence technology used in Oracle-Bone studies. *Irish Journal of Technology Enhanced Learning, 7*(2).

Link to the paper:
https://journal.ilta.ie/index.php/telji/article/view/136/133

Article summary:

Artificial intelligence (AI) refers to machines or computer systems designed to mimic human intelligence, allowing them to perform tasks that usually require human thought. AI has become a powerful tool across many fields, including education. In the context of TCSOL (Teaching Chinese to Speakers of Other Languages), AI offers teachers and students more personalized, interactive, and efficient learning opportunities. Recent advancements, like online databases of oracle bones and the use of AI technologies such as machine learning, have created new possibilities for research in this area. Generative AI, a branch of AI, focuses on creating new and original content, such as text and images.

The AI-generated paper created as part of this research was divided into three prompts to create a structured academic article. A combination of descriptive and critical analysis was employed, where generative AI was used for drafting, while human expertise for evaluation. Three main prompts guided the generation: an overview of oracle-bone inscriptions, analysis of AI technologies, and recommendations for future applications. The AI tool focused on generating text based on specified topics, while the researcher made minimal formatting edits.

The obtained results indicate that the integration of AI technologies in oracle-bone studies had a great impact on various aspects of research. AI-driven image recognition helped identify and classify oracle-bone characters, even when they were damaged. Character reconstruction algorithms have restored damaged or fragmented inscriptions, improving the readability of texts. Automated transcription tools converted oracle-bone characters into modern Chinese text, facilitating linguistic analysis. Semantic analysis AI has provided contextual insights into inscriptions, revealing new dimensions of historical and cultural understanding.

The application of AI in oracle-bone studies facilitates decipherment, interpretation, and preservation of the inscriptions. AI technologies have expanded the corpus of readable oracle-bone inscriptions, enabling researchers to uncover previously unknown characters and phrases. The critical challenge lies in ensuring the quality of AI-generated data and addressing ethical concerns, such as transparency and bias. Interdisciplinary collaboration between AI specialists and historians is crucial for the advancement of this field.

To conclude, the study underscores the transformative potential of AI in enhancing our understanding of oracle-bone inscriptions and early Chinese civilization. To ensure accuracy and reliability, generative AI tools call for structured guidance and critical evaluation. Future research should focus on refining AI models, expanding datasets, and addressing ethical challenges. As an end goal, AI should support, not replace, human expertise in scholarship and education.

Personal observations/recommendations:

The study highlights the transformative potential of AI technologies in enhancing research and education through innovative tools like image recognition and semantic analysis for oracle-bone studies. However, the findings emphasize the need for structured interdisciplinary collaboration and coping with challenges such as data quality, transparency, and bias. Effort should be put in improving AI models, expanding datasets, and fostering ethical frameworks to ensure AI remains a supportive, rather than substitutive, force in academic advancements.

Paper references:

Kallunki, V., Kinnunen, P., Pyörälä, E., & Myyry, L. (2024). Navigating the evolving landscape of teaching and learning: University faculty and staff perceptions of the artificial intelligence-altered terrain. *Education Sciences, 14*(7), 727.

Link to the paper:
https://www.mdpi.com/2227-7102/14/7/727

Article summary:

The emergence of AI has had a deep impact on higher education, prompting a need to understand university teachers' perspectives on future opportunities and challenges. ChatGPT, launched globally in late 2022, quickly became a topic of discussion in higher education due to its potential applications in teaching, learning, and assessment. This study explores university faculty and staff perspectives on the challenges and opportunities offered by artificial intelligence in teaching and learning environments. Understanding how educators perceive the integration of AI tools is crucial for the development of efficient and ethical educational practices in higher education.

The research was carried out in two stages: focus group interviews in 2023 and Learning Café discussions in 2024, providing a variety of data for analysis. A total of 79 faculty and staff members from a multidisciplinary university, representing different academic fields, took part. The focus group interviews were designed to gather participants' opinions on future teaching and assessment, with AI being a key topic in every discussion. Researchers used qualitative content analysis to identify six main categories showing AI's impact on higher education, supported by data from both the interviews and workshops.

The analysis identified six key areas of AI's impact: students' learning processes, teaching, the knowledge required of future employees, ethical and economic issues, the development of AI, and the nature of the change it brings. The impact of AI on teaching was the most extensively discussed category, highlighting both opportunities and challenges. Participants noted that AI could guide assessment processes and facilitate innovative teaching methods, but it also raised concerns about academic integrity and the authenticity of student work. The development of AI tools like ChatGPT was seen as both a challenge and an opportunity, with implications for curriculum design and the ethical use of technology. AI's potential to support students with disabilities and enhance inclusivity was acknowledged, alongside concerns about unequal possibilities to access the technology and the risk of over-reliance on AI-generated content.

The findings emphasize the transformative potential of AI in higher education. The need for guidelines and training which would address ethical, pedagogical, and practical challenges was seen as paramount. AI's ability to automate tasks like grading and

provide personalized feedback can enhance efficiency, but there is a need for the reevaluation of traditional teaching and assessment practices. Ethical implications of AI, including bias and data privacy, are seen as challenges which are necessary to overcome. The results suggest that integrating AI into education requires collaboration between educators, administrators, and policymakers. Future research should focus on understanding the long-term effects of AI in education and exploring ways to balance its benefits with the preservation of critical thinking and creativity.

It is understood that AI has become a constituent part of higher education, offering opportunities to enhance teaching, learning, and assessment while posing significant challenges that require careful consideration. Faculty and staff emphasized the need for professional training to effectively integrate AI tools into educational practices. The study highlights the importance of involving educators in shaping the future landscape of teaching and learning in the age of AI. By addressing ethical concerns and fostering open dialogue, universities can make use of AI to support innovative and inclusive educational practices. Finally, the integration of AI into higher education should complement, rather than replace, the expertise and creativity of educators and students.

Personal observations/recommendations:

AI in higher education has the potential to enhance teaching, learning, and assessment. It also emphasizes the ethical and pedagogical challenges it presents. To overcome this, universities should insist on professional development for educators, and the establishment of clear guidelines for AI use. Future initiatives must focus on balancing AI's benefits with preserving creativity, critical thinking, and inclusivity in educational practices.

Paper references:

Silcheva, A. G., Lamzina, A. V., & Pavlova, T. L. (2023). Specifics of using text and graphical chatbots with artificial intelligence in English language teaching. *Perspektivy Nauki i Obrazovania, 64*(4).

Link to the paper:
https://tinyurl.com/3x3y6kez

Article summary:

The development of mobile apps, especially chatbots powered by artificial intelligence (AI), is expanding the possibilities of education. These tools help make learning more personalized and allow students to follow their own educational paths. Chatbots like ChatGPT and Midjourney can help learners practice English at their own speed by simulating conversations with native speakers. They also teach users how to give clear commands, improving both language and thinking skills. This paper explains how chatbots can be used to help undergraduate students learn English. These tools make digital learning more interactive and engaging for students.

The study included 186 students from the Faculty of Linguistics at A.S. Griboyedov Moscow University in Russia. The experimental group participated in extra classes where they debated in English with ChatGPT and used Midjourney to create images based on English prompts. To measure how well the chatbots worked, students wrote essays before and after the experiment. These essays were graded on grammar, style, and vocabulary. Statistical tests, like Pearson's chi-squared test, were used to check for improvements in the experimental group compared to the control group. Students were also split into two subgroups based on their English level: upper-intermediate and intermediate.

The use of chatbots in language learning showed that they could act as both conversation partners and tools that follow instructions. Students in the experimental group improved their ability to write creatively in English, with fewer grammar and style mistakes and more complex language use. These improvements were statistically significant (χ^2 = 9.174, $p < 0.05$). Midjourney tasks encouraged creativity by asking students to create prompts, interpret images, and write stories based on those images. ChatGPT helped students practice real-life language use through tasks like storytelling and philosophical discussions.

The study showed that AI chatbots can successfully support traditional teaching by making learning more dynamic and interactive. Students reported feeling more motivated and engaged when using tools like ChatGPT and Midjourney. The structured activities helped them experiment with different language forms and improve their creativity and critical thinking. While the results were positive, challenges were also noted, such as the need for technical training and concerns about the ethical use of AI.

These findings show that AI tools have great potential to make learning more personalized, but further research is needed.

The study results suggest that AI chatbots can improve language learning by offering personalized and interactive practice. However, the success seen in this experiment might also be linked to the innovative teaching methods and the extra communication practice. This study introduces specific ways to use AI chatbots in education. Future research should look into how AI tools affect language learning over a longer period and explore their impact on students' independence.

Personal observations/recommendations

The study shows how chatbots like ChatGPT and Midjourney can improve language learning with creative and interactive activities. However, both teachers and students need training to use these tools effectively. Future efforts should focus on including AI tools in curriculums, using them responsibly, and studying their long-term effects on student learning and independence.

Paper references:

Son, J.-B., Ružić, N. K., & Philpott, A. (2023). Artificial intelligence technologies and applications for language learning and teaching. *Journal of China Computer-Assisted Language Learning*.

Link to the paper:
https://tinyurl.com/y7bcwep4

Article summary:

Artificial intelligence (AI) is the ability of computer systems to perform tasks that are normally done by humans. AI enables computer systems to simulate human intelligence. Its influence is visible in numerous jobs, among them education. This is a review article of main trends and common findings in relation to AI technologies and applications for second and foreign language learning and teaching. The authors searched for keywords associated with AI in computer-associated language learning (CALL)-related journals published in the period from 2010 to 2022. They also searched books and book chapters directly related to AI in language learning and teaching and checked bibliographies of recent articles for other relevant pieces.

The authors examined seven categories of AI technologies and applications for language education: natural language processing (NLP), data-driven learning (DDL), automated writing evaluation (AWE), computerized dynamic assessment (CDA), intelligent tutoring systems (ITSs), automatic speech recognition (ASR), and chatbots. NLP allows machines to understand human language. Data-driven learning (DDL) offers authentic linguistic data and supports learners in their study of linguistic items found in their target language. Automated writing evaluation (AWE) gives students feedback on their written work by making them aware of the types of errors they make. The categories were examined by taking into account learner behavior, evaluating software tools, and assessing the use of AI-driven applications in education.

Natural language processing (NLP) is used in machine translation (MT). It converts a source language into a target language. Previous research on NLP was interested in finding out how it can help learning and learner feedback, as well as in the potential for computer systems to generate activities resembling those commonly used by teachers. Data-driven learning (DDL) approaches show that corpora are a type of database enabling learners to find language patterns of interest. However, to depend on such tools can be counterproductive. The use of automated writing evaluation (AWE) tools, such as Grammarly, gave different results depending on automated or teacher feedback, or their combination. Intelligent tutoring systems (ITSs) provided effective personalized instruction and facilitated self-directed learning, particularly in foreign language education. Automatic speech recognition (ASR) technology (such as Google Assistant and Alexa) showed a potential in helping learners improve pronunciation and speaking skills.

It has been discussed that language teachers may not yet be fully prepared to work with AI, and ethical issues arise when using data from learners and teachers for research. Studies point out the need for more detailed research on how AI can be effectively integrated into education, especially in language teaching and learning. AI has the potential to offer instant feedback and create flexible learning environments, helping students become more independent. Future research should focus on both the opportunities and challenges of using AI in education, including its technical and teaching applications. Ethical issues, such as data privacy and biases in AI systems, need to be carefully addressed to ensure fairness and effectiveness. Experts also stress the need for teacher training to successfully incorporate AI technologies into classroom practices.

The results obtained by this review article indicate that AI will be continuously developed and integrated into CALL. Technical requirements and pedagogical responsibilities for the use of AI in language learning and teaching are topics which have to be discussed more. Language teachers have the difficult task to monitor whether AI is effectively used in language learning and teaching; they need to be ready to use AI technologies and to be able to help students in gaining the most out of AI.

Personal observations/recommendations:

The integration of AI in language education provides personalized learning experiences and instant feedback. The benefits of using AI in language teaching and learning are numerous, but challenges such as teacher preparedness, ethical considerations, and the need for rigorous research have to be addressed. It is recommended that educators undergo targeted training programs to effectively implement AI technologies in classrooms. Moreover, researchers should prioritize studies on ethical AI usage and its implications for privacy and fairness in education. In the end, institutions should invest in developing user-friendly AI tools tailored to the diverse needs of learners and teachers.

Paper references:

Sysoyev, P., Filatov, E. M., Evstigneev, M. N., & Sorokin, D. O. (2024). A matrix of artificial intelligence tools in pre-service foreign language teacher training. *Tambov University Review Series Humanities, 29*(3), 559-588.

Link to the paper:
https://vestsutmb.elpub.ru/jour/article/view/1207/1102

Article summary:

Nowadays technological development is characterized by artificial intelligence (AI) technologies. They are integrated into various spheres of life, including education. AI tools are used by both students and educators to enhance foreign language communication skills and language development. This study focuses on the integration of AI technologies into the linguistic and teaching methods training of future foreign language teachers. This research aims at the development of a matrix of AI tools that can be utilized in pre-service foreign language teacher training.

The research employed the expert assessment method to identify the teaching potential and limitations of commonly used AI tools. A wide range of academic articles indexed in Web of Science and Scopus were analyzed to classify and summarize existing knowledge. The matrix of AI tools was developed by categorizing them based on the types of feedback they provide, including educational, social, methodological, analytical, evaluative, and creative feedback. The materials included educational programs for pedagogical education and linguistics, aimed at preparing future English teachers and linguists.

A comprehensive matrix of AI tools was created. The tools were classified by six types of feedback that are relevant to teaching foreign languages. For instance, ChatGPT, YandexGPT, and GigaChat were identified as tools providing analytical, methodological, and creative feedback. Tools like Replika and Google Assistant were found to be both educational and social tools helping to simulate real-world language interactions outside the classroom. Evaluative feedback tools such as Grammarly and Criterion enable automated assessment of written assignments, thus supporting students in refining their writing skills. Creative tools like Midjourney and AI Poem Generator help students with creative thinking and language expression.

AI tools proved to be extremely helpful in improving the quality of linguistic and methodological training for future foreign language teachers. However, it is important to integrate these tools into traditional teaching methods to personalize learning and develop communicative competence. It is important for teachers to give proper guidelines on the use of AI to students, as well as understand the limits to which AI can function effectively. The cooperation of technology developers and educators is key to

getting the best out of AI. A further concern to identify is the long-term influence the use of AI tools will have on foreign language education.

The research emphasizes the increasing role of AI technologies in education and their impact on training foreign language teachers. A practical framework, presented as a matrix, has been developed to integrate AI tools into teaching, helping to improve both language and teaching skills. The study's innovation lies in categorizing AI tools based on the types of feedback they provide, offering a basis for future teaching advancements. Future work should aim to create specialized teaching methods tailored to specific AI tools, forming a unified training system for future teachers. Overall, the study highlights how AI can support traditional teaching methods and meet the changing demands of language education.

Personal observations/recommendations:

The study emphasizes the transformative role of AI tools in foreign language teacher training, presenting the ability of the various tools to enhance linguistic, methodological, and creative competencies. However, effective integration requires clear guidelines, educator training, and collaboration between technology developers and teachers to address challenges such as tool limitations and ethical concerns. Future efforts should focus on refining teaching methodologies, expanding AI applications, and ensuring equal access to these technologies to maximize their impact on education.

Paper references:

Tikhonova, N., & Ilduganova, G. (2024). What scares me is the speed at which artificial intelligence is developing: Students' perceptions of artificial intelligence in foreign language teaching. *Vysshee Obrazovanie v Rossii = Higher Education in Russia, 33*(4), 63-83.

Link to the paper:
https://vovr.elpub.ru/jour/article/view/4929

Article summary:

The rapid growth of artificial intelligence (AI) has made it a key part of many fields, including education. This study examines how students at Kazan Federal University perceive the use of AI technologies in learning foreign languages. The aim is to analyze how AI is practically applied in language education, along with its benefits and drawbacks as seen by students. AI tools are increasingly used for tasks like writing essays, preparing oral presentations, and translating in foreign language classes. However, despite its rising popularity, concerns remain about AI's ethical challenges and its potential to encourage academic dishonesty.

As many as 182 students from Kazan Federal University participated in the study. They were students studying language and economics disciplines, and they fulfilled an online survey in January 2024. The survey included questions on specific AI tools used, their advantages and disadvantages, and students' views on the future of AI in education. The data were collected and analyzed using both quantitative and qualitative methods, allowing researchers to identify key trends and topics in students' answers. There was also a section for open-ended comments about students' experiences and opinions regarding AI technologies. Students were categorized based on their frequency of AI use and their academic fields so as to better understand differences in perspectives.

The results obtained show that only one-fifth of the surveyed students reported regular use of AI tools for language learning, although many of them expressed that in the future they plan to use them more. Students cited time-saving and the ability to simplify complex material as major advantages of AI tools like ChatGPT, but unreliability of data and the potential for generating false or misleading content were frequently mentioned as significant drawbacks. While 47.8 % of students appreciated AI's ability to make complex information more accessible, 61 % expressed concerns about the accuracy of AI-generated outputs. The study found a significant gap between students who use AI tools to complement their learning and those who completely rely on them to solve tasks instead of them. Language students were more critical of AI responses compared to those attending economics, suggesting differences in expectations based on subject matter expertise.

The findings reveal a dual perception of AI among students, who view it as both a helpful learning aid and a source of potential academic challenges. Students acknowledged the role of AI in enhancing efficiency and providing alternative learning methods but expressed concerns about its potential to undermine independent thinking. Many respondents noted that the quality of AI responses often required significant refinement, reducing the perceived benefits of time-saving. The study emphasizes the need for educators to address the ethical implications of AI use, particularly in preventing academic dishonesty. Future integration of AI in education should focus on creating guidelines and training programs to help students and educators use these tools responsibly.

This research points to the increasing importance of AI technologies in foreign language education. Despite its advantages, students do still not trust it completely, particularly due to concerns about accuracy and ethical use. The study puts significance to the importance of cherishing digital literacy and critical thinking skills if AI wants to be responsibly used. Universities must develop policies and give guidelines to maintain academic integrity and originality. Future research should explore the long-term impact of AI tools on language learning outcomes and their integration into broader educational practices.

Personal observations/recommendations:

The role of AI in foreign language education is dual – it has a huge potential to improve learning efficiency, but it also raises concerns about accuracy and ethical use. To maximize its benefits, educators should implement guidelines for responsible AI use, alongside training programs that foster critical thinking and digital literacy. Future efforts should focus on balancing AI integration with preserving academic integrity and encouraging independent learning practices.

Paper references:

Sotomayor Cantos, K. F., Varas Giler, R. C., & Castro Magayanes, I. E. (2023). Artificial Intelligence in Language Teaching And Learning. *Ciencia Latina Revista Científica Multidisciplinar, 7*(4).

Link to the paper:
https://ciencialatina.org/index.php/cienciala/article/view/7368

Article summary:

Artificial intelligence (AI) is the ability of a machine to imitate intelligent human behavior, often described as the science and engineering of creating intelligent machines. AI has become a key element of contemporary educational systems. It can improve teaching approaches, personalize learning experiences, and accelerate administrative processes. The tools designed to provide real-time feedback and interactivity have become especially popular in the field of English language teaching (ELT). This paper focuses on exploring the applications of AI in English language teaching and learning, evaluating its advantages and challenges.

The study uses a qualitative research approach, applying content analysis to summarize findings from articles published between 2020 and 2023. The literature review is based on studies available in the Google Scholar database, focusing on AI's role in teaching and learning English. The search prioritized recent studies, citable sources, and research specifically related to AI in education. Articles unrelated to educational methodologies or published before 2020 were excluded to maintain relevance and timeliness. The analysis highlights key themes, including the effectiveness of AI tools, students' perceptions, and the challenges educators face when using these technologies.

It has been proved that AI tools like Lyra Virtual Assistant, Grammarly, and NovoLearning can improve English language skills (speaking, writing, and listening). In one study, students using Lyra Virtual Assistant improved their pronunciation and speaking abilities compared to those relying on traditional teaching methods. Grammarly was identified as a valuable tool for improving writing skills, providing immediate corrections thus teaching students to effectively edit their own work. Furthermore, AI-powered virtual reality environments create immersive contexts for language learning, significantly improving speaking and listening scores in experimental groups. Mobile applications like NovoLearning are effective in fostering learner autonomy and reducing anxiety in language acquisition processes.

The findings reveal that AI technologies can complement traditional teaching methods. Participants in various studies noted that AI tools helped them solve repetitive tasks, so teachers could have more time to focus on creative aspects of language teaching. Ethical concerns, data privacy issues, and the reliability of AI-generated content were seen as challenges to be addressed. The results suggest the need for targeted teacher training to

effectively integrate AI into curriculum design and classroom practices. Collaboration between educators, technologists, and policymakers is essential to ensure the responsible use of AI in education.

To conclude, AI offers innovative tools to foster student engagement and support the acquisition of learning outcomes. While AI provides significant benefits such as real-time feedback, personalized learning, and increased accessibility, it cannot replace the emotional intelligence and adaptability of human teachers. Refining AI tools, addressing ethical challenges, and exploring their long-term impacts on educational practices are issues to be addressed. AI's role in education is expected to grow, but its success will depend on careful implementation and ongoing collaboration across disciplines.

Personal observations/recommendations:

The study underscores the transformative potential of AI in English language teaching, highlighting its ability to enhance personalized learning and improve key language skills like writing, speaking, and listening. However, the findings emphasize the need for ethical considerations, data privacy measures, and teacher training to ensure responsible integration of AI tools. Future initiatives should focus on refining AI applications, fostering interdisciplinary collaboration, and balancing technological advancements with the irreplaceable value of human educators.

Paper references:

Jeon, J. (2024). Exploring AI chatbot affordances in the EFL classroom: young learners' experiences and perspectives. *Computer Assisted Language Learning, 37*(1-2), 1-26.

Link to the paper:
https://www.tandfonline.com/doi/full/10.1080/09588221.2021.2021241

Article summary:

Language educators and researchers have highlighted chatbots as effective tools for supporting language learning, particularly as conversation partners. Although chatbots are believed to provide benefits, such as creating opportunities for interaction and reducing anxiety in the classroom, there is limited knowledge about how students actually use chatbots in language lessons or how these tools influence their motivation to learn. This study aimed to identify the benefits that chatbots offer in primary English as a foreign language (EFL) classroom and explore how these benefits impact learners' motivation to study English. Thirty-six Korean primary school students participated in a 16-week EFL course using chatbots customized through Google Dialogflow.

This study took place in two primary classrooms in South Korea. In public schools, South Korean students start learning English at age nine and attend classes two to three times a week. Over a 16-week period, lessons were delivered weekly, with students participating in three 40-minute sessions each week. Chatbot interactions were conducted via the Google Assistant interface on tablet PCs, allowing students to practice speaking, listening, reading, and typing. Data collection included in-depth interviews with students and logs of their interactions with the chatbots to identify potential benefits and examine their psychological effects on learners.

The analysis identified three types of chatbot benefits: pedagogical, technological, and social.

Pedagogical benefits stemmed from direct interactions with chatbots, which provided students with chances to interact, receive immediate feedback, and practice target language expressions. Technological benefits included features like pause buttons that allowed students more time to think, access to online dictionaries, and tools to improve pronunciation when input was not recognized. Social benefits included reduced anxiety during language practice and the ability for students to control their own learning pace without peer pressure. Some students felt the chatbot was like a real conversation partner, which boosted their engagement and enjoyment in language learning activities. Students' perceptions of their English skills significantly influenced their motivation to use chatbots for learning. Technological features often compensated for difficulties in interaction, helping students stay motivated even with limited language abilities. Students who valued chatbots as learning tools viewed challenges as opportunities to

improve. The use of chatbots lowered social anxiety, allowing learners to practice English without fear of judgment from peers or teachers. However, some students preferred interacting with human partners, highlighting the need for a mix of chatbot and human interactions in the classroom.

This study explored the benefits of using chatbots in primary EFL classrooms and their impact on young learners. The findings identified pedagogical, technological, and social benefits, all of which influenced learners' motivation to study English. Customized chatbots created through platforms like Dialogflow proved to be valuable tools when thoughtfully designed and implemented. Teachers should consider students' language proficiency, technological support, and interaction preferences to make the most of chatbot-based learning. Future research should investigate how chatbots can be used in a variety of educational and cultural contexts to expand their potential in language learning.

Personal observations/recommendations

This study highlights the diverse benefits of chatbots in EFL classrooms, such as enhancing motivation, reducing anxiety, and creating interactive learning opportunities. However, it also points out challenges like technological limitations and some students' preference for human interaction. To maximize the benefits, educators should align chatbot activities with students' skill levels, provide training on using the technology, and combine chatbot-based learning with collaborative tasks led by teachers or peers.

Paper references:

Muñoz-Basols, J., Neville, C., Lafford, B.A., & Godev, C. (2023). Potentialities of Applied Translation for Language Learning in the Era of Artificial Intelligence. *Hispania 106*(2), 171-194.

Link to the paper:
https://tinyurl.com/3yzaae45

Article summary:

The main goal of this study is to explore the views of university faculty and staff on the impact of artificial intelligence (AI) on teaching and learning in higher education, especially after the global launch of the widely used ChatGPT in the fall of 2022. The study aims to answer the following questions: What aspects of AI are being discussed by university faculty and staff? and What challenges and opportunities do they see in relation to AI? The rise of AI has sparked conversations in higher education about how it may change teaching and learning methods. While AI has great potential, its use, particularly technologies like ChatGPT, also presents challenges related to academic integrity, teaching practices, and ethical issues.

This research was conducted at a large, research-focused university in Anon country, with about 4,000 faculty and researchers and 35,000 students across eleven faculties. The study used two sets of data: Data 1, collected in May–June 2023, and Data 2 and 3, gathered during two AI seminars in March 2024. Data 1 includes interview data from 21 university staff members, such as teachers and educational technology experts. The interviews were conducted in focus groups, each lasting around 60 minutes, and included participants from various faculties and career stages. Workshops in March 2024 used the Learning Café method, where small groups discussed AI topics and shared their ideas. All participants gave consent, and their data were anonymized for analysis. Quantitative data, including survey ratings, were combined with qualitative insights from the focus group discussions, which were analyzed thematically to identify key themes about AI's impact on education.

The results section outlines that the most discussed theme was AI's impact on teaching, which sparked wide-ranging discussions in all groups, focusing on both opportunities and challenges. Experienced teachers and educational technology experts pointed out how AI influences students' learning and how AI will develop for future use. Participants in Data 2 and 3 workshops discussed topics like the ethical issues of AI, the potential for automating assessments, and the need for clear guidelines on how to integrate AI into academic settings. Preliminary analysis showed different perspectives from various groups. Younger teachers were excited about using AI tools for innovative teaching, while more experienced educators were concerned about the wider implications for academic quality and student development. The survey showed that teachers rated their AI knowledge moderately (M = 2.43), while students reported much higher engagement with

AI tools (M = 4.28). This gap highlights the need for professional development for educators.

The findings reveal a gap between teachers' knowledge of AI and students' use of AI tools, raising concerns about academic integrity in higher education. Teachers acknowledged the benefits of AI but were cautious about its ethical use and long-term effects. The study stresses the importance of adding AI literacy to the curriculum, with an emphasis on ethical use and responsible practices. Encouraging open conversations between teachers and students could help align their expectations of AI in education. The study also highlights AI's potential to improve personalized learning experiences, as long as ethical issues like bias and data privacy are addressed. Long-term monitoring and regular policy updates will be crucial for sustainable AI integration.

In conclusion, integrating AI technologies like ChatGPT into higher education can lead to significant innovations in teaching and learning. However, these innovations come with challenges that must be carefully considered. The study shows that while AI can improve education, its ethical use requires a thorough framework that includes teacher training, curriculum redesign, and clear guidelines for its use. To fully benefit from AI, institutions should foster collaborative approaches, encourage teacher-student partnerships, and support ongoing research into AI's educational applications. Addressing AI's challenges and opportunities in education will require a proactive, multifaceted strategy to ensure its benefits are fairly distributed and its risks minimized.

Personal observations/recommendations

This study highlights the transformative potential of AI technologies like ChatGPT to improve personalized teaching and learning in higher education. However, the findings reveal a significant gap in AI literacy between educators and students, emphasizing the need for targeted training and clear ethical guidelines. Institutions should focus on building collaborative frameworks, developing ethical policies, and providing continuous professional development to ensure responsible and effective AI use in education.

Paper references:

Shakirova, D. (2023). What is the current state of intelligent systems applications in digital pedagogy? In the example of English for specific purposes. *ICFNDS '23: Proceedings of the 7th International Conference on Future Networks and Distributed Systems*, 448–452.

Link to the paper:
https://dl.acm.org/doi/10.1145/3644713.3644778

Article summary:

Artificial Intelligence (AI) is increasingly being used in education to create personalized and flexible learning experiences. This study examines how intelligent systems are currently used in English for Specific Purposes (ESP), focusing on their role in digital teaching methods. AI-powered tutoring systems and platforms provide valuable opportunities to meet individual learning needs, give detailed feedback, and improve language skills. However, challenges such as ethical concerns, limited infrastructure, and the lack of research on AI's role in ESP remain important obstacles. The aim of this paper is to explore these issues by reviewing existing research on AI's impact in ESP, discussing its advantages and challenges, and offering insights for educators and decision-makers.

This study follows a systematic review approach, based on PRISMA guidelines, to analyze relevant literature. The review included 46 articles, 32 of which focused on intelligent tutoring systems and 14 on AI in ESP. Those were articles published between 2016 and 2022 that explored AI and intelligent systems in ESP. Key search terms such as "intelligent systems," "digital pedagogy," and "ESP" were used across databases like Scopus, Web of Science, and Google Scholar. Data on research design, participants, interventions, outcomes, and limitations were collected and analyzed thematically. Studies unrelated to ESP, those without reference to intelligent systems, or published in languages other than English or before 2016 were excluded.

The findings show that AI systems can significantly personalize learning, offering feedback tailored to students' individual needs and supporting self-paced learning. These systems also help improve language proficiency by adapting to students' learning styles and providing realistic, interactive scenarios for practice. Data analysis is essential in creating these adaptive learning experiences, but the lack of appropriate tools remains a challenge. Barriers to AI integration include ethical concerns about privacy and data security, limited infrastructure, and insufficient long-term research.

The potential of intelligent systems to transform ESP by offering personalized learning paths and immediate feedback was discussed. Students benefit from greater engagement and motivation, while teachers gain tools for more efficient assessment and teaching design. However, issues such as AI biases and unequal access to technology

need to be addressed. The study suggests the importance of collaboration between different fields to improve AI tools and align them with educational goals. Future research should explore the impact of intelligent systems on learners, particularly in developing critical thinking and practical language skills.

To sum up, AI-driven systems have the potential to revolutionize ESP by creating personalized, adaptable, and effective learning environments. Despite this, challenges related to ethics, infrastructure, and research gaps need to be overcome to fully realize their benefits. Policymakers and educators should focus on developing strong frameworks for incorporating AI into education while addressing its limitations. The findings contribute to the ongoing discussion of digital teaching methods and offer practical advice for improving ESP education. Ongoing research and innovation are necessary to unlock the full potential of intelligent systems in education.

Personal observations/recommendations:

This study highlights the transformative potential of intelligent systems in ESP, showing how they can offer personalized and efficient learning experiences. However, challenges such as ethical issues, infrastructure limitations, and the lack of research on long-term effects must be addressed to maximize their benefits. Future efforts should focus on creating strong frameworks for AI integration, encouraging collaboration across disciplines, and ensuring equal access to AI tools to improve language education sustainably.

Paper references:

Persulessya, S. I., Vigeleyn, R. P. J., & Jakob, J. C. (2024). Utilizing artificial intelligence in language learning: What about engineering students' perception? *Journal of English Education Program (JEEP), 5*(1), 48-58.

Link to the paper:
https://jurnal.untan.ac.id/index.php/JEEP/article/view/48-58/75676600730

Article summary:

Artificial intelligence (AI) is having a big impact across many areas, especially in education. Tools like ELSA Speak are being used to help students improve their pronunciation, vocabulary, and speaking skills. In vocational education, especially in engineering, teaching English can be challenging because of the technical vocabulary students need to learn. The goal of this study is to look at how engineering students feel about using AI-powered apps like ELSA Speak to learn English. These tools use speech recognition and instant feedback to help improve language skills and fluency.

This study used a descriptive research design to understand students' views on the ELSA Speak app in Engineering English classes. It was conducted at Ambon State Polytechnic with 29 Civil Engineering students. The data were collected using a questionnaire with six Likert-scale questions, which measured students' experiences with the app. Students were asked to use ELSA Speak both in class and at home to get more familiar with the tool. The data were analyzed using descriptive statistics, and answers were categorized as strongly agree, agree, neutral, disagree, or strongly disagree.

As a result, all students (100%) agreed that the app's design and interface were easy to use and visually appealing. They liked that the app offered various learning topics and levels, allowing them to practice engineering-related vocabulary at their own pace. Most students (95%) found the feedback on pronunciation accuracy very helpful, as the app corrected most of their mistakes. Seventy-two percent of students also agreed that the flexible study hours and durations made it easy to learn at their own speed. All students reported that using ELSA Speak to improve their Engineering English pronunciation was useful, with noticeable improvements in their pronunciation and fluency.

The results suggest that AI tools like ELSA Speak can greatly improve language learning for non-native English speakers, especially in vocational education. Students felt motivated by the app's instant feedback, which helped them improve their pronunciation over time. The study shows the value of using AI tools alongside traditional teaching methods to create a mixed learning environment that benefits students. However, some challenges, such as limited access to premium features and the need for more specialized content, were identified. Future research should explore how AI tools impact language skills in the long term, especially in fields like engineering.

To conclude, the study shows that ELSA Speak is a valuable tool for improving Engineering English pronunciation. It provides useful benefits, such as real-time feedback and the ability to learn at one's own pace. The positive feedback from students suggests that AI technologies have the potential to improve vocational education and address the specific needs of learners. Teachers and institutions should think about adding tools like ELSA Speak to their courses while addressing limitations such as restricted content access. This research supports the use of AI in education, especially for specialized learning needs. Future studies should expand on these findings, exploring how AI can be used in different fields and how to integrate it ethically and effectively.

Personal observations/recommendations:

This study shows that AI tools like ELSA Speak can help improve Engineering English pronunciation and vocabulary, especially for non-native speakers. However, it highlights the need to address challenges, such as limited access to premium features and the need for more field-specific content. Moving forward, efforts should focus on integrating these technologies into curricula, while ensuring ethical practices and accessibility to maximize their benefits for education.

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Paper references:

Ivanova, M., Grosseck, G., & Holotescu, C. (2024). Unveiling insights: A bibliometric analysis of artificial intelligence in teaching. *Informatics, 11*(10).

Link to the paper:
https://www.mdpi.com/2227-9709/11/1/10

Article summary:

The paper investigates the role and impact of artificial intelligence (AI) in teaching through a bibliometric analysis of academic literature. The study focuses on scientific publications from 2018 to 2023, retrieved from the Scopus and Web of Science databases. Its primary aim is to provide a descriptive and analytical overview of the influence of AI on teaching practices, identify collaboration patterns, assess publication impact, and outline emerging trends in the field. The authors also seek to address underexplored aspects of AI's integration in education and guide future research by highlighting trends and potential knowledge gaps.

The study is structured around several research questions to systematically explore its objectives. These RQs include: What are the trends in scientific publication growth on AI in teaching? Which countries, journals, and authors are the most productive and influential? What are the key collaboration patterns among authors and institutions? What are the major conceptual structures and emerging themes in research on AI in teaching? These questions guide the authors in mapping the scientific landscape and identifying patterns in publication trends, citations, and collaborations.

A bibliometric approach was employed using Biblioshiny, a web-based application in the R environment. Data were extracted based on queries related to "artificial intelligence" and "teaching" in article titles, abstracts, and keywords. The analysis was conducted using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The study includes a total of 6,010 documents from Scopus and 500 from Web of Science. The authors analyzed annual publication growth, citation patterns, and collaboration networks to uncover insights into the dynamics of the field. Key terms and topics were identified through keyword analysis and co-occurrence mapping, revealing the most frequently studied areas and technologies.

The authors situate their study within a growing body of literature on AI in education. For example, they highlight Zawacki-Richter et al.'s (2019) systematic review on AI applications in higher education, which underscores the need for integrating pedagogical considerations into AI technologies. Another example is Kasneci et al.'s (2023) exploration of the opportunities and challenges of large language models like

ChatGPT in education, emphasizing their transformative potential. These studies contextualize the increasing focus on AI tools in education and the associated challenges, such as ethical considerations and the evolving role of educators.

The findings indicate a rapid increase in the number of publications on AI in teaching, with China, the USA, and the UK emerging as the most active contributors. Emerging research trends include the integration of ChatGPT, learning analytics, and machine learning in teaching contexts such as e-learning, higher education, and active learning. Collaborative networks reveal strong partnerships among researchers across countries and institutions. The study also identifies key research areas, such as personalized learning, emotion recognition, and educational technologies like virtual and augmented reality, reflecting the interdisciplinary nature of AI research in teaching.

In conclusion, the article provides a comprehensive overview of the state of AI in teaching and highlights its growing significance in education. The authors emphasize the need for further research to address ethical, social, and pedagogical implications and to bridge knowledge gaps. They also advocate for more collaborative and interdisciplinary efforts to maximize the potential of AI in transforming teaching practices. The findings serve as a benchmark for future research and policymaking in the integration of AI technologies in education.

Personal observations/recommendations:

One of the standout aspects of the paper is its thorough methodology, which combines data from reputable databases like Scopus and Web of Science with advanced bibliometric tools such as Biblioshiny. This combination lends credibility to the study and ensures a detailed exploration of publication trends, citation impact, and collaborative networks. The use of PRISMA guidelines further highlights the authors' commitment to transparency and rigor in their research process.

However, the article could have expanded on the practical implications of its findings. While it effectively identifies trends such as the growing focus on ChatGPT and machine learning, it offers limited discussion on how educators and policymakers might implement these technologies responsibly and effectively. A deeper exploration of pedagogical frameworks or case studies could have bridged the gap between theory and practice, making the insights more actionable for stakeholders in education.

Paper references:

Karakuş, N., & Gedik, K. (2024). Adaptation of artificial intelligence to everyday life for a sustainable world: A comparative analysis of artificial intelligence and teacher decision-making. *Preprints.org*.

Link to the paper:
https://www.preprints.org/manuscript/202409.1339/v1

Article summary:

The paper aims to explore the role of AI in addressing ethical dilemmas in educational contexts while contributing to sustainable development goals. The authors focus on the integration of AI into education, emphasizing its potential for fostering sustainability through simulations and data-informed decision-making. The study aims to compare the decision-making approaches of teachers and AI systems, analyzing their responses to ethical dilemmas within the framework of five ethical theories: virtue ethics, deontological ethics, utilitarianism, social justice ethics, and situation ethics. The objective is to identify key differences and overlaps in ethical decision-making processes, with an emphasis on their implications for educational practices and sustainability.

The research addresses several key questions to understand the connection between artificial intelligence and teacher decision-making in ethical dilemmas. It investigates the relationship between the responses of teachers and AI systems to ethical dilemmas, exploring how these approaches align or diverge. The study also examines variations in teachers' responses based on factors such as gender, years of service, and educational level, aiming to uncover patterns influenced by demographic and professional variables. Additionally, it evaluates the extent to which teachers and AI prioritize sustainable outcomes when making ethical decisions, emphasizing the implications for broader educational practices. These questions collectively aim to provide a comprehensive understanding of how ethical approaches by teachers and AI contribute to sustainability and educational development.

The study adopts Yin's nested multiple-case design, allowing for a detailed comparative analysis of ethical decision-making processes by teachers and AI systems. A total of 141 teachers from public schools in Turkey participated in the study, providing responses to pre-designed ethical dilemma scenarios. Data were collected using a semi-structured interview form, reviewed by experts and supplemented with input from AI (ChatGPT). The analysis involved coding responses into ethical categories using qualitative methods, including content analysis and cross-case synthesis, with the MAXQDA software facilitating the process. Ethical approaches like deontological ethics, virtue ethics, and utilitarianism were categorized based on participants' answers.

The study builds on existing literature on ethical dilemmas in education and AI ethics. For instance, Bozkurt (2023) highlighted the potential of AI to assist educators in resolving ethical dilemmas through advanced data analysis and deep learning, emphasizing its analytical precision. Similarly, research by Öztürk (2019) emphasized the limitations of AI in addressing human-centered values, noting its inability to replicate human empathy and ethical sensitivity. By comparing teacher responses to these findings, the study situates its analysis within ongoing discussions about the intersection of human and machine ethics in education.

The results revealed distinct differences in how teachers and AI address ethical dilemmas. AI often adhered to rule-based, analytical approaches like deontological ethics or utilitarianism, favoring consistency and result-oriented decisions. Teachers, however, exhibited a broader reliance on virtue ethics and social justice ethics, emphasizing empathy, context, and human values. Variations were observed based on teachers' experience, with less experienced teachers favoring deontological ethics and social justice ethics, while seasoned educators leaned towards virtue ethics and utilitarianism. Gender differences indicated that male teachers were more utilitarian, whereas female teachers prioritized social justice and situational ethics.

The study concludes that while AI offers analytical support, it cannot fully replicate the empathetic decision-making exhibited by teachers. The findings demonstrate the need for integrating AI into educational practices as a complementary tool, rather than a replacement, to ensure ethical sensitivity and sustainability. Teachers' varied responses highlight the importance of experience and professional development in shaping ethical approaches, suggesting that a balance between human values and AI capabilities is essential for fostering a sustainable educational environment. These insights contribute to broader discussions on the ethical implications of AI in education and its role in achieving sustainability goals.

Personal observations/recommendations:

The article makes a significant contribution by addressing a critical and underexplored aspect of AI integration in education. However, it could benefit from a stronger emphasis on the practical implications of its findings. While the theoretical analysis is robust, offering tangible strategies for educators, to apply these insights in real-world educational settings would make the research even more impactful.

Paper references:

Moleka, P. (2023). *Exploring the role of artificial intelligence in Education 6.0: Enhancing personalized learning and adaptive pedagogy*. Preprints.

Link to the paper:
https://www.preprints.org/manuscript/202309.0562/v1

Article summary:

The article aims to investigate the transformative potential of AI in advancing Education 6.0—a vision of a learner-centric educational model. The scope of the study encompasses the integration of AI technologies to foster personalized learning experiences and adaptive pedagogical strategies. The primary objective is to analyze how AI can enable educators to tailor educational interventions to meet individual student needs, thereby optimizing engagement and learning outcomes. The article also addresses the ethical considerations surrounding AI implementation, emphasizing responsible and human-supervised integration in educational contexts.

The article examines the potential of AI-powered tools to personalize educational experiences for learners, investigating how these technologies can tailor instruction to individual needs. It further explores the ways in which adaptive pedagogy can leverage AI to dynamically adjust instructional strategies and enhance learning outcomes. Additionally, the article addresses the ethical considerations and challenges associated with AI integration in education, including issues of data privacy, algorithmic bias, and equitable access. Together, these focal points frame the article's exploration of both the opportunities and constraints posed by the implementation of AI in educational contexts.

The methodology employed in this study involves a qualitative analysis of recent advancements and real-world applications of AI in education. The author synthesizes insights from multiple sources, including case studies, literature reviews, and existing AI tools like intelligent tutoring systems, adaptive learning platforms, and chatbots. Through this analysis, the article provides evidence of AI's capacity to personalize content, assess student progress, and deliver real-time feedback. Ethical implications such as data privacy, algorithmic bias, and equitable access are also critically examined to propose a balanced perspective.

The article draws on previous research to substantiate its claims. For instance, the Cognitive Tutor, developed by Carnegie Learning, is highlighted as an intelligent tutoring system that adapts its curriculum based on individual student performance, demonstrating significant improvements in learning outcomes. Similarly, Knewton's adaptive learning platform is cited as an example of AI dynamically adjusting educational content to match student needs, improving both achievement and motivation. These

examples underscore the potential of AI to reshape traditional educational approaches by offering tailored support to learners.

Key findings reveal that AI can enhance Education 6.0 by enabling personalized learning pathways, providing adaptive feedback, and fostering greater learner autonomy through virtual assistants and chatbots. AI-driven platforms like ALEKS and DreamBox Learning have shown success in dynamically tailoring instruction to individual progress, ensuring an optimized learning experience. The article also identifies ethical challenges, including risks related to data privacy, bias, and equitable access to AI technologies, and stresses the importance of transparent and explainable AI systems to maintain trust in educational environments.

In conclusion, the article emphasizes the vast potential of AI to revolutionize Education 6.0 by creating engaging and learner-centered environments. However, it also highlights the critical need for ethical considerations to guide the responsible implementation of AI in education. Addressing challenges such as data security, algorithmic fairness, and equitable access will be crucial in leveraging AI's transformative power while safeguarding students' rights and well-being. Through this balance, AI can significantly enhance the personalization and adaptability of educational experiences, marking a pivotal step toward the realization of Education 6.0.

Personal observations/recommendations:

Education 6.0 is a forward-thinking educational paradigm that emphasizes a learner-centric, technology-enhanced approach to teaching and learning. It envisions an education system that fully integrates advanced technologies to create highly personalized, adaptive, and engaging learning experiences. Unlike traditional models, Education 6.0 focuses on tailoring educational content and methods to the individual needs, preferences, and abilities of learners, promoting autonomy and lifelong learning.

The concept builds on earlier versions of education paradigms, where the evolution has moved from basic literacy (Education 1.0) through structured institutional learning (Education 2.0), collaborative and digital learning (Education 3.0), and beyond. Education 6.0 integrates principles of Education 5.0, which emphasizes the harmonious relationship between humans and technology, but takes it further by leveraging AI to analyze learner data, provide real-time feedback, and adapt instruction dynamically.

Paper references:

Mosly, I. (2024). Artificial intelligence's opportunities and challenges in engineering curricular design: A combined review and focus group study. *Societies, 14*(6), 89.

Link to the paper:
https://www.mdpi.com/2075-4698/14/6/89

Article summary:

The article aims to explore how AI can transform engineering education through personalizing learning, enhancing engagement through simulations, providing real-time feedback, and preparing students for AI-integrated workplaces. The study's scope includes both the opportunities AI presents for dynamic, technology-enhanced learning and the challenges related to ethical considerations, resource requirements, and educator training. The overarching objective is to assess AI's potential in improving educational practices and to identify strategies for integrating AI effectively into engineering curricula.

The research questions guiding the study focus on identifying the benefits and obstacles of incorporating AI into engineering education. Key questions include: How can AI be leveraged to enhance curricular design in engineering education? What are the primary challenges—ethical, technical, and infrastructural—associated with AI implementation? How can educators and curriculum designers address these challenges while maximizing AI's transformative potential?

The study employs a mixed-methods approach, combining a systematic literature review and a qualitative focus group study. The literature review involved a comprehensive analysis of peer-reviewed articles and conference proceedings, with 41 sources ultimately selected based on their relevance to AI's role in engineering education. The focus group involved eight participants, including educators and students with diverse experiences in AI and engineering education. Data collection included open-ended discussions, with thematic analysis applied to identify trends such as transformative potential, barriers to integration, and ethical considerations.

Building on previous research, the article references studies that highlight AI's impact on education. For example, AI-driven platforms in civil engineering courses have been shown to enhance practical skills and deepen understanding of construction processes. Another study involving over 20,000 students demonstrated that AI-enhanced Intelligent Tutoring Systems increased engagement by 25.13%, emphasizing the value of personalized learning environments and interactive simulations. These examples provide evidence of AI's ability to revolutionize traditional learning paradigms.

The findings reveal that AI offers significant opportunities for engineering education, such as creating personalized learning pathways, enhancing student engagement

through realistic simulations, and providing immediate feedback to reinforce concepts. However, the study also identifies challenges, including ethical concerns like algorithmic bias, the need for extensive infrastructure, and the importance of training educators to use AI effectively. Participants in the focus group stressed the necessity of ethical guidelines and robust infrastructure to ensure fair and effective AI integration.

The study concludes that while AI has the potential to revolutionize engineering education by aligning learning environments with the demands of an AI-integrated workplace, its integration requires a collaborative and cautious approach. This includes addressing ethical considerations, investing in infrastructure, and empowering educators through professional development.

Personal observations/recommendations:

The example of over 20,000 students experiencing a 25.13% increase in engagement through AI-enhanced Intelligent Tutoring Systems demonstrates how simulations powered by AI can transform education. I think this highlights a significant shift in how we should approach teaching, particularly in fields that involve abstract concepts and complex problem-solving.

Simulations provide an interactive and immersive environment where students can bridge the gap between theoretical knowledge and practical application. With AI-driven ITSs, students gain access to tailored scenarios and receive instant feedback that enhances their learning experience. This level of engagement and adaptability is almost impossible to achieve with conventional teaching methods.

The results from this study emphasize the need for integrating AI-powered simulations in curricula to make learning more engaging and accessible. Such systems empower students to experiment, make mistakes, and learn dynamically in a low-stakes environment and also encourage self-paced learning, allowing students of varying skill levels to thrive.

Paper references:

Popenici, S. A. D., & Kerr, S. (2017). Exploring the impact of artificial intelligence on teaching and learning in higher education. *Research and Practice in Technology Enhanced Learning, 12*(22).

Link to the paper:
https://telrp.springeropen.com/articles/10.1186/s41039-017-0062-8

Article summary:

The article by Popenici and Kerr (2017) aims at developing on the implications of AI on teaching and learning in higher education, investigating how AI-driven technologies are reshaping educational practices, focusing on their potential to enhance student learning and institutional operations. The authors seek to predict the future of higher education in an AI-driven world, examining challenges and opportunities related to teaching, student support, and administration. Their objective is to spark scholarly discourse on the integration of AI in education while maintaining a critical perspective on the ethical, pedagogical, and practical dimensions of this technological evolution.

The study addresses several questions: What is the potential of AI to transform higher education? How can institutions effectively integrate AI to augment teaching and learning while preserving the human-centric nature of education? The authors also inquire into the limits of AI technologies in higher education and their implications for governance, ethical considerations, and graduate attributes.

This article employs an exploratory literature review as its primary methodological approach. The authors synthesize insights from theoretical frameworks, case studies, and recent technological advancements to analyze the role of AI in higher education. By integrating examples from multiple contexts and disciplines, the study identifies patterns and trends in AI adoption while critically evaluating its promises and pitfalls.

The authors draw on past research to contextualize their analysis. For instance, they reference IBM's Watson, an AI system used at Deakin University in Australia to provide 24/7 student advice, illustrating AI's administrative potential. Another example is the AI-powered teacherbot Jill Watson, implemented at Georgia Tech, which successfully fulfilled teaching assistant duties, demonstrating the feasibility of using AI for personalized learning and student support. These examples highlight AI's capacity to automate and enhance certain educational processes while drawing attention to its limitations in addressing complex human interactions.

The findings indicate that AI has already begun transforming higher education through tools that personalize learning, provide instant feedback, and support administrative tasks. However, the authors emphasize the current limitations of AI in understanding nuanced human communication, such as irony and sarcasm. They caution against over-reliance on AI as a substitute for sound pedagogical practices and advocate for its role

as a complement to human educators. The study also identifies significant risks, including ethical concerns about transparency, monopolization by tech giants, and potential loss of critical inquiry within academia.

Popenici and Kerr conclude that while AI presents extraordinary opportunities to augment teaching and learning, it cannot replace the human-centric essence of education. They argue for a balanced approach that leverages AI to enhance human capabilities while safeguarding the values of creativity, critical thinking, and ethical responsibility. The authors call for further research into the ethical implications of AI and its integration into educational frameworks, urging institutions to embrace these technologies thoughtfully and sustainably.

Personal observations/recommendations:

The "tsunami effect" described in the article serves as a metaphor for the profound and potentially disruptive impact of AI on higher education. The authors liken the initial excitement surrounding massive open online courses to the retreat of waters before a tsunami, which can deceive observers into underestimating the magnitude of the coming wave. This imagery underscores a cautionary tale: the superficial allure of new technologies, such as MOOCs, may distract decision-makers from the deeper, more consequential changes that AI is poised to bring to education.

The authors argue that the real "tsunami" is not MOOCs themselves but the structural transformations driven by AI, particularly through machine learning and personalized educational technologies. These changes have the potential to revolutionize how institutions operate, how students learn, and how educators teach. However, they also carry risks, such as the commodification of education, ethical dilemmas surrounding algorithmic decision-making, and the reduction of teaching to automated, impersonal processes.

This analogy emphasizes the need for foresight and critical analysis in adopting AI in higher education. The "tsunami" represents both an opportunity to innovate and a warning about the unintended consequences of over-reliance on technology. The authors advocate for maintaining a focus on pedagogical principles and human values, ensuring that AI is used as a tool to enhance, rather than undermine, the core mission of education.

Paper references:

Rospigliosi, P. A. (2023). Artificial intelligence in teaching and learning: What questions should we ask of ChatGPT? *Interactive Learning Environments, 31*(1), 1–3.

Link to the paper:
https://www.tandfonline.com/doi/full/10.1080/10494820.2023.2180191

Article summary:

The article explores the implications of using ChatGPT as an interactive learning environment. The aim is to analyze the questions being raised about ChatGPT's role in education, emphasizing the importance of thoughtful inquiry and ethical considerations. The scope includes the broader context of AI in education, with a specific focus on the conversational abilities of ChatGPT. The objective is to initiate dialogue and exploration about how this technology can reshape teaching and learning practices.

The central research question is: *What key questions should educators and researchers ask about the integration and use of ChatGPT in teaching and learning, particularly in interactive environments?* This inquiry includes understanding ChatGPT's pedagogical potential and the risks it poses.

The methodology of the article is conceptual and exploratory. It synthesizes ideas from existing theories, including Socratic methods of learning through questioning and conversation theory, while proposing new lines of inquiry about ChatGPT's conversational capacities.

The article builds on previous research to frame its analysis. For instance, Harel and Papert's (1990) discussion of learning environments highlights characteristics like appropriability, evocativeness, and integration. Moreover, Papert's early work on interactive software design underscores the role of dialogic engagement in learning. This framework contextualizes ChatGPT's potential to enable learning through personalized and iterative question-answer interactions.

Findings suggest that ChatGPT enhances interactive learning by enabling personalized, evocative, and integrative experiences. For example, it supports appropriability by allowing students to frame questions in their own words, enhancing their ownership of learning. Its evocativeness emerges in its ability to scaffold learning through dialog, fostering critical thinking and reflection. Furthermore, its integrative capabilities enable learners to connect new information with existing knowledge, deepening their conceptual understanding.

In conclusion, the article emphasizes the need for continued inquiry into the ethical and educational implications of using AI tools like ChatGPT. It advocates for careful consideration of how such technologies can be responsibly integrated into teaching and

learning, ensuring they promote equitable and meaningful educational experiences. The author calls for collaborative exploration to address the challenges and opportunities posed by AI in education.

Personal observations/recommendations:

The acknowledgment that the article was written with the help of ChatGPT helps reflect on the ethical and practical implications of using AI in academic and professional writing. This transparency highlights the potential of AI as a co-authoring tool, capable of enhancing productivity and expanding the scope of inquiry. However, it also underscores the need for critical engagement with AI-generated content to ensure accuracy, originality, and intellectual rigor. Educators and researchers should approach AI tools as collaborative aids rather than replacements for human creativity and judgment. Integrating AI literacy into academic training could empower students and professionals to use tools like ChatGPT ethically and effectively, fostering a culture of accountability. Additionally, clear policies on authorship, citation, and the extent of AI involvement in scholarly work should be established to maintain trust and integrity in academic discourse.

Paper references:

Saylam, S., Duman, N., Yildirim, Y., & Satsevich, K. (2023). Empowering education with AI: Addressing ethical concerns. *London Journal of Social Sciences, 6*, 39-48.

Link to the paper:
https://tinyurl.com/29u3cft7

Article summary:

The article aims to examine the ethical challenges arising from the integration of AI in education. Its scope encompasses both the detrimental impacts of AI misuse and the opportunities for its beneficial utilization in educational institutions. The primary objective is to propose policies and guidelines to promote ethical AI implementation that fosters critical thinking, autonomy, and a culture of integrity among students and educators.

The authors explore the research question: How can educational institutions address the ethical dilemmas of AI integration while maximizing its potential benefits?

To address this question, the study adopts a comprehensive analysis of existing literature, including studies on AI misuse in education, such as plagiarism and its impact on students' skills, as well as policy recommendations from global organizations like UNESCO. The authors also analyze case studies to highlight successful and unsuccessful approaches to AI integration in educational settings.

Previous research cited in the article highlights the complexity of AI's role in education. For instance, Johnson (2023) discusses how fewer than 10% of educational institutions have developed formal guidelines for AI use, underscoring a significant gap in governance. Similarly, the Reboot Foundation (2020) found that 86% of students lack critical thinking skills, attributing this deficiency to over-reliance on AI tools like ChatGPT.

The findings reveal that unregulated AI use negatively affects students' critical thinking, motivation, and academic integrity. However, the integration of AI with proper guidelines can personalize learning, enhance teacher efficiency, and create equitable access to education. Examples of successful implementation include adaptive learning platforms and AI-powered tools for assessment and feedback.

The study concludes that while AI holds transformative potential for education, its integration must be guided by a structured ethical framework. This requires coordinated efforts from educators, policymakers, and stakeholders to balance technological advancement with foundational educational values. The authors emphasize that such

measures will enable AI to become a supplementary tool that enriches learning experiences rather than undermine educational principles.

Personal observations/recommendations:

I found particularly interesting the examples of AI integration in healthcare and finance. In healthcare, AI has advanced diagnostics and personalized treatment, as seen in its application in medical imaging and disease prediction, yet it raises significant concerns about privacy and data security, highlighted by incidents like the Baptist Medical Center data breach. In finance, AI has optimized processes such as fraud detection and automated trading but suffers from issues of algorithmic transparency and accountability. There is an obvious need of ethical guidelines tailored to each field's unique challenges. For healthcare, stricter data protection measures and transparent AI decision-making protocols are critical to ensure patient trust and safety. In finance, regulatory frameworks that enforce algorithmic fairness and clear accountability can prevent misuse and build consumer confidence. These fields demonstrate the need for a balance between innovation and ethical responsibility, a principle that should guide AI implementation across all domains.

Paper references:

Solorzano, V., Garzozi-Pincay, R. F., Calle García, T. M., Lainez-Villao, M. D., Alcivar-Ponce, J. L., Guandinango-Vinueza, Y. A., & Neira-Quinteros, V. P. (2024). The fourth educational revolution and the impact of AI on pedagogy. *Evolutionary Studies in Imaginative Culture*, *8*(1), S2, 1117–1130.

Link to the paper:
https://esiculture.com/index.php/esiculture/article/view/1315

Article summary:

The article explores the transformative potential of AI in education, aiming to encourage personalized learning experiences as part of the fourth educational revolution. Its scope encompasses the impact of AI on teaching, learning, assessment, and accessibility, with a particular focus on challenges and opportunities. The objective is to examine AI's role in reshaping pedagogy, addressing integration challenges, and proposing strategies to maximize its benefits while lowering risks.

The research addresses key questions such as: How can AI revolutionize educational pedagogy? What are the implications for teacher roles, equity, and student outcomes? How can ethical challenges in AI integration be mitigated?

The authors employ a bibliometric analysis of publications from 2010 to 2023 in Scopus and Web of Science databases, complemented by systematic literature review techniques. Using tools like VOSviewer, the study maps trends, key contributors, and geographic patterns in AI and education research, identifying themes and gaps over time.

Drawing on previous studies, the article highlights the integration of chatbots in Brazilian education systems to support students and AI models in Colombia to improve teaching quality. These examples illustrate AI's potential to enhance education, despite challenges in adoption, particularly in Latin America.

The findings document AI's capacity to personalize education, automate administrative tasks, and expand access to quality learning. Tools like intelligent tutors and adaptive learning systems demonstrate measurable improvements in student outcomes. However, challenges include over-reliance on technology, privacy concerns, and teacher displacement. The article emphasizes that while AI is reshaping education by automating tasks such as grading, assessment, and personalized instruction, it does not diminish the critical role of teachers. Instead, it redefines their responsibilities, shifting from information delivery to mentorship, socio-emotional support, and the cultivation of critical thinking and creativity. The question of teacher replacement by machines is acknowledged, with the article arguing that AI should augment rather than replace human educators. Teachers are viewed as indispensable for fostering the human

connection, ethical guidance, and adaptability needed in learning environments, roles that AI cannot replicate. This shift requires teachers to embrace new competencies, including technological literacy and the ability to guide AI tools effectively.

The figures in the article collectively illustrate the transformative trends and impacts of AI in education. **Figure 1** shows a bibliometric analysis of publications from 2010 to 2023, highlighting a steady increase in research, with a peak in 2022. **Figure 2** presents a co-authorship network, identifying leading contributors such as Hwang Gwo Jen in AI education research. **Figures 3 and 4** analyze citations by author, affiliation, and country, showing prolific contributions from researchers in Greece, Taiwan, and China. **Figures 5 and 6** depict the dominance of the education sector in AI research, followed by fields like information science, health, and psychology. **Figure 7** outlines the competencies required for the Fourth Industrial Revolution, emphasizing interdisciplinary skills and digital literacy. **Figure 8** expands on 4IR's dimensions, such as the integration of AI, Internet of Things, and big data in education. **Figure 9** focuses on key changes AI introduces, including personalized learning, flexible models, new certification approaches, and increased accessibility, while stressing the need for equitable and ethical implementation.

In conclusion, the study emphasizes the potential of AI in creating a learner-centric paradigm while advocating for ethical considerations and equitable implementation. Continuous professional development for teachers, policy reforms, and infrastructure investments are essential to utilize AI's benefits while addressing risks and ensuring inclusivity in this new educational era.

Personal observations/recommendations:

I found the title of the article interesting and intriguing as the concept of the fourth educational revolution follows three transformative phases in educational history. The first revolution occurred with the advent of writing, transitioning knowledge from oral traditions to recorded systems, enabling the preservation and dissemination of ideas. The second came with the invention of the printing press, which democratized access to information, fostered mass literacy, and standardized education. The third revolution arose during the Industrial Revolution, with the establishment of public education systems to meet the needs of an industrialized society, focusing on literacy, numeracy, and technical skills through formalized schooling. The current fourth revolution, driven by artificial intelligence and digital technologies, is transforming education by enabling personalized learning, automation, and global accessibility. This new era emphasizes a shift toward learner-centric, flexible, and technology-driven education, addressing challenges like equity and preparing individuals for the demands of a rapidly evolving world.

Paper references:

Yazdani Motlagh, N., Khajavi, M., Sharifi, A., & Ahmadi, M. (2023). *The impact of artificial intelligence on the evolution of digital education: A comparative study of OpenAI text generation tools including ChatGPT, Bing Chat, Bard, and Ernie* [Preprint]. ResearchGate.

Link to the paper:
2309.02029v1.pdf

Article summary:

The article aims to explore the transformative impact of artificial intelligence on digital education, focusing on ChatGPT, Bing Chat, Bard, and Ernie. It examines how these tools enhance teaching methodologies, curriculum planning, and student engagement, while also addressing potential challenges like academic integrity concerns. The central research question is: "How do AI-driven text generation tools influence the evolution of digital education, and what are their educational applications and implications?" The study, a review paper, adopts a comparative analysis methodology, evaluating the capabilities, features, and educational potential of various AI text generation tools. It incorporates a literature review of prior research, case studies, and qualitative assessments of the tools' functionalities. Additionally, the authors analyze the tools' outputs in educational contexts to highlight their strengths and limitations, using insights from user experiences and ethical considerations to inform their evaluation.

The authors establish the foundation for their comparative analysis by situating the discussion within the broader landscape of AI advancements, such as the role across domains, particularly focusing on applications in education, healthcare, and customer service. The literature review marks the evolution of text-generation tools like GPT-3 and ChatGPT, noting their ability to mimic human-like interaction while acknowledging concerns related to academic integrity, such as plagiarism and misuse. For example, the article references ChatGPT's capacity to produce content that challenges traditional plagiarism detection tools, likening it to "contract cheating." A number of benefits across domains and disciplines are mentioned such as enhancing productivity, personalizing education, offering teaching assistance in evaluation and feedback, promoting health programs, facilitating customer service, serving as interactive information tools, answering frequently asked questions, booking appointments, making recommendations.

The article shows how ChatGPT was trained to be so effective at understanding and generating human-like text. The training involved two key stages: unsupervised pre-training and supervised fine-tuning. In the first stage, ChatGPT was exposed to an enormous amount of text to learn patterns, structures, and nuances in language. The second stage is more hands-on, where human labelers provide feedback and rank responses to refine the model’s ability to give accurate and meaningful answers. For

example, the article describes how labelers evaluate ChatGPT's replies to prompts, helping it learn the difference between good and poor responses. This process is further enhanced through reinforcement learning from human feedback, where the system is guided by iterative input to improve over time. The authors also touch on the scale of this effort, noting that GPT-3, a predecessor of ChatGPT, was trained on 45 terabytes of data, demonstrating the immense resources and dedication required. Through these steps, ChatGPT becomes a tool that can engage with human users in remarkably human ways, though the article reminds us of the incredible teamwork and innovation behind its development.

Bing Chat, an AI-powered conversational tool integrated with Microsoft's search engine, was launched in February 2023, and operates on OpenAI's GPT-4 model, combining conversational AI with real-time internet access. This unique feature allows it to provide up-to-date information on recent events, unlike ChatGPT's knowledge cutoff. Bing Chat incorporates features like hyperlinks and footnotes, making it particularly useful for academic and research purposes. The article notes some early challenges, such as instances of erratic responses, but highlights subsequent updates that improved functionality, including limiting the number of interactions per session. Bing Chat stands out for its integration into Microsoft Edge, offering a seamless blend of AI and traditional search capabilities, making it an important tool for users seeking concise, internet-informed answers.

Alphabet's Bard is an AI chatbot developed by Google and based on the Pathways Language Model 2 and the Language Model for Dialogue Applications framework. Announced in February 2023, Bard was positioned as a conversational tool with a focus on fluid and natural dialogue. Unlike ChatGPT, Bard initially lacked the ability to generate computer code, which limited its appeal in technical contexts. The article highlights Bard's integration with Google's ecosystem, allowing users to switch seamlessly to Google Search for more detailed queries. However, Bard faced early criticism due to errors in its responses, including a widely publicized mistake during its launch demonstration. Despite these challenges, Alphabet emphasized a cautious and "responsible" rollout, aiming to refine Bard's capabilities over time. Bard's strengths include its ability to engage in open-ended, multi-topic conversations, but its limitations, particularly in accuracy and technical functionality, reflect the growing pains of developing cutting-edge conversational AI.

Baidu's Ernie, a Chinese-developed AI chatbot launched in March 2023 is a local alternative to ChatGPT. Built on the Ernie 3.0 Titan model with 260 billion parameters, it surpasses GPT-3 in size and is tailored for the Chinese market. Ernie distinguishes itself with superior cultural knowledge and support for various Chinese dialects, such as Sichuanese, Cantonese, and Hokkien. Despite its potential, early testers reported issues like errors in simple tasks and "hallucinations," where the model generated inaccurate responses. Unlike its global counterparts, Ernie faces restrictions due to Chinese censorship, particularly on politically sensitive topics. The article notes Baidu's plans to integrate Ernie into applications like its flagship search engine and autonomous vehicles, though its primary focus remains on business clients. Ernie's development highlights the

competitive landscape of AI, with Baidu striving to dominate the domestic market while facing challenges in global recognition due to geopolitical factors and accessibility limitations.

The article highlights numerous ways ChatGPT can be integrated into education to support both teachers and students. For educators, ChatGPT can assist in creating instructional materials such as course content, quizzes, and exercises tailored to specific learning objectives. It also offers help with grading essays and providing immediate feedback, freeing up teachers to focus on more interactive aspects of teaching. For students, ChatGPT serves as a study companion by summarizing long texts, explaining complex concepts, and offering personalized learning support based on individual needs. The chatbot's ability to translate educational content into different languages further broadens accessibility. In collaborative learning, ChatGPT can facilitate discussions and group projects by generating ideas and scenarios for problem-solving. Moreover, the platform can enhance critical thinking by encouraging students to evaluate its responses and verify the accuracy of information. Despite concerns about misuse, such as generating assignments without genuine learning, the authors emphasize the potential of ChatGPT to democratize education and offer innovative, interactive, and flexible learning opportunities.

The article concludes that AI tools like ChatGPT hold potential to revolutionize education by enhancing accessibility, personalization, and efficiency. However, their integration must address ethical concerns, data privacy, and academic integrity to maximize their benefits responsibly. Future work should focus on developing flexible policies for AI use in education, equipping educators and students with digital literacy skills, and exploring innovative assessment methods to complement AI advancements.

Personal observations/recommendations:

The article provides teaching and learning recommendations, emphasizing the importance of integrating AI tools like ChatGPT into education thoughtfully and responsibly. It offers strategies for educators on how to create instructional materials, and also on how to recommend students to use AI responsibly and ethically.

Paper references:

Gond, S. K., Upadhyay, A., Mishra, S. K., & Bhardwaj, S. (2024). Leveraging Artificial Intelligence in Education: Assessing the Effectiveness of ChatGPT and Gemini AI Tools Among Youth. *Educational Administration: Theory and Practice*, 30(1), 3086-3096.

Link to the paper:
https://kuey.net/index.php/kuey/article/view/6994

Article summary:

The paper examines the effectiveness of two AI tools, ChatGPT and Gemini AI, in educational contexts, highlighting their impact on improving student learning outcomes, engagement levels, and overall educational experiences compared to traditional teaching methods.

The research questions for the study focus on the extent to which students in Delhi utilize ChatGPT and Gemini AI, for educational purposes. The study compares the effectiveness of these tools in supporting learning across different subjects and academic levels. It also examines the perceived benefits and challenges of using ChatGPT and Gemini AI as learning tools among students. Moreover, the research aims at identifying whether these AI tools contribute to enhanced research skills, problem-solving abilities, and critical thinking. It also targets finding optimal strategies for the pedagogical integration of these AI technologies to maximize their educational benefits while mitigating potential risks.

The theoretical framework of the study integrates three key concepts: the Technology Acceptance Model (TAM), Constructivist Learning Theory, and Human-Computer Interaction (HCI). TAM is utilized to assess how students perceive the usefulness and ease of use of AI tools like ChatGPT and Gemini AI, which in turn predicts the success of these technologies in educational settings. It provides insights into the factors influencing students' acceptance and continued use of AI tools in their learning processes. Constructivist Learning Theory views learning as a personal and contextually influenced process where students construct knowledge through experiences and reflections. This theory supports the study's examination of how AI tools facilitate an environment where students can engage in critical thinking and personalized learning journeys, reflecting on their interactions with AI to enhance understanding and retention. Lastly, HCI focuses on the interaction between humans and computers, focusing on optimizing the design of AI tools to improve user satisfaction, effectiveness, and engagement. This aspect of the framework evaluates the usability and accessibility of AI technologies, aiming to enhance the educational experiences by making AI interactions intuitive and beneficial for students. Together, these frameworks provide a comprehensive approach to studying the impact of AI on education, examining the technological adoption and the cognitive and interactive dimensions of learning with AI.

The study employs a quantitative approach, utilizing a survey distributed via social media, which gathered data from 176 respondents aged 18-30, with 170 responses deemed suitable for analysis. The survey featured 32 questions on a 5-point Likert scale, assessing usage patterns, effectiveness, and student perceptions of AI tools.

The authors employed a quantitative approach, descriptive statistics, to analyse the survey data collected from students in Delhi, and evaluate the effectiveness of the two AI tools under consideration, ChatGPT and Gemini AI. The survey, distributed via social media platforms, consisted of 32 questions on a 5-point Likert scale, designed to gather insights into the awareness, usage patterns, and perceptions of AI tools among students. A total of 176 respondents participated, with 170 responses deemed suitable for analysis.

The researchers analysed the data using measures of central tendency such as mean, median, and mode to understand the main characteristics of the data, along with measures of variability including standard deviation and range to explore the distribution and dispersion of the responses. This analysis helped identify patterns in students' familiarity with and usage of AI tools, as well as their perceptions regarding the tools' utility and impact on their learning experiences. For example, the analysis revealed high awareness and usage of ChatGPT among students compared to Gemini AI, with specific metrics indicating strong preference and perceived effectiveness in various educational tasks. The researchers also investigated the specific purposes for using AI tools, such as studying, searches, assignment completion, learning new concepts, summarization, exam preparation, research assistance, message writing, writing stories, language learning and coding, quantifying each purpose's prevalence and importance as reported by the students. The analysis also highlighted the perceived benefits, such as time saving, ease of use, effort saving, improving content quality, and challenges, such as concerns over academic integrity and hindrance to creativity, associated with AI tool usage in educational contexts. The study evaluates the perception among students in Delhi of several demerits associated with the use of AI tools in education. Firstly, there is a concern that AI might promote laziness among users by reducing the need for effort. The reliance on AI could also compromise academic integrity and hinder creative processes, as the predefined algorithms and responses might limit creativity and critical thinking. AI tools also require fine-tuning to meet educational needs effectively and often provide limited responses, which might not cover all necessary information comprehensively. The information provided by AI can sometimes be inaccurate, leading to potential misinformation and there is a risk of bias in AI responses, as these tools may perpetuate existing biases found in the data used for their training, potentially affecting the quality and fairness of educational content.

The findings suggest that both ChatGPT and Gemini AI significantly enhance student engagement and academic performance. ChatGPT was particularly effective in promoting interactive and engaging learning experiences. However, while students recognized the benefits such as time and effort saving, and ease of use, they also expressed concerns about potential impacts on creativity and critical thinking skills.

Ethical concerns and the need for improved AI capabilities like accuracy and knowledge depth were highlighted.

The conclusion of the article emphasizes that while AI tools like ChatGPT and Gemini AI have the potential to transform educational methodologies by maximizing student engagement and efficiency, they also introduce a number of challenges. Concerns are raised about the potential for AI to bring about complacency among students, diminishing their engagement and critical thinking skills. Despite the advancements mentioned and proven valid and the ability to better educational processes, there is consensus among students in Delhi that AI tools cannot fully replace abilities of human teachers. The study concludes that while AI offers benefits, the integration of these technologies into education must be done being mindful of the risks and ensuring that AI supports rather than undermines educational goals.

Personal observations/recommendations:

Students in Delhi might have preferred ChatGPT over Gemini AI largely because ChatGPT was more established and widely recognized at the time of the study. Gemini, being a newer tool, might not have achieved the same level of familiarity and trust among students, which can significantly impact user preference and adoption rates in educational settings.

Given the rapid pace of development in the field of AI, the data and findings of such studies can become quickly outdated. Therefore, ongoing research and continuous updates to educational tools and methodologies is needed to keep pace with technological advancements. To maximize the benefits of AI in education, the implementation of adaptive learning systems that can evolve in real time and integrate the latest AI capabilities would be beneficial.

Paper references:

Niveditha, K. P., Choubey, K., Soni, K., Mishra, P., & Naz, A. (2024). Exploring the role of artificial intelligence in modern education. *International Journal of Innovative Research in Computer and Communication Engineering*, 12(5), 8147–8150.

Link to the paper:
PeLGRoEovWK8yJozTjh8clpsY2Y0Ae5P0FFoOKOS.pdf

Article summary:
This study investigates the roles of AI in modern education, focusing on its current applications, impacts, and potential to enhance learning outcomes, student engagement, and teaching efficiency. It seeks to understand how AI technologies, such as adaptive learning platforms and intelligent tutoring systems, contribute to personalizing education while addressing diverse learning needs. The research also explores the ethical, technical, and socioeconomic challenges associated with integrating AI into educational practices and evaluates the potential of AI in shaping future educational methods and environments.

The research builds upon principles of educational technology, adaptive learning theories, and data-driven decision-making frameworks. It incorporates machine learning, natural language processing, and robotics to understand how these technologies interact with traditional pedagogical methods to create hybrid learning models.

The paper provides a diachronic perspective on the evolution of AI in education, tracing its origins from basic computer-assisted instruction (CAI) in the 1960s and 1970s. In the 1980s and 1990s, intelligent tutoring systems (ITS) developed. These early innovations laid the groundwork for modern applications, which use advanced machine learning and natural language processing to create adaptive learning platforms, real-time analytics, and personalized educational experiences. Looking ahead, AI is poised to revolutionize education further with immersive technologies like augmented reality (AR) and predictive analytics, enabling deeper personalization and more engaging learning environments.

The applicative part of the study examines practical implementations of AI in education, indicating how various technologies enhance teaching and learning processes. Adaptive learning platforms can tailor content to individual student needs using predictive analytics, while intelligent tutoring systems (ITS) provide real-time feedback and simulate human tutors to optimize learning paths. Natural Language Processing (NLP) is explored in the context of personalized language learning and automated grading, offering consistent and efficient evaluations. The integration of robotics and immersive technologies like virtual and augmented reality (VR/AR) demonstrates AI's capacity to create engaging, interactive educational experiences. These tools enable personalized, efficient, and dynamic learning environments, with examples such as Atlanta's "AI

Academy" illustrating the transformative potential of AI in reshaping educational practices.

The authors identify several challenges and limitations associated with integrating AI in education, emphasizing ethical, technical, socioeconomic, and adaptation-related concerns. Ethical issues include data privacy and the potential for algorithmic bias, which may result in inequitable educational outcomes if not properly addressed. Technical challenges involve aligning AI tools with existing curricula, overcoming interoperability issues, and ensuring adequate computational resources, all of which require significant investment. Socioeconomic factors, such as the digital divide, exacerbate disparities in access to AI-powered educational tools, particularly for underprivileged students who lack reliable technology or internet connectivity. Furthermore, the adaptation process poses hurdles, with resistance from educators due to a lack of familiarity and training in using AI systems, as well as institutional inertia in embracing technological change. These limitations highlight the need for thoughtful strategies to ensure AI's effective, equitable, and sustainable integration into educational settings.

Personal observations/recommendations:

The article comprises seven parts, each addressing a critical aspect of Artificial Intelligence (AI) in education. However, certain sections, such as Part 6, which focuses on case studies and applications, are notably underrepresented and lack comprehensive development. While the section highlights some successful implementations, such as Atlanta's "AI Academy," or Carnegie Melon University, it offers limited detail and fails to provide a necessary analysis of the challenges and factors contributing to the varying success of AI integration.

Paper references:

Dzhanegizova, A., Nurseiit, A. M., & Vyborova, K. S. (2023). Artificial intelligence in education: Analysis of dynamics, perception, and prospects for integration. *Qainar Journal of Social Science, 2*(4), 34–49.

Link to the paper:
https://www.journal-kainar.kz/jour/article/view/146

Article summary:

The study explores the integration of AI into education, particularly higher education (60% of the participants in the study are university students, 14% college and 26% pupils) focusing on its transformative potential for teaching methodologies, learning experiences, and research processes. The research examines AI's benefits and challenges, such as ethical concerns, digitalization, and its role in improving educational access and quality. It aims to provide a balanced perspective to guide the development of innovative and inclusive educational strategies.

The literature review highlights the importance of increasing student motivation and engagement through AI literacy programs tailored to diverse educational backgrounds. It highlights the potential of conversational intelligent training systems (CITS), which use interactive agent-based dialogues to personalize learning experiences and sustain student interest. These systems adapt to individual learning styles and provide real-time feedback, promoting intrinsic motivation by enabling students to explore and ask questions dynamically. The proposed AI literacy course aims to empower students by integrating these adaptive technologies, teaching fundamental concepts of AI, and promoting practical application skills. By making AI relatable and accessible, the course seeks to enhance motivation, build confidence in technology use, and prepare students to develop their skills in a digitally driven world.

The study employs a mixed-methods approach, combining quantitative analysis of educational trends with qualitative insights from a structured survey. It examines five years of data (2018–2022) on student enrollment, higher education institutions, and digital competitiveness rankings to contextualize AI integration in education. A validated questionnaire, adapted to local contexts and measuring AI Literacy, AI Self-Efficacy, and AI Self-Management, was administered to 50 participants from various educational levels, primarily university students. Responses, rated on a Likert scale, provided insights into participants' perceptions of AI's advantages and challenges in education, focusing on areas like learning efficiency, accessibility, and ethical considerations.

The study results indicate a generally positive perception of AI integration in education, with 53% of participants acknowledging its ability to simplify tasks, 22% recognizing its role in improving efficiency, and 25% emphasizing time savings. However, significant

concerns emerged, including risks of misinformation (noted by 26% of respondents), excessive reliance on AI leading to dependency, and potential declines in students' critical thinking and productivity. The findings highlight three major challenges: ethical considerations, overuse of technology, and a risk of diminishing analytical skills.

Participants were grouped into four categories: **enthusiasts**, who embrace AI's potential for personalizing learning and enhancing access; **pragmatists**, who cautiously balance AI with traditional methods; **critics**, who highlight the risks of reduced learning depth and ethical concerns; and **undecided individuals**, who lack clarity or confidence in AI's role in education.

The authors emphasize the complexity of integrating AI into education, recognizing its capacity to improve access, flexibility, and individualized learning. However, they stress the need to address ethical and practical issues, including data privacy, equitable access, and ensuring that reliance on AI does not undermine essential human skills. The discussion advocates for developing regulatory frameworks and promoting critical thinking among students and educators to balance innovation with responsible implementation. This dual focus on potential and risk underlines the necessity of thoughtful integration strategies to maximize AI's benefits while safeguarding the educational process.

Personal observations/recommendations:

The article presents well-articulated solutions to the problems posed by the integration of AI in education, emphasizing the need for training of trainers' programs and the development of a regulatory framework. The authors identify the importance of equipping educators and students with the skills necessary to manage AI-driven tools responsibly, promoting critical thinking. I appreciated the focus on creating a regulatory framework to address ethical issues like fairness and privacy, which often get overlooked in the rush to adopt new technology. The authors are aware of the balance needed between embracing AI's potential and being careful about its risks. Their suggestions feel thoughtful and grounded in the realities of modern education, which makes them both relatable and realistic.

Paper references:

Flynn, S., O'Reilly, S., & O'Neill, C. (2024). N-TUTORR: Addressing artificial intelligence as one element of the transformation of Ireland's technological higher education sector. *Ubiquity Proceedings, 4*(1), 11.

Link to the paper:
https://ubiquityproceedings.com/articles/10.5334/uproc.133

Article summary:

The **N-TUTORR programme** is a €40 million initiative funded by the EU Recovery and Resilience Facility under the #NextGenerationEU framework. It aims to transform learning, teaching, and assessment across seven Irish technological higher education institutions between 2022 and 2024. This program supports the recent evolution of Ireland's technological universities from regional technical colleges, emphasizing a modernized, sustainable, and digitally empowered educational system.

The programme has four objectives and work streams: **student empowerment, staff development, digital ecosystems and securing progress.**

Initiatives like *Student Fellowship Projects* and *Student Champions* enable students to address issues such as academic integrity and AI challenges. Over 130 fellowship projects and 100 student champions play active roles in fostering innovative solutions and collaboration.

Training opportunities, including masterclasses and curriculum frameworks, focus on embedding themes like digital transformation, AI integration, and sustainability. Special attention is given to equipping institutional leaders with tools to harness generative AI (GenAI).

Enhancements in infrastructure include improved virtual learning environments, virtual laboratories, and flexible learning spaces to foster hybrid and hyflex education.
Long-term sustainability is ensured through practitioner networks, leadership training, and collaborative initiatives addressing GenAI's impact on education.

The program aligns with six overarching themes: academic integrity, digital transformation, education for sustainability, employability, equality, diversity & inclusion, and universal design for learning.

The program explores AI's dual role as a potential enabler and a challenge, addressing academic integrity risks (e.g., essay mills, AI-authored content) and developing tools and repositories for ethical AI use, including resources designed by and for students with disabilities.

The N-TUTORR program has established strong national and international partnerships, including the National Academic Integrity Network (NAIN) and the Global Academic Integrity Network (GAIN). It promotes shared learning and consistency in AI and has developed replicable models for other educational institutions globally.

N-TUTORR exemplifies a collaborative, holistic approach to transforming higher education. By integrating AI considerations, student empowerment, and sustainable practices, it sets a benchmark for innovation and adaptability in a rapidly evolving educational landscape.

Personal observations/recommendations:

The N-TUTORR program exemplifies a forward-thinking and holistic approach to transforming higher education by addressing contemporary challenges such as digital transformation, academic integrity, and the integration of AI. Its emphasis on collaboration across institutions, evidenced by the inclusion of student-led initiatives like fellowship projects and student champions, demonstrates a commitment to empowering learners and fostering innovation. The program's alignment with global themes such as sustainability, diversity, and universal design for learning ensures its relevance and impact beyond the local context. Furthermore, its focus on replicable models demonstrates its scalability, offering a blueprint for other institutions worldwide to adapt and implement. By combining strong infrastructure investment with targeted training for both students and staff, N-TUTORR not only meets current educational needs but also anticipates future challenges, making it a standout initiative in higher education reform.

Paper references:

Ahmed, Z., et al. (2024). The generative AI landscape in education: Mapping the terrain of opportunities, challenges, and student perception. *IEEE Access, 12* (99): 147023–147050

Paper link:
https://shorturl.at/sK2Mf

Article summary:

This study provides a comprehensive review of the opportunities and challenges associated with integrating Generative Artificial Intelligence (GAI) technologies in the education sector, highlighting their potential to revolutionise teaching and learning processes. At the same time, it aims to provide a comprehensive overview of the current state of research on GAI in education, by providing an indication of the state of GAI in education at the time of writing, focusing on the opportunities and challenges associated with its integration, thus contributing to the growing body of knowledge in this field. Consequently, on the positive side, the study highlights the opportunities and challenges of integrating GAI in education, including personalised and interactive learning, prompts generation for formative assessment activities, task automation, teacher assistance, support for educators and educational activities, enhanced student engagement, innovative learning approaches, enhanced learning efficiency, and administrative processes streamlining, while, on the negative side, it dwells on concerns around academic honesty, data privacy, and ethical issues.

The study uses a systematic literature review, following PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, thus involving a search strategy that utilises primary databases such as Web of Science, Scopus, and Google Scholar to synthesize results on the potential and drawbacks of GAI in educational domains. It utilises a carefully constructed search string to capture relevant studies published from 2023 onwards. The initial search considered 354 records, which underwent a sequential study selection process applying inclusion and exclusion criteria. This process, illustrated in a PRISMA flow chart, resulted in a final selection of 80 papers, to which 40 more empirical studies (21 qualitative, 11 quantitative, 8 mixed-methods) were added. These last ones analysed different empirical data, according to various frameworks, such as: PAIGE (conceptual framework aimed at guiding the ethical integration of generative AI (GAI) tools like ChatGPT in higher education to maintain academic and assignment integrity), AI-CRITIQUE (AI-based Critical Reflection and Insightful Thought Unleashed for Education – a structured approach to incorporate GAI tools like Chat-GPT in a way that promotes higher-order thinking skills), DATS (designed to navigate the opportunities and challenges posed by GAI technologies in educational settings, for which articles from the CSSCI (Chinese Social Sciences Citation Index) were analysed and prestigious scholars from Chinese universities and industry experts were interviewed), and IDEE (designed to enhance AI literacy among teachers and students,

rooted in understanding, using, and critically evaluating AI technologies and their societal impacts).

The applications sections overview diverse AI systems designed to assist the enhancement of teaching and learning processes, such as: EduChat (a specialized language model designed to address diverse educational needs, from open-domain question answering to emotional support), Code Help (a support tool that provides explanatory feedback on programming assignments), and Codex (based on Large Language Models and designed to generate explanations and potential fixes for errors encountered by novice programmers).

The study also includes a student perception survey of 200 respondents, in their majority from the Computer Science Department, and a smaller experiment with 20 undergraduate students (12 males and 8 females), amassing 220 answers in total, concerning their perceptions while using ChatGPT. What were explored were the conceptual frameworks and the most creative AI applications with special emphasis on uniqueness and practicability. To compile the information, needed insights into what students were going through were gathered, by conducting a survey related to GAI used for educational purposes that included both closed-ended and open-ended questions, capturing quantitative data on students' perceptions, experiences, and concerns, as well as qualitative insights into their opinions and suggestions.

The study highlights that GAI has the potential to transform teaching and learning processes by enabling personalised and interactive learning experiences, enhancing student engagement, and supporting educators through automation of tasks and the generation of prompts for formative assessments. These findings underscore significant opportunities for improving learning efficiency and adopting innovative educational approaches.

However, the integration of GAI into educational settings also raises critical concerns, including issues of academic honesty, data privacy, assessment integrity, and other ethical considerations. The study emphasizes the need for educators, policymakers and technology developers to carefully navigate these opportunities and challenges to effectively control GAI technologies while addressing their potential risks, through developing guidelines and best practices, implementing educator and student training, and continuously improving AI technologies.

The study concludes that GAI has the potential to transform education, but its integration requires careful consideration of the challenges and opportunities associated with its use, highlighting the need for further research and development to address the challenges and limitations associated with its integration, including the potential disruption to critical thinking skills, data privacy concerns, and the need for human interaction, as well as the rapid evolution of GAI technologies, which may render some findings and recommendations outdated shortly.

Future studies should investigate the potential of generative AI to support personalised learning experiences, for students with diverse learning needs and backgrounds, and explore effective professional development approaches and best practices for integrating these technologies into pedagogical practices.

Personal observations / recommendations:

The study provides plenty of examples of positives related to the inclusion of AI tools in education, such as:

- generative visual aids and digital content can make lessons more engaging and interactive.
- dynamic question-and-answer functions would allow for student-driven explorations
- an AI tutor could provide responsive, detailed explanations
- GAI could personalize learning materials to align with pupils' knowledge levels, enhancing engagement (the creation of high-quality, student-centred reading materials, along with the generation of targeted questions and tests, individualized feedback and comprehensive explanations, customized examples and explanations)
- the capacity to grade essays with a high degree of efficiency and consistency which would reduce the grading burden on educators and ensure a standardised assessment approach across diverse educational contexts
- lesson planning, test creation, the development of sample solutions and conducting workshops and discussions centred around responses
- new learning outcomes like AI literacy, interdisciplinary learning, maker learning, and assessment through in-class, hands-on activities
- ChatGPT's ability to save time and provide convenient access to information that may be difficult to locate using traditional search methods
- emphasis on critical thinking: it would design assignments requiring students to employ analytical abilities and creative problem-solving situations and in this way educators could create interactive learning environments using simulations and role-playing scenarios that enable deeper and more meaningful student engagement, through immersive experience of simulated real-world scenarios
- the conversational interface, and the interactive nature and ability to simulate conversational exchanges could make learning more relatable and accessible, enhancing student interest and participation in classroom activities
- support 24/7, no fatigue being involved
- the possibility to navigate vast information, to critically evaluate sources, and to effectively synthesize data
- the level of responsiveness could cater to students' diverse learning paces and styles
- knowledge retention can be improved, by engaging students in meaningful dialogue and providing personalised feedback
- simplifying administrative duties and offering insightful curriculum suggestions. This support could extend to improving teaching methodologies by automating

routine administrative tasks, scheduling, recordkeeping, and communication management, thus allowing educators and administrators to allocate more time and resources to instructional design and student engagement

At the same time, examples of negatives related to the inclusion of AI tools in education are clearly delineated, such as:

- hallucinated content: it can produce fabricated articles or references
- embedded biases could propagate misinformation, as the accuracy of data and information are compromised, thus generating incorrect information
- the presence of biases, based on the quality of data input and data training, can influence public perception and decision-making processes, further ingesting social disparities
- plagiarism and intellectual property violations may arise; the difficulty to distinguish between student-generated work and content produced by AI, raising critical questions about academic honesty and the authenticity of academic submissions which could lead to the encouragement of AI assisted cheating, thus directly threatening the credibility and reliability of traditional assessment methods
- personalised profiles could compromise student privacy
- overshadowing fundamental educational values, as it might accidentally support ideas that value being fast and productive over getting an excellent education and thinking deeply
- negatively impact the development of essential cognitive skills
- could fall short of replacing the nuanced, multifaceted nature of human interaction that lies at the heart of education, based on the subtle dynamics of human communication, including empathy, intuition, and the ability to navigate complex social signals, qualities that AI currently cannot replicate
- AI lacks the emotional intelligence and personal touch intrinsic to human teachers
- unequal access to these advanced technologies, mainly due to associated costs
- lack of ethical AI development, with respect to cultural sensitivity and inclusiveness: the content generated by ChatGPT and similar AI models may not always align with the diverse customs, traditions, and societal norms of different communities

The article also puts forward the concept of *transformative education,* as a direct consequence of using Generative AI in this field, which belongs to W. M. Lim, A. Gunasekara, J. L. Pallant, J. I. Pallant, and E. Pechenkina from ‘‘Generative AI and the future of education: Ragnarok or reformation? A paradoxical perspective from management educators,’’ Int. J. Manage. Educ., vol. 21, no. 2, 2023, Art. no. 100790.

Paper references:

Al Darayseh, A. (2023). Acceptance of artificial intelligence in teaching science: Science teachers' perspective. *Computers and Education: Artificial Intelligence, 4*: 100132-10.1016

Paper link:
https://shorturl.at/MIZNu

Article summary:

This study examines the factors influencing science teachers' behavioural intention to use AI applications in teaching, and finds that perceived ease of use, self-efficacy, and attitudes toward AI applications have the greatest influence. The study aims to identify the factors influencing the employment of AI applications by science teachers, identify the relationship between factors that predict the acceptance by science teachers of the employment of AI applications and the behavioural intent to use them effectively in science teaching, and detect statistically significant differences due to gender, teaching experience, and qualification variables in the estimation of study sample members about the acceptance by science teachers of the use of AI applications in teaching.

The research built on existing methods, confirmed results from previous studies, while highlighting differences in outcomes with earlier work by means of a descriptive method, which used a 6-dimensional scale based on the components of the TAM model and applied it to a sample of 83 science teachers in Abu Dhabi.

The study used a questionnaire as a tool for data collection and analysis, which was divided into three sections: introduction and general information, demographic information, and 32 items measuring six factors: self-efficacy, stress and anxiety, expected benefits, ease of use, attitude towards AI applications, and behavioural intention.

In order to determine the factors affecting the effectiveness of AI applications in science teaching with respect to the components of the acceptance model of TAM, the study relied on path analysis, applied to a sample of 83 science teachers in Abu Dhabi. Thus, even if at the beginning, the study population included all science teachers who worked in government schools in the Emirate of Abu Dhabi during the academic year 2023/2022, a random sample of 83 science teachers was selected with 30.1% of them being male and 69.9% being female. Looking at the distribution of the sample members based on teaching experience, 10.8% have 1–5 years of experience, 13.3% have 6–10 years, and 75.9% have more than 10 years. After that, the questionnaire was given to a sample of 20 science teachers outside the study sample in order to calculate the validity of the internal consistency by calculating Pearson's correlation coefficient between the degree of each item and the total score of the factor to which it belongs.

The reliability coefficient of the study tool was extracted using Cronbach's alpha, while the data and the demographic variables (gender, teaching experience, and qualification) were analysed using the statistical software SPSS (IBM, New York, USA) and AMOS (IBM) and a variety of statistical techniques, including frequencies, percentages, arithmetic means, standard deviations, Pearson's simple correlation coefficients, t tests for the differences between the means of two independent samples, one-way ANOVA, alongside the already mentioned path analysis. Path analysis using AMOS software was used to evaluate the proposed study model and test relationships between variables in order to answer the second question of the study, 'What factors influence the effectiveness of using AI applications in science education given the components of the technology acceptance model?'

The study found a high acceptability of AI use in the classroom by science teachers, with positive correlations to self-efficacy, ease of use, expected benefits, attitudes, and behavioural intentions. Additionally, the combined factors of expected benefits, ease of use, and attitude toward AI applications can predict 71.4% of future behavioural changes related to the use of AI applications in science teaching.

Also, science teachers have a high acceptance of AI applications in teaching, with a total arithmetic mean of 3.90. The self-efficacy factor has an extremely high impact on the effectiveness of using AI applications in teaching science, followed by attitude toward AI apps, expected benefits, behavioural intention, ease of use, and stress and anxiety.

In this way, the perceived ease of use, self-efficacy, and attitudes toward AI applications have the greatest influence on teachers' behavioural intention towards AI applications. Additionally, the study reveals that there are no statistically significant differences in sample responses based on variables such as gender, teaching experience, and qualification on intentions to actually use AI applications in science teaching.

Thus, the findings of this study revealed that science teachers have a high level of acceptance for using AI applications in their classrooms, factors like self-efficacy, expected benefits, ease of use, and attitudes toward AI applications having the greatest influence on teachers' behavioural intention towards AI applications. Moreover, the study provides a coherent theoretical basis for improving the teaching of science curricula and provides recommendations for those in charge of professional development programs in the UAE.

However, this research did not find statistically significant differences in teacher responses based on the variables gender, teaching experience, and qualifications regarding teachers' behavioural intentions to actually use AI in science teaching. Also, it can be inferred that the study's results may be limited to the context of government schools in the Emirate of Abu Dhabi and may not be generalizable to other contexts.

Personal observations / recommendations:

Many tools and applications can be used in teaching science, including PhET simulation, Labster Virtual Lab, and Third Space.

The AI applications mentioned in this article that can contribute to the educational process through their impact on content, teaching methods, calendar, and communication are: smart private teaching, adaptive learning environments, AI-based assessment, smart content, and virtual reality.

One limitation of the study is that it focuses on science teachers, and generalization of the study findings to teacher groups with different backgrounds should be made with caution, but, on the other hand, this is what makes this article an interesting one, as it focuses on the idea of AI usage in ESP related fields, such as that of science, so the limitation can turn it into a valuable insight into the world of teaching science by means of AI tools.

The study's findings have practical implications for science teaching, highlighting the importance of considering the factors that influence the adoption and effectiveness of AI applications in science teaching. The study suggests that science teachers should be adequately prepared to overcome challenges related to the use of AI applications, and that educational resources and support should be provided to facilitate their effective use.

The study recommends raising awareness about the use of AI among science teachers through training programmes, awareness lectures, and seminars, delivery of training on the use of AI applications in teaching to in-service science teachers, inclusion of AI concepts and applications in pre-service teacher preparation programmes, and provision of guidelines for using AI applications in teaching to science teachers.

Paper references:

AlAli, R., & Wardat, Y. (2024). Enhancing Classroom Learning: ChatGPT's Integration and Educational Challenges. *International Journal of Religion, 5* (6):971-985

Paper link:
https://shorturl.at/keUBH

Article summary:

The paper highlights the potential benefits of ChatGPT in education, including personalised education, assisting in research paper writing, refining grammar and writing skills, and promoting critical thinking, having as main objectives the study of the use of ChatGPT in educational settings, the identification of the benefits and challenges, and the establishment of recommendations for its responsible and ethical integration in teaching and learning. However, the research also raises concerns regarding ethical considerations and academic integrity. The key findings of the studies mentioned in the text include: the potential ChatGPT has to enhance academic writing and provide personalised feedback, the possibility ChatGPT has to generate original content, even though identifiable as AI-generated, and the support ChatGPT can provide for experiential learning, personalised learning, and the development of writing skills.

The study employs a comprehensive analysis of existing research on ChatGPT, drawing from theoretical perspectives such as the Technology Acceptance Model (TAM), the Community of Inquiry (CoI) framework, and Constructivist Learning Theory. The methods used in the studies mentioned in the text include: surveys of university students and interviews with 10 educators and 15 students from various schools in Krabi, Thailand, experiments to assess the ability of ChatGPT to generate original content and provide personalised feedback, and analysis of the performance of ChatGPT in various exams, as well as of the benefits and challenges of its integration in teaching and learning.

According to the literature review performed, ChatGPT was found to support experiential learning, personalised learning, and the development of writing skills, particularly in English language learning. Rasul et al (2023) explored the utilization of ChatGPT and other large language models in higher education. The findings revealed that ChatGPT was capable of generating essays similar to those produced by students with comparable scores in the first grade, support experiential learning, personalised learning, and the development of writing skills, particularly in English language learning. The results of the experiment demonstrated accuracy, precision, and logical coherence in the responses generated by ChatGPT.

However, Dowling and Lucey (2023) pointed out that while ChatGPT is effective in generating ideas and identifying data, it may not be as strong in constructing literature or creating appropriate testing frameworks, particularly in the context of finance research.

AlAfnan et al (2023) investigated the use of ChatGPT as an educational tool in communication, business writing, and composition courses. Interestingly, 75% of the subject-students acknowledged that using ChatGPT for academic purposes constituted cheating, yet they continued to employ it regardless (Intelligent, 2023). These findings have prompted certain universities to implement bans on the use of ChatGPT, while academics have expressed concerns and labelled these AI tools as a 'threat' and a 'plague on education' (Sawahel, 2023)

Nevertheless, it is worth noting that Huh (2023) disagreed with the notion of using ChatGPT for exams, implying a difference of opinion on its suitability in this context. Yeadon et al (2023) conducted a study comparing short essays on physics open-ended questions. The findings revealed that ChatGPT was capable of generating essays similar to those produced by students with comparable scores in the first grade.

The paper concludes that ChatGPT has the potential to enhance teaching and learning outcomes, but its integration must be done responsibly, taking into account ethical considerations and challenges, addressing concerns around bias, false information, and academic dishonesty, and ensuring that students develop critical thinking skills and learn to use AI tools effectively. Thus, the study finds that ChatGPT has the potential to revolutionise the education sector, but its integration must be done responsibly, addressing concerns regarding data privacy, bias, and equitable access.

The study acknowledges that ChatGPT is not immune to limitations, including the potential for biased or offensive content, the need for careful review of ChatGPT-generated content to avoid plagiarism and ensure academic integrity, the possibility of ChatGPT to be misused by students, leading to academic integrity issues, the need for ongoing research to explore the impact of ChatGPT on teaching and learning, to identify existing gaps, and to provide more convincing and well-informed positions.

Personal observations / recommendations:

The practical applications of ChatGPT in education mentioned in the text include: lesson planning, resource discovery, report generation, and automated grading of student work, personalised feedback and support to students, critical thinking enhancement and problem-solving skills, administrative tasks streamlining and workload reduction for educators, as well as the development of education-based AI policies, guidelines, and regulations to ensure the responsible and ethical integration of AI tools like ChatGPT in educational settings.

The authors' recommendations revolve around the maximisation of potential of AI integration in education, but only after providing clear ethical guidelines, offering training and professional development, promoting awareness and understanding, investing in infrastructure, establishing collaboration and partnerships, and continuously monitoring and evaluating AI integration initiatives.

The challenges mentioned by the authors, especially in developing countries like Jordan, are related to limited awareness and understanding, insufficient infrastructure, lack of skilled personnel, and ethical and data privacy concerns, language and content limitations, resistance to change, cost considerations and integration with existing systems, which need to be carefully navigated, all these making the subject of a more generalized approach concerning other developing countries, as well.

Paper references:

Bektik, D., Ullmann, T. D., Edwards, C., Herodotou, C., Whitelock, D. (2024). AI-Powered Curricula: Unpacking the Potential and Progress of Generative Technologies in Education. *Ubiquity Proceedings, 4*(1): 38.

Paper link:
https://shorturl.at/VG9Sb

Article summary:

The objectives of the study are to answer two research questions: 1) How is AI envisioned to be used to support curriculum production? 2) What are emerging insights from empirical studies that use AI to support curriculum production?

The literature review explores the potential of generative AI, such as ChatGPT, to enhance educational practices and outcomes, highlighting its benefits and challenges in curriculum production, assessment, and pedagogical practices and highlights the benefits of AI in saving time, allowing for tailored educational experiences, not without presenting both challenges and opportunities in pedagogical practices. It also underscores the need for a new teaching philosophy to integrate chatbots effectively in education, especially around assessment.

The key findings of the study indicate that generative AI is envisioned as a *co-design partner* in enhancing educational content, such as rubrics, lesson plans, interactive exercises, analogies, reflective questions, and case studies tailored to learning goals and instructional needs. Its potential uses and benefits include assisting educators in generating course materials, customizing and personalizing curriculum and content, and supporting academic services. However, concerns and limitations include issues related to academic integrity, lack of citation capabilities, and the need for human-centred AI approaches.

The study employed a structured *rapid literature review* approach (Smela et al, 2023) intended to capture the current state of research on generative AI in education, searching peer-reviewed literature databases and grey literature, including newspaper articles and blog posts, using specific keywords related to AI, higher education, and content authoring/curriculum production, such as: Artificial Intelligence or (AI) or (AIED), Large language models or (LLM), ChatGPT, Generative AI and Higher Education or University, Education and Content Authoring, Curriculum production or Course production or Course Content. The authors included peer-reviewed articles in English, reporting on AI within education primarily at university level, and indexed in these international databases: EBSCO Education Source, ERIC, Web of Science, Scopus, Google Scholar and The Open University's library. While the database search returned 139 articles, grey literature was searched in Google with the first 50 citations screened for relevance.

The review reveals that generative AI can aid in creating educational content, such as quizzes, simulations, and personalised learning materials, through automated generation and customization according to students' needs. It also highlights the potential of AI as a co-design partner in course development. The results of the study indicate that generative AI has the potential to support teachers in content authoring and curriculum production, but also raise concerns about accuracy, reliability, and plagiarism. The analysis of empirical studies revealed themes such as ChatGPT's role in administrative tasks, varied perceptions of AI, generational differences in attitudes, multifunctional roles of ChatGPT, concerns about academic integrity, and the need for AI literacy.

The study concludes that while generative AI has the potential to revolutionise existing educational praxis, strategic and ethical considerations must guide its integration into the educational landscape.

Personal observations / recommendations:

The study includes references to potential biases and inaccuracies of ChatGPT and similar models, which may propagate preconceptions, outdated information, and even fabricate non-existent references, which leads to the need for cultivating AI literacy among educators and students to ensure responsible use of generative AI in education, including the need for transparency, digital literacy, and human oversight.

The practical applications of generative AI in education include assisting educators in generating course materials, customizing and personalizing curriculum and content, and supporting academic services.

The highlights in terms of the *co-design partner* function that AI assistants can have are as follows:

- creating prompts for open-ended questions that align with the learning goals and success criteria of the unit of instruction
- generating quality rubrics that clearly and concisely explain exactly what students need to accomplish to be successful in the various required levels of proficiency
- creating prompts for formative assessment activities that provide ongoing feedback to support teaching and learning
- helping in creating lesson plans for specific courses, developing customized resources, and learning activities, carrying out assessment and evaluation, and assisting the writing process of research
- suggesting ideas for graphical content
- creating ways to make content more engaging with interactive exercises and simulations
- creating analogies to turn abstract concepts into concrete ones
- generating reflective questions based on course readings or video scripts
- generating student learning tasks and feedback based on existing course content

- generating engaging video scripts based on existing written content, including suggesting on-screen graphics
- generating scenarios or case studies based on existing content

Paper references:

Bettayeb A.M., Abu Talib M., Sobhe Altayasinah A.Z. and Dakalbab F. (2024). Exploring the impact of ChatGPT: conversational AI in education. *Frontiers in Education 9*: 1379796.

Paper link:
https://shorturl.at/c4Diw

Article summary:

The objectives of this study are to explore the positive impacts of ChatGPT in education, focusing on enhanced learning and improved information access, and to identify the ethical considerations and safeguards that should be implemented when deploying ChatGPT in educational contexts.

The *systematic literature review* performed by the authors of this study emphasizes that the studies on ChatGPT in education reveal a range of potential benefits, including enhanced learning experiences, improved access to information, and personalised assistance. However, it is crucial to acknowledge ethical considerations and potential biases within AI models. Research suggests that ChatGPT can raise more engaging human-computer interactions, provide tailored responses, and create a more inclusive learning environment. Concerns surrounding the accuracy and integrity of AI-generated content necessitate rigorous fact-checking and verification processes. By analysing these findings, educators can gain valuable insights into effectively introducing ChatGPT in educational settings, enhancing student engagement, improving learning outcomes, and promoting the responsible and ethical use of AI technology.

The study adopts Kitchenham and Charters' (2007) *Systematic Literature Review* (SLR) method, which consists of three phases: planning, conducting, and reporting, each comprising multiple stages. The review also aligned with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, synthesizing the findings and observations from 70 scientific research articles published between 2022 and 2023, focusing on several perspectives, including the benefits and challenges of ChatGPT, student engagement, learning outcomes, ethical considerations, safeguards, and the effects of ChatGPT on educators and teachers. Thematic analysis is a widely used qualitative method for identifying, analysing, and reporting patterns (themes) within data. In this study, thematic analysis was implemented following the steps outlined by Braun and Clarke (Salvagno et al, 2023). Integration of ChatGPT in teaching shifts educators' roles from content delivery to facilitation and guidance, promoting

personalised and differentiated learning experiences (McGee, 2023a). Overall, there is presented, under a tabular form, a synthesis of findings from various research papers, each contributing to the understanding of the applications and implications of integrating ChatGPT in different contexts.

The results of the study highlighted different aspects of using ChatGPT in education, both on the teachers' side and on the students' side, equally referring to the potential benefits and challenges. Among these, the evolving role of educators in the age of ChatGPT is highlighted. Thus, instead of being the sole source of information, teachers transition to becoming facilitators and guides, assisting students in formulating effective questions, interpreting AI-generated responses, and facilitating discussions. Educators play an active role in supporting and scaffolding student learning, personalizing instruction by leveraging ChatGPT to address individual needs and tailoring responses to specific student inquiries. Furthermore, by analysing ChatGPT responses, educators gain valuable insights into student understanding, enabling them to adapt their instructional strategies accordingly. They also play a crucial role in guiding students in formulating meaningful questions to promote deeper inquiry and critical thinking. Monitoring students' utilization of ChatGPT, providing feedback, and addressing misconceptions are essential for enhancing learning outcomes. Finally, educators must emphasize the ethical use of ChatGPT, promoting digital literacy and ethical decision-making skills in their students.

To the students' advantage, findings regarding how ChatGPT facilitates personalised learning in several ways are summarised. By providing tailored responses to students' specific questions, it addresses individual learning needs and caters to diverse student requirements, enabling differentiated instruction. This interactive experience stimulates active learning, as students engage in dynamic conversations with ChatGPT, refining their questioning techniques and cultivating a deeper understanding of the subject matter. Furthermore, ChatGPT offers timely feedback, allowing students to immediately clarify doubts and queries, thereby enhancing the learning process.

The study highlights the benefits of using ChatGPT in education, including enhanced learning and improved access to information, as well as challenges, such as biases in AI models, accuracy issues, emotional intelligence, critical thinking limitations, and ethical concerns. The conclusion refers to the fact that ChatGPT has the potential to revolutionise interactive learning environments and create engaging and personalised educational experiences, but that it is essential to address challenges, establish ethical guidelines, and control the strengths of ChatGPT while recognizing the vital role of human educators.

Personal observations / recommendations:

The review underscores the significance of empowering critical thinking and evaluation skills among students, alongside with providing comprehensive training and awareness programmes for teachers and educators on the responsible use of ChatGPT.

Establishing a standardised approach to ChatGPT integration is crucial, while acknowledging its limitations, including biases in AI models, accuracy issues, emotional intelligence gaps, limitations in enabling critical thinking, and ethical concerns within educational settings.

The study offers practical recommendations for the ethical and responsible utilization of ChatGPT in education, emphasising the establishment of clear guidelines, the necessity of human supervision, the promotion of critical thinking skills, the prioritization of privacy, and the implementation of regular monitoring. Furthermore, the study highlights the potential practical applications of ChatGPT in enhancing student engagement and learning outcomes, and its ability to address the unique needs of individual students.

Paper references:

Bissessar, C. (2023). To use or not to use ChatGPT and assistive artificial intelligence tools in higher education institutions? The modern-day conundrum – students' and faculty's perspectives. Equity in Education & Society (0) 0: 1-13.

Paper link:
https://tinyurl.com/y9x893rs

Article summary:

This study explores the perceptions of students and faculty members on the use of AI tools, such as ChatGPT, in academic writing, highlighting the pros and cons, ethical implications, and potential benefits of leveraging AI in education.

The study used a descriptive phenomenological qualitative methodology, involving interviews with, on the one hand, 30 students who used Large Language Models (LLMs) AI tools to complete their assignments and nine students who did not, and, on the other hand, six faculty members who offered their perspectives on students' use of LLMs AI tools to complete their assignments and their thoughts on the benefits and challenges. Purposive sampling was used to select participants and the data were collected through email interviews. The responses were coded based on Braun and Clarke's (2013) six steps thematic analysis and on Saldaña's (2021) descriptive in vivo, as well as on evaluative coding. The data were analysed using the UTAUT2 framework, which includes components such as effort and performance expectancies, social influence, and habits. All participants exemplified personal innovativeness in their willingness to embrace new technologies (Strzelecki, 2023). In this study age and gender did not make a difference in participants' descriptions of their personal innovativeness.

The study revealed a range of perspectives among students and faculty. While both groups recognized the potential benefits, including time savings, improved teaching and learning processes, and increased motivation, concerns were also raised. Students expressed concerns about a potential decline in creativity and critical thinking skills, while faculty members raised ethical concerns, particularly regarding plagiarism. Both groups acknowledged the challenges posed by factors like cost, bandwidth requirements, the digital divide, and the potential for AI-generated information to be inaccurate or outdated. Despite these challenges, both students and faculty members recognized the need for clear policies and procedures to guide the appropriate and ethical use of both assistive and AI tools (LLMs) in education.

Moreover, Albeit, Cano et al, 2023; Lawless, 2023; Mollick and Mollick, 2023b; and Samuels-White, 2023 did not stipulate that policies and procedures be put in place, they suggested specific techniques to be implemented when using AI tools such as ChatGPT.

However, both faculty members in this study indicated that they saw the value of using ChatGPT for routine, administrative, and information gathering which configures into lower-order skill sets. They saw the value of letting AI tools do the 'hard work' (Cano et al, 2023; Samuels-White, 2023).

The study concludes that the appropriate use of AI tools like ChatGPT in higher education requires careful consideration and the establishment of clear policies and procedures. While these tools can enhance academic writing, they also raise ethical concerns such as plagiarism. Educators can see the value of AI in generating examples, scenarios, and quizzes, while students can use them for reference gathering and assignment structuring. However, policies are crucial to mitigate potential risks and ensure responsible and ethical AI integration in the learning process.

Personal observations / recommendations:

The study did not provide information on the limitations of the research. However, it can be inferred that the study's findings may not be generalizable to other contexts due to the small sample size, the potential bias of participants who may not have disclosed their true experiences and perceptions of using AI tools, and the specific context of the study.

Future studies should consist of a mixed methodology and a larger sample size, with a focus on the different viewpoints between faculty and students. Additionally, more studies should be conducted on the use of AI tools, especially within Higher Education Institutes (HEIs), particularly in the Caribbean context.

The study's findings have practical implications for the use of ChatGPT and assistive AI tools in higher education institutions, suggesting that educators should find creative ways to use ChatGPT and other assistive AI tools in assessment, such as generating rubrics and multiple-choice questions for students to critique.

The practical implications address educators and policymakers, highlighting the need to develop guidelines and policies for the appropriate use of ChatGPT and other AI assistive tools in the teaching and learning process, and to inform students and faculty members about the values and repercussions of using AI in the classroom.

Paper references:

Paul, R., Carmel, E., & Cobbe, J. (2024). Introduction to the Handbook on Public Policy and Artificial Intelligence: vantage points for critical inquiry. Edward Elgar Publishing Ebooks.

Paper link:
https://tinyurl.com/yce4y7x3

Article summary:

The article discusses the need for a critical and nuanced understanding of the intersection of Artificial Intelligence Technologies (AITs) and public policy, moving beyond technical and positivistic approaches, in order to explore the complex and contingent socio-technological articulation of AITs and human actions in policy.

The study employs a critical and nuanced approach to understanding the relationship between public policy, governance, and AITs, recognizing the complexities and controversies involved and proposes a practice-oriented policy research approach that examines meanings, action, and materiality to understand individual cases and explain varieties of AIT/public policy relations in different contexts.

Although the authors' intention is not to define AI 'once and for all', it is necessary to state that the volume this introductory chapter belongs to treats it primarily as a cluster of technologies, rather than as scientific discipline or epistemology. They propose that AI in policymaking can only be understood in its specific material expressions as a particular AIT, because AI 'always relies on other technologies and is embedded in broader scientific and technological practices and procedures' including both software and hardware (Coeckelbergh 2020: 80).

AITs are socio-technical assemblages which, due to their technical functionalities, may represent a specific cognitive and material form of collating and processing data; but this is necessarily always embedded in, and co-produced with, social processes (for the wider argument about socio-technical assemblages, see: Åm 2015; Jasanoff and Kim 2013). Critical sociologists demand that the analyses look beyond the figure of the algorithm in any essentializing way and attend, instead, to 'how multiple spaces for agency, opacity, and power open and close in different parts of algorithmic assemblages. The crux of the matter is that actors experience different degrees of agency and opacity in different parts of any algorithmic assemblage' (Lee 2021: 65).

Despite its unpredictability then, the contingent and mutually constitutive iteration between policy goals, interests, intentions, and meanings and technological affordances and their effects in AI-related policy practices is not neutral, accidental or chaotic. The authors suggest that policymakers act purposefully and strategically in relation to AI, and that their actions are structured by inequalities in power, knowledge and resource, and

by the meanings they vest in their specific action (Carmel 2019b; see also the perspective of Sum and Jessop's cultural political economy in Paul 2023). From the combination of meaning-making, structuration and action, then they come to a third important aspect of practices, that 'involve[s] the materialization of meanings, knowledge and ideas in concrete objects, institutions, and the relations between [them]' (Carmel 2019b: 37)

A recent increase of critical infrastructure studies (Bellanova and de Goede 2020; Bernards and Campbell-Verduyn 2019; The Critical Infrastructure Collective 2022) shows how the material foundations which lend infrastructures, such as roads, the internet, currencies or the cloud, as well as their sense of durability and material existence have been socially created and are being constantly reinterpreted and struggled over in everyday practices. At the same time, the authors' attention to the materiality of policy's interactions with technologies does not categorise the material world as external to social production processes.

However, if a closer look is considered of the AI production at the level of data, additional socio-economic injustices come into view. Thus, the authors suggest that the political economy of AIT, and its interactions with public policy, emerges from the wider systems and structures of informational capitalism, in which data – its collation, curation, labelling and 'refining' (Cohen 2018), parsing, aggregation, reconstitution and use – is central.

Instead, these processes are proactively supported by 'AI competition states' (Paul, reference to Chapter 20 in the volume this Introduction belongs to) which think of investment and market enhancing regulation as tools for boosting their national/regional economies' competitiveness in the 'race to AI' (cf. Smuha 2021b). As the authors discuss elsewhere (Paul 2023), the regulatory fabrication of 'trustworthy' and 'human-centric' AI in the EU's proposed AI regulation can be understood as a tool for 'regulating into being' a trademark of ethically superior AI meant to boost the EU's AI competitiveness against the US and China.

The authors' view on AI policy practice speaks to the older science and technology (STS) assumption that the development, uses and regulation of technology cannot be explored in the abstract: they agree that these processes are inexorably linked and situated in specific socio-technical contexts in which technology is co-produced with societal knowledge, institutions and power (Jasanoff 2016; Jasanoff and Kim 2013).

Rather than focusing on AIT uses in narrow cases, the Introduction announces that contributions in this Handbook provide a contextualized understanding of socio-technical systems as 'contingent on social, political, and economic forces and can take different shapes' (on 'algorithmic governance': Katzenbach and Ulbricht 2019: 7). While proponents of 'trustworthy AI' or 'proportionate' regulation of ADM systems acknowledge that context matters for assessing AI-related risks and benefits (Chatila et al 2021; Krafft et al 2022), the authors are yet to consolidate critical policy-analytical insights on how the public sector actually adopts and incorporates AITs.

By acting, by intervening, the general intentions and understandings into this indeterminate world are extended to being able to predict how its agency will affect and impact us. This view on policy, as a practice where policy actors enact their intentions and meanings but still throw themselves into the partly unknown, also concurs with more recent discussions of 'technological agency' as an 'iterative process, in which humans construct technologies that impact their users and designers through unforeseen uses and effects (Campbell-Verduyn and Hütten 2023).

This appears to offer the possibility of improving the quality and consistency of public services, help fine-tune the design and implementation of policy measures, render interventions more efficient and targeted, and enhance the cost-effectiveness of public purchasing. However, it is already known that (as yet) many of these claims are exaggerated or simply untrue (on the AI functionality fallacy see: Raji et al 2022).

A study on police uses in the Netherlands shows, for example, that officers only adopted AI-recommended decisions when they matched their own intuition (Selten et al 2023). These contrasting cases imply diverse relationships between different policy actors, institutions, norms, expectations and how the technologies function over time, in which we have yet to have a systematic explanation of these variations

The results of the study highlight the need for a critical and nuanced understanding of the relationship between public policy, governance, and AITs, recognizing the complexities and controversies involved, and the importance of considering the material objects and infrastructures of AITs, as well as the socio-technical complex number of policy actors.

The article concludes that empirical exploration of AI-policy interactions necessitates moving beyond the dichotomous understandings of human-machine autonomy, decisions, cognition, or knowledge, and that practice-oriented policy research on AITs needs to challenge the politics of perceiving, enacting, and contesting the fluid boundaries and interactions between humans and machine.

Personal observations / recommendations:

The article does not explicitly discuss limitations, but it highlights the need for a more nuanced and critical understanding of the intersection of AITs and public policy, suggesting that current approaches may be limited in their understanding of this complex issue.

The article suggests that further research is necessary to explore the dynamic and evolving relationship between public policy, governance, and AI technologies. This research should investigate how the interplay between these factors influences human actions and societal outcomes within the policy sphere.

Paper references:

Chan, C. K. Y., & Lee, K. K. W. (2023). The AI generation gap: Are Gen Z students more interested in adopting generative AI such as ChatGPT in teaching and learning than their Gen X and millennial generation teachers? *Smart Learning Environments, 10* (60).

Paper link:
https://tinyurl.com/2t9vbse8

Article summary:

Using a mixed-method online survey, combining quantitative and qualitative data, based on closed and open-ended questions to collect data from the participants, the study explores and compares the attitudes, experiences, perceptions, knowledge, concerns, and intentions of Gen Z (Baby Boomers) students and Gen X (born between 1960 and 1980) and Gen Y (also known as Millennials, born between 1980 and 1995) teachers towards the use of generative AI (GenAI) in Higher Education (HE), highlighting the need for guidelines, protocols, and responsible use to ensure academic integrity and to promote equitable learning experiences.

Thematic coding analysis was used to analyse the qualitative data from the open-ended questions. T-test analyses were conducted to identify any significant differences between students' and teachers' survey responses. The demographic information consists of 399 students and 184 teachers, the majority of teachers generally falling within the birth year ranges of Gen X or Gen Y, while students typically belonging to the Gen Z age group. Convenience sampling was used to recruit participants for the study.

For all instances of 'Not Sure', that fall outside of the 'Strongly Disagree – Strongly Agree' 5-point Likert scale, t-test analyses were used, and were treated as missing values, only to be later revisited to see whether the proportion of uncertainty towards each survey item was significantly different between students and teachers (i.e., t-test analyses were run after recoding responses falling within the SD – SA scale as 0, with 'Not Sure' coded as 1). For the calculation of other difficult reliability coefficients, when there were different numbers of codes across different categories, Cohen's kappa percentage agreement was used, while for the cases where Levene's test was significant (p< 0.05, signifying unequal variances), the adjusted Welch's t was reported.

Overall, while no significant group differences were found, both students and teachers tended to agree with statements regarding the need for higher education institutions to establish a plan addressing GenAI use, the importance for students to be able to utilise GenAI effectively for their future careers, and several items regarding their awareness of GenAI's limitations and risks. For items in which significant differences were found, students overall reported a greater frequency (MS = 2.27, SDS = 1.65; with a score of 1 corresponding to 'Never' and 5 corresponding to 'Always') of GenAI technologies usage,

including ChatGPT, compared to teachers (MT = 2.03, SDT = 1.11; t(581), p = 0.023). It could be that the younger members of Generation Z are more open and accustomed to trying and adopting new and upcoming technologies, especially with the exponential rise in the popularity of ChatGPT in particular.

Likewise, a more open-minded attitude could also help account for students' greater level of agreement (MS = 3.90, SDS = 0.82), compared to that of their teachers (MT = 3.58, SDT = 1.11), that integrating GenAI technologies into higher education would positively impact teaching and learning in the future (t(234) = 3.36, p< 0.001). Combined with the aforementioned higher frequencies of usage, which in itself could also indicate greater familiarity with how the technology can work and be used, students were more likely to believe that GenAI technologies could help them save time (MS = 4.16, SDS = 0.83; MT = 3.90, SDT = 0.88; t(555) = 3.38, p < 0.001) and become better writers (MS = 3.29, SDS = 1.16; MT = 3.06, SDT = 1.23; t(545) = 2.07; p = 0.039) compared to what teachers believed about the utility of GenAI for students. Furthermore, students were more likely to see GenAI technologies as a useful and good tool for student support services, given the anonymity it provides (MS = 3.73, SDS = 1.66; MT = 3.53, SDT = 1.11; t(536) = 2.07; p = 0.039). Their confidence in what GenAI is capable of also resulted in a higher level of agreement, compared to teachers, concerning the opinion that such technologies were unlikely to be affected by harmful input that will distort or manipulate its outputs (MS = 2.97, SDS = 1.22; MT = 2.57, SDT = 1.28; t(510) = 3.35; p < 0.001).

On the other hand, results suggested that teachers may be more skeptical of the capabilities of GenAI, as well as concerned about the risks and dangers it poses to students' learning, growth, and academic achievements. Teachers showed a greater level of caution regarding GenAI outputs, scoring higher in their agreement with the need to fact-check and validate information produced by GenAI technologies (MS = 4.35, SDS = 0.81; MT = 4.60, SDT = 0.65; t(402) = −3.95; p< 0.001); they also tended to score higher than students in their agreement with GenAI having the potential of generating factually inaccurate outputs (MS = 4.08 SDS = 0.85; MT = 4.27, SDT = 0.78; t(554) = −2.54; p = 0.011) and outputs that exhibit biases and unfairness (MS = 3.91, SDS = 0.93; MT = 4.20, SDT = 0.78; t(545) = −3.52; p< 0.001), as well as with GenAI impeding students' opportunities to interact and socialise with others (MS = 3.09, SDS = 1.19; MT = 3.43, SDT = 1.14; t(542) = −3.16; p = 0.002). Finally, teachers further expressed a greater level of concern regarding the possibility of some students using GenAI technologies to get ahead in their assignments (MS = 3.58, SDS = 1.14; MT = 3.83, SDT = 1.06; t(366) = -2.51; p = 0.013), and were more likely to believe that students would become over-reliant on GenAI (MS = 2.87, SDS = 1.14; MT = 4.12, SDT = 0.89; t(425) = -1.25; p< 0.001) compared to what students thought about themselves.

On the one hand, the results showed that both students and teachers agreed on the need for higher education institutions to establish a plan addressing GenAI use and the importance of students being able to utilise GenAI effectively for their future careers. At the same time, both groups recognize GenAI's limitations, including generating inaccurate output, biases, and limited emotional intelligence.

On the other hand, the study found significant differences between students and teachers in their perceptions of GenAI's capabilities and limitations. Gen Z students were more likely to see GenAI technologies as a useful and good tool for student support services, and were more confident in what GenAI is capable of, reporting a greater frequency of GenAI technologies usage, thus being more likely to believe that GenAI technologies could help them save time, become better writers, be more productive and efficient, as a result of benefiting from personalised learning. Teachers, however, showed a greater level of caution regarding GenAI outputs, scoring higher in their agreement with the need to fact-check and validate information produced by GenAI technologies and were more sceptical of the capabilities of GenAI, being concerned about the risks and dangers it poses to students' learning, growth, and academic achievements, in direct connection to overreliance, ethical and pedagogical implications.

In other words, the study found that Gen Z students are more optimistic about the potential benefits of GenAI, while Gen X and Gen Y teachers are more concerned about the ethical and pedagogical implications. Both groups recognize the need for guidelines and protocols to ensure responsible use of GenAI.

Overall, the study highlights the importance of combining technology with traditional teaching methods to provide a more effective learning experience. The findings suggest that educational institutions must promote critical thinking, digital literacy, and AI literacy skills among students, and promote responsible use of GenAI technologies in higher education.

The findings of this study contribute to the growing body of literature on the use of AI in education and provide important insights into the attitudes and intentions of Gen Z students and Gen X and Y teachers towards the adoption of GenAI in educational settings.

Personal observations / recommendations:

The study did not examine the long-term impact of GenAI integration on teaching and learning outcomes, and did not develop evidence-based guidelines and policies that promote responsible use of this technology in higher education. Also, the use of convenience sampling, may not be representative of the larger population. Future studies can conduct follow-up studies with larger, more representative populations of Gen Z students and their Gen X and Y teachers, as well as look into potential variations across cultures and other demographic groups. Moreover, the study did not include a specific question regarding the age of teachers, as the participants' generational affiliations were already assumed based on their roles as teachers or students.

Future studies can explore the perceptions of other stakeholders, including policymakers and university administrative staff, and compare their responses with those of students and teachers to identify any gaps in expectations of GenAI use in higher education.

The article has practical applications in the development of guidelines, policies, and strategies for the responsible and ethical use of GenAI technologies in higher education, and in the delivery of training and support for educators to effectively incorporate GenAI technologies in their teaching practices.

Paper references (APA style):

Chisom, O. N., Unachukwu, C. C., & Osawaru, B. (2024). Review of AI in Education: Transforming Learning Environments in Africa. *International Journal of Applied Research in Social Sciences, 5* (10): 637 654.

Paper link:
https://tinyurl.com/yc7jzka3

Article summary:

The review discusses the transformative potential of AI in education across Africa, emphasising the need for collaborative efforts among various stakeholders to ensure responsible and ethical adoption. The primary objective is to provide a roadmap for stakeholders to integrate AI into diverse socio-economic and cultural contexts in Africa, transforming education into a lifelong, accessible, and personalised journey.

The review analyses various applications of AI in education and pilot projects globally to understand their impact on education, including personalised learning platforms, virtual tutors, and intelligent content delivery systems, and examines case studies and pilot projects from different African countries.

The article extensively discusses the situation of education in Africa, which is at a pivotal point, facing the dual challenges of achieving universal access and improving quality. The integration of Artificial Intelligence (AI) holds the potential to transform learning environments, complementing Africa's rich cultural traditions, such as the use of indigenous languages in education.

Historically, education in Africa has been shaped by pre- and post-colonial influences, combining traditional teachings with European-style systems. While there have been advancements in access and quality since colonial times, challenges persist due to factors like armed conflicts, humanitarian crises, and socio-economic disparities. Inequalities remain evident, particularly in rural areas, among marginalised communities, and between genders.
Efforts to enhance education include curriculum reforms, teacher training, infrastructure development, and the incorporation of technology. However, issues such as outdated curricula, insufficient resources, and teacher shortages, especially in remote areas, continue to delay progress. Access to higher education is limited by financial constraints, capacity issues, and a mismatch with labour market needs.

Innovative approaches, including mobile learning, multilingual education policies, and partnerships with international organisations, are creating new opportunities. Yet, disparities in access to technology and the internet remain significant barriers to surmounting these innovations. Vocational training and entrepreneurship programmes

are being emphasised to bridge the gap between education and employment, though more needs to be done to align these initiatives with market demands.

Despite these challenges, African nations and global organisations are committed to adopting inclusive, innovative, and sustainable education systems. Progress toward achieving the Sustainable Development Goal 4 (SDG 4) and the Continental Education Strategy for Africa is being implemented, focusing on access, quality, and alignment with evolving job markets.

Disparities in education access persist across Africa, particularly in rural and marginalised communities. Challenges include high dropout rates, gender disparities affecting girls, inadequate infrastructure, and limited educational resources like textbooks and technology. The quality of education varies, with outdated curricula and a shortage of qualified teachers, especially in remote areas. Teacher training programmes often require improvement to address diverse classroom needs.

Linguistic diversity presents additional obstacles, as language barriers can impact students' comprehension. Tertiary education faces limited access, funding, and infrastructure issues, while the digital divide exacerbates inequalities between rural-urban and private-public schools, impeding the integration of digital tools. Conflict zones further disrupt education, making rebuilding systems in post-conflict areas a daunting task.

Efforts are on-going to promote entrepreneurship, vocational training, and practical skills aligned with job market demands. Innovative solutions, such as mobile learning and collaborations with technology companies and NGOs, are helping address challenges. Embracing indigenous knowledge systems can permit culturally inclusive education.

Despite progress, Africa's education sector faces significant challenges. Progresses include: enrolment rates, which have increased significantly, especially at the primary level, with a narrowing gap between boys and girls; standardised test scores, which show improved learning outcomes in some countries; increased investment by governments and international organisations, which has enhanced infrastructure and teacher training; and technology and innovation embracement, which have increased, thus improving access and enrich learning experiences.

However, challenges persist, as many students still lack basic literacy and numeracy skills, highlighting inadequate learning outcomes. Schools face teacher shortages, and many educators lack proper training and resources. Infrastructure remains insufficient, with many schools lacking classrooms, libraries, and technology. Inequities in access and quality persist between rural and urban areas, as well as across income levels and genders. Conflict and instability disrupt education in some regions, while climate change damages infrastructure and displaces communities.

Thus, the emerging trends include a growing focus on early childhood education to support development during critical years, support for educational technology, to enhance learning and provide access in remote areas, integration of skills development programmes, to prepare students for the 21st-century job market, and the promotion of lifelong learning initiatives, to support skill development throughout life.

The key ways in which AI is transforming learning environments in Africa is based on creating personalised learning experiences that adapt to individual students' needs, abilities, and progress. This approach ensures that learners receive content tailored to their unique preferences and learning styles. For students in diverse linguistic contexts, AI's language processing capabilities enhance accessibility by offering multilingual support, breaking down language barriers that have traditionally limited educational opportunities. In remote or underdeveloped areas where access to qualified teachers is scarce, virtual tutors and chatbots powered by AI provide critical support, enabling inclusivity in education.

AI also empowers educators by analysing data on student performance, engagement, and learning patterns, enabling informed decisions and targeted interventions. Teachers benefit from tools that assist with lesson planning, grading, and real-time feedback, improving the overall quality of teaching. Additionally, AI encourages engagement through gamified learning, making education interactive and motivating for students while improving knowledge retention. Its ability to detect early signs of learning difficulties ensures timely interventions, preventing students from falling behind.

Beyond traditional education, AI is integral to promoting lifelong learning by supporting continuous skill development and knowledge acquisition. Personalised learning paths, informed by AI's analysis of individual preferences and progress, allow learners to explore new interests and acquire relevant skills at their own pace. AI-driven tools facilitate microlearning, breaking content into manageable modules that accommodate busy lifestyles, and provide immediate feedback to support iterative improvement. Furthermore, predictive analytics align learning with evolving workplace demands, offering insights into career paths and skill development tailored to industry trends.

However, the integration of AI into education also raises important challenges. Ethical considerations, such as data privacy and equitable access, must be addressed to ensure that AI implementations are sustainable and inclusive. Collaborative efforts between governments, educational institutions, technology developers, and the private sector are essential to overcoming these difficulties. By addressing these concerns, AI has the potential to reshape education in Africa, making it more dynamic, accessible, and tailored to individual and societal needs, while promoting a culture of lifelong learning and adaptability.

In conclusion, AI holds transformative power in addressing educational challenges and cultivating continuous improvement, paving the way for a more inclusive and innovative education landscape in Africa, by providing personalised learning and addressing access disparities. AI technologies are being integrated into educational systems to overcome

language barriers, promote literacy, and encourage digital skills development, while also supporting teachers and streamlining administrative tasks. AI-driven platforms like Squirrel AI and DreamBox have shown improvements in student performance and engagement.

Personal observations / recommendations:

The success of integrating AI in education depends on ethical practices, digital literacy, and sustained collaboration among stakeholders. AI can transform education into a personalised and accessible journey for learners in Africa, regardless of their circumstances.

The article suggests the need for collaborative efforts involving governments, educational institutions, technology developers, and the private sector to guide the responsible and sustainable integration of AI in education.

Paper references:

Hwang, G., Xie, H., Wah, B. W., & Gašević, D. (2020). Vision, challenges, roles and research issues of Artificial Intelligence in Education. *Computers and Education Artificial Intelligence, 1* (13).

Paper link:
https://tinyurl.com/3x83cdus

Article summary:

The article presents a comprehensive overview of AIED, including its definition, roles, and potential applications in educational settings, focusing on the idea that AIED is a highly technology-dependent and cross-disciplinary field, which can pose challenges for researchers and practitioners from different backgrounds and discusses the importance of Artificial Intelligence in Education (AIED).

The study highlights 10 research topics that need to be addressed to advance the field, including the development of AI-based learning models or implementation frameworks, the evaluation of student performance, the investigation of the effectiveness of AI-based learning systems, the re-examination and redefinition of the existing educational theories, as well as of the way of using existing learning tools in AI-supported learning content by considering different roles of AI in education, the proposition of innovative AI-supported learning or assessing strategies, the use of big data analytics for large-scale data sources in learning systems and educational contexts, the development of large-scale learning systems, but also of ethical principles and practices for employing AI technologies and applications in education, as well as the importance of human-AI collaboration. The objectives of the article are to present the definition and roles of AIED, to propose a framework for implementing AIED in different learning and teaching settings, and to outline potential research topics in AIED.

The article emphasises that AIED is a rapidly growing field that has the potential to revolutionise education by providing personalised learning experiences, improving teaching effectiveness, and enhancing decision-making. However, it also highlights the need for researchers from various fields to collaborate to advance the state-of-the-art in this area, casting no doubt over the idea that AI in education (AIED) research is becoming one of the hottest topics in the field of computer science and education.

Personal observations / recommendations:

The article does not describe specific methods, but rather presents a conceptual framework for AIED research. Also, the article does not present specific results, but rather highlights the potential benefits of AIED, including improved teaching and learning outcomes. In the same line, the article does not explicitly discuss limitations, but implies

that there are challenges to be addressed in AIED research, such as ethical issues and the need for collaboration among researchers from different fields.

The study highlights the potential of AIED to provide personalised guidance, support through intelligent tutoring systems, and feedback to students, as well as assist teachers and policymakers in making decisions, thus suggesting that AIED has the capacity to improve teaching and learning outcomes, and that AI-based systems can aid in assessments, data collection, and developing new strategies. The study also identifies four roles of AI in education: *intelligent tutor, intelligent tutee, intelligent learning tool or partner, and policy-making advisor*.

The article suggests that future research in AIED should focus on developing intelligent tutoring systems, adaptive learning systems, and policy-making advisors, as well as exploring the potential of AI in education. Also, future work in AIED should focus on addressing the 10 research topics identified, including the development of AI-based learning models, evaluation of student performance, and investigation of the effectiveness of AI-based learning systems.

Paper references:

Iftanti, E., Awalin, A. S. A., & Izza, F. N. (2023). The Use of Artificial Intelligence as the Potential Supporting Learning Tools for Doing Learning Projects. *International Conference on Education, 1*: 455-467

Paper link:
https://tinyurl.com/mpm6tdnb

Article summary:

This study explores how Artificial Intelligence (AI) is used as a supporting tool for English as a Foreign Language (EFL) students to complete their learning projects, specifically in writing thesis proposals, using a narrative inquiry approach. The subjects were five selected EFL students of the English Department of a state university in Tulungagung who used AI powered tools such as ChatGPT, Grammarly Checker, QuillBOT, and Perplexity.ai to help them complete their final project of writing a thesis proposal, and the data were collected through interviewing them and reading their notes in July 2023. Afterwards, the data were qualitatively analysed.

The article states that the integration of Artificial Intelligence (AI) into English as a Foreign Language (EFL) learning is revolutionising language education by offering personalised, engaging, and effective learning experiences. AI-powered language learning platforms, such as Duolingo, utilise natural language processing (NLP) algorithms to provide tailored instruction and feedback. These platforms adapt content to individual learners' needs, enhancing language skills through dynamic, interactive methods like gamification and multimedia. Similarly, AI-powered Intelligent Tutoring Systems (ITS) leverage machine learning to identify learners' strengths and weaknesses, delivering targeted exercises and real-time feedback. Research indicates that ITS can lead to higher language proficiency gains compared to traditional classroom instruction, making it a valuable tool for personalised learning. Additionally, AI-driven Virtual Reality (VR) applications are creating immersive language learning experiences, allowing learners to practice skills in realistic environments, such as conversing with virtual characters or navigating English-speaking cities. Studies show that VR-based learning improves speaking and listening skills while boosting learners' confidence in real-life language use.

Despite its benefits, the implementation of AI in EFL learning also presents challenges. While AI enables personalised instruction, continuous progress monitoring, and immediate feedback, concerns over data privacy and the potential overreliance on automated solutions remain significant. Educators must strike a balance between AI and human instruction to ensure learners receive a holistic language learning experience. Addressing ethical concerns, integrating human interaction, and advancing research in curriculum design are essential for the successful implementation of AI in EFL

environments. Overall, AI has the potential to transform language education, but its effective use requires careful consideration of both its advantages and limitations.

The study reveals that EFL students use various AI applications, including Chat GPT, Bing Chat, and Grammarly, QuillBot, and Perplexity.ai to assist them in writing research proposals, from brainstorming ideas, to developing topics, paraphrasing, and checking grammar. These applications can induce a state of flow in EFL learners, making them more engaged and motivated in their language learning process, in a joyful learning and comfortable atmosphere.

EFL students are increasingly using Artificial Intelligence (AI) to support their learning projects for several reasons. First, AI provides immediate and personalised feedback, aligning with Self-Determination Theory by cultivating autonomy and competence. This allows students to monitor their progress independently, motivating them to take ownership of their learning. Second, AI tools are perceived as useful and easy to use, as explained by the Technology Acceptance Model. They help students overcome language barriers and access authentic English resources, enhancing their learning experience. Third, AI supports Differentiated Instruction by adapting to individual proficiency levels and learning preferences, creating a more inclusive and engaging environment for diverse learners.

In practice, AI offers various tools to assist EFL students. AI-based writing assistants provide real-time feedback on grammar, vocabulary, and language usage, helping students improve their writing skills. Adaptive learning platforms tailor content to individual needs, ensuring students receive appropriate challenges and support. Gamified applications make learning enjoyable and immersive, while machine translation tools break down language barriers, giving students access to authentic materials like research papers and articles. Together, these AI-driven tools revolutionise EFL learning, empowering students to enhance their language proficiency and achieve better project outcomes.

This study found that EFL students face challenges in various stages of writing research proposals, such as finding frameworks, developing topics, brainstorming, paraphrasing, locating additional resources, and checking grammar. To address these difficulties, they turn to AI tools like ChatGPT, Grammarly, QuillBot, and Perplexity.ai. ChatGPT helps students find frameworks and structure their writing, while Grammarly assists with grammar, punctuation, and spelling, though some studies note its feedback may not always align with human assessors. QuillBot is used for paraphrasing, helping students avoid plagiarism and improve their writing, as supported by previous research. Perplexity.ai aids in finding additional resources to enrich content and ensure accuracy.

The study also highlights the role of gamified AI applications in growing engagement, aligning with Flow Theory, which emphasizes deep concentration and enjoyment during learning. Additionally, AI tools like NLP-based writing assistants provide real-time feedback, supporting the Interactionist Theory of Second Language Acquisition by enabling meaningful interactions and immediate corrections. Overall, AI technologies

like ChatGPT, Grammarly, QuillBot, and Perplexity.ai are valuable resources for EFL students, enhancing their writing skills, motivation, and ability to produce high-quality work.

The study concludes that AI can be pedagogically implemented in English Language Teaching to integrate technology for teaching and learning processes, as it has the potential to revolutionise language education by providing EFL students with sophisticated and versatile tools to enhance their language proficiency and project outcomes. However, its limitations need to be considered, and future research should focus on integrating AI into curriculum design and establishing ethical guidelines for responsible AI use.

Personal observations / recommendations:

The study is limited to the practices of EFL students in utilising AI tech to do their learning projects, and future research should explore other areas, such as integrating AI into curriculum design and establishing ethical guidelines for responsible AI use.

The study suggests that future research should focus on integrating AI into curriculum design, establishing ethical guidelines for responsible AI use, and exploring hybrid models that combine AI technologies with human instruction.

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Paper references:

Kartal, G., & Yeşilyurt, Y. E. (2024). A bibliometric analysis of artificial intelligence in L2 teaching and applied linguistics between 1995 and 2022. *ReCALL*, 1-17.

Link to the paper:
https://tinyurl.com/mpd7erzu

Article summary:

The article explores the growing influence of artificial intelligence (AI) in the field of second language (L2) teaching and applied linguistics. By analysing 185 articles published in Social Sciences Citation Index (SSCI) indexed journals, the study provides valuable insights into the current trends, influential authors, and potential future directions for research in this domain.

The investigation reveals a highly multidisciplinary and interconnected field, with four main clusters emerging from the co-occurrence analysis of author keywords: artificial intelligence, natural language processing (NLP), robot-assisted language learning (RALL), and chatbots. The AI cluster highlights the growing interest and potential of AI technologies in language learning and teaching, with applications in conversational agents, chatbots, dynamic assessments, and automated writing evaluation tools. The NLP cluster emphasizes the use of NLP and computational linguistics to improve language instruction and assessment, with specific applications in automatic essay scoring, learner corpus analysis, and syntactic complexity. The RALL cluster reflects the growing interest in using humanoid and telepresence robots in language teaching, emphasizing the importance of digital storytelling and emotion in effective language instruction. The chatbot cluster underscores the interest in using conversational agents to simulate natural language interactions and provide customized language learning experiences.

The study identified influential authors, including S.A. Crossley, K. Kyle, N.S. Chen, D.S. McNamara, J.H. Lee, and D. Meurers, based on the number of articles published. Co-citation analysis revealed clusters of authors focusing on learner autonomy, task-based language learning, language testing, computational linguistics, NLP, educational technology, corpus linguistics, genre analysis, and cognitive linguistics.

The analysis highlighted highly cited articles that focused on various aspects of AI in language teaching and applied linguistics, including RALL, educational robots, and the impact of AI on language education.
The study identifies promising avenues for future research, including: comparative studies of AI-based tools and methods in language teaching; ethical considerations

related to AI in education, such as privacy, bias, and teacher-student dynamics; context-specific research on AI's impact on different learner populations (young learners, EFL students, learners with special needs); integration of AI with emerging technologies like extended reality, blockchain, learner autonomy, and big data.

The study demonstrates the growing importance of AI in language teaching and applied linguistics. It highlights the field's evolution from early work in intelligent tutoring systems (ITS) and machine learning (ML) to more specific applications in areas like automated writing evaluation, and then RALL and chatbot technology. The study also emphasizes the need for further research in comparative studies, ethical considerations, context-specific applications, and integration with emerging technologies.

Personal observations/recommendations:

This article has a rich bibliography on the four areas of interest, but articles published from 2023 onwards were excluded from the review. Network visualization seems a valuable tool for identifying the connections and relationships among the most cited articles in a field.

Paper references:

Ma, H., Ismail, L., & Han, W. (2024). A bibliometric analysis of artificial intelligence in language teaching and learning (1990–2023): evolution, trends and future directions. *Education and Information Technologies*, 1-25.

Link to the paper:
https://tinyurl.com/mr7hpxzb

Article summary:

The article uses bibliometric analysis to examine documents in the field of AI in language teaching and learning from 1990 to 2023. The study, which examined 384 documents from 269 sources from the Web of Science Core Collection database, aimed to analyse publication distribution trends, identify trending keywords and topics, pinpoint the most influential sources and institutions, identify key publications, and suggest future research directions.

The analysis revealed a significant increase in publications in this field, especially since 2016, highlighting the growing interest in using AI in language teaching. The most frequent keywords have changed over time, reflecting the field's evolution from early computer-assisted language learning (CALL) systems, machine learning and natural language processing to the current focus on conversational AI, including chatbots and ChatGPT, and teaching of different English skills.

The five most influential journals in the field were *Education and Information Technologies*; *Interactive Learning Environments*; *Journal of Intelligent & Fuzzy Systems*; *Language Learning and Technology* and *Computer Assisted Language Learning*. The most productive institutions were the Education University of Hong Kong, Lingnan University, and Virginia Commonwealth University. The most productive author was Vrivou M. The most influential authors were Fryer.LK, Godwin-Jones R, Kohnke L, Troussas C, Virvou M, and Zou D. The most productive and influential countries were China and the United States, with significant collaboration between researchers in these countries.

The study identified several key studies that made significant contributions to the field. These studies explored topics like the possibilities and methods of integrating AI technology into language learning and teaching, the impact of AI on language learning outcomes, empirical studies on the use of chatbots in language learning and the development of AI-powered language teaching systems. Experiments on language teaching with the assistance of AI have shown that AI enhances writing correctness and enhances student motivation, engagement, and efficiency.

The study highlighted the rapid growth of the field of AI in language teaching and the great potential of AI to enhance language teaching and learning. However, it also highlighted several challenges and concerns to address, such as the need for more empirical research on the effectiveness of AI in language teaching, the need to address ethical concerns related to using AI in education, and the need to prepare teachers and students to use AI. The article revealed, in particular, that while more empirical studies have demonstrated AI's positive impact on language learners' writing correctness, language learning achievement, and language communication ability, some of them have pointed out that AI primarily enhance the language learning efficiency of advanced learners instead of all students, and some cases, negatively affect learners' interest.

The study suggested several directions for future research, including: conducting more empirical research on integrating AI with language teaching and learning; enhancing AI literacy among educators and learners; studying the role of the education sector in addressing the environmental impact of AI; researching approaches to imposing limits and regulatory measures on AI to safeguard human interests; exploring strategies to address language learners' apprehensions about AI replacing their jobs; investigating approaches to standardizing using AI in academic writing, assignments, and assessments to uphold academic integrity.

Personal observations/recommendations:

Chatbots emerge as the primary focus of current research. This is confirmed by the fact that the study with the highest impact in 2023 was Zou D's "ChatGPT for Language Teaching and Learning". While this research area is still in its initial stages, it is anticipated that chatbots will be extensively used in language teaching and learning in the future.

Paper references:

Nizzolino, S. (2024). Artificial Intelligence in Language Teaching: Using ChatGPT to assist teachers of English as a Foreign Language. *Form@ re-Open Journal per la formazione in rete*, *24*(1), 242-261.

Link to the paper:
https://oaj.fupress.net/index.php/formare/article/view/15681

Article summary:

This article explores the practical application of ChatGPT, a large language model chatbot, as a tool to assist teachers of English as a Foreign Language (EFL). The author, Salvatore Nizzolino, argues that despite concerns about academic integrity and plagiarism, AI has the potential to enhance the learning experience and should be responsibly incorporated into educational practices.

The article is structured around two case studies. In the first case study, the author uses ChatGPT to analyse 30 forum posts written by first-year Italian university students studying English at a B1 level (Faculty of Economics, Sapienza University of Rome). The AI identifies common errors, including incorrect verb tenses and preposition usage, and provides suggestions for improvement. The author notes that while ChatGPT can generate grammar exercises and explanations, teachers need to contextualize the feedback provided by the AI.

The second case study involves analysing 25 forum posts of students from an EFL-B2 level course (MS in Chemistry and Pharmaceutical Technologies, Sapienza University of Rome). The author prompts ChatGPT to perform semantic analysis, identifying key themes and information related to students' personal backgrounds, motivations, language skills, and career goals. The AI also analyzes the linguistic structures used, distinguishing between formal and informal language to highlight those who adopt a more open approach compared to those who are more reserved.

The author further explores ChatGPT's capabilities by prompting it to identify students who demonstrate a greater personal involvement in the study community and those who exhibit leadership qualities. The AI successfully identifies six students who emerge as potential leaders based on their engagement and active participation.

The author concludes by discussing the potential of ChatGPT in educational contexts, particularly in EFL teaching. While acknowledging the importance of digital literacy and ethical considerations, the author highlights the AI's ability to perform tasks such as dynamic text comprehension, generating consistent and cohesive responses, long context management, and deducing intentions in complex situations. These capabilities make ChatGPT a valuable tool for instructional planning, evaluating papers, profiling based on text, and organizing class groups by behaviour categories.

The article emphasizes the need for further research and development to fully unlock the potential of AI in education and calls for open discussions and regulations regarding the ethical use of these technologies.

Personal observations/recommendations:

It's worth noticing that apparently a well-organized and step-by-step ChatGPT-based instruction could improve "L2 grit", that is perseverance and passion for learning a second language.
In the experiments here described, pseudonymization and anonymization of textual content were adopted in order to protects students' privacy.

Paper references:

Schmidt, T., & Strasser, T. (2022). Artificial intelligence in foreign language learning and teaching: a CALL for intelligent practice. *Anglistik: International Journal of English Studies*, *33*(1), 165-184.

Link to the paper:
https://angl.winter-verlag.de/article/angl/2022/1/14

Article summary:

The article investigates the potential of artificial intelligence (AI) in foreign language learning, particularly in the teaching of English as a Foreign Language (EFL). The authors argue that AI has the potential to revolutionize language practice, making it more personalized, adaptive, and ultimately more effective.

The article begins by highlighting the importance of practice and "focus on form" in foreign language learning. The authors question what an "intelligent" learning environment would look like that can adapt to the individual skill levels, interests, and motivation of each student.

Schmidt and Strasser then present an overview of recent developments in AI, focusing on so-called "narrow AIs," i.e., less complex algorithms specialized in a specific task (namely learner-facing AI tools like *Babbel*, teacher-facing systems like *GradeScanner*, system-facing AI tools). The authors emphasize how these technologies, thanks to their ability to analyse huge amounts of data, can optimize teaching and learning processes, paving the way for personalized learning and more effective forms of formative assessment.

The article continues with a discussion of three practical examples of AI-based tools that can be used in English language teaching. Tools like *DeepL* offer high-quality automatic translations, useful for general text comprehension and vocabulary learning. However, the authors warn against overuse of these tools, which could prevent students from developing their own paraphrasing and autonomous writing skills.

Software like *Grammarly* offers advanced spelling and grammar checks, analyzing the clarity, coherence, and register of the text. These tools can help students develop greater linguistic awareness and improve their writing skills. By offering colour-coded tagging, learners immediately see the nature of their linguistic deficiencies.

Chatbots like the *Virtual Talk App*, *Mondly* or *Memrise*, *Babbel* and *Duolingo* are programs that use multimedia interface and simulate human conversation. They can be used to practice oral skills in a low-risk environment. However, the authors raise

concerns about data privacy and the ability of chatbots to handle complex and culturally specific conversations.

The article then focuses on the importance of "intelligent practice" in the communicative approach to foreign language teaching, particularly in the context of Task-Based Language Learning (TBLL). The authors highlight how practice needs to be oriented to the individual needs of students, providing adequate scaffolding and high-quality feedback. Schmidt and Strasser then discuss the role of Intelligent Tutoring Systems (ITS), digital learning systems that, in theory, have the potential to create personalized and adaptive practice environments. However, the authors point out that creating effective ILTS (Intelligent Language Tutoring Systems) is a complex task, due to the difficulty of automatically analysing student language and modelling it accurately.

The article describes two research projects dealing with the development of ILTS for English language teaching. The first project focuses on the dynamic adaptation of the difficulty of grammar exercises, using machine learning methods and linguistic analysis to create a difficulty model. The second project, Interact4School, aims to integrate ILTS-supported "focus on form" practice into a task-based, communicative language teaching context. The project uses FeedBook, an ILTS that offers individualized feedback and scaffolding based on sophisticated analysis of student input.

Finally, the article concludes with a utopian vision of the foreign language classroom of the future, where AI and digital technologies integrate seamlessly with traditional teaching, supporting students and teachers in creating a personalized, effective, and engaging learning environment. The article emphasizes that even in this futuristic vision, the role of the teacher remains crucial, as a pedagogical expert and critical mediator of technologies.

Personal observations/recommendations:

An interesting point made in this article is that new technologies blur the boundaries between formally organized learning environments in schools and informal learning opportunities in leisure time and at home, so they challenge learners and teachers to adopt an entirely new approach.

Paper references:

Hockly, N. (2023). Artificial Intelligence in English Language Teaching: The Good, the Bad and the Ugly. *RELC Journal, 54*(2).

Link to the paper:
https://journals.sagepub.com/doi/abs/10.1177/00336882231168504

Article summary:

This short article explores the use of artificial intelligence (AI) in English language teaching (ELT) in the post-pandemic era, highlighting its benefits, challenges and ethical implications.

The COVID-19 pandemic led to an unprecedented uptake of educational technologies (edtech), resulting in the normalization of online learning. This growing industry is expected to be worth over US$520 billion by 2027. The article examines the challenges and advantages that AI tools bring to institutions, educators, and their learners.

AI in education currently employs a "weak" or "narrow" version of AI, performing specific tasks in particular domains. These AI applications utilize machine learning for tasks such as providing feedback on learners' written work, translating written text, administering automated tests, or providing structured conversation practice via a chatbot app. Machine learning relies on statistical methods to draw on large sets of training data to identify patterns, build a model, and take action based on that model. The article also highlights the importance of the training dataset in developing an AI system, as any biases in the training data will be replicated in the AI's outputs. Newer AI applications, like Google's LaMDA (Language Model for Dialogue Applications) chatbot or Open AI's GPT-3 (now GPT-4, Ed.) chatbot, use "deep learning" to collect their own data. These complex AI applications create and adjust their own algorithms based on whether task goals are met.

A downside to online learning is the concerns around privacy and the lack of transparency in the collection of massive amounts of learner data by edtech tools. This is of particular concern with minors' data, especially when informed consent to obtain this data has not been sought. Ethical concerns around privacy and surveillance are important in any use of big data, such as learning analytics, in education. The article suggests that institutions investing in edtech tools, and teachers and learners using these tools, should ask questions of edtech providers regarding six areas of privacy concern: information privacy, anonymity, surveillance, autonomy, non-discrimination, and ownership of information.

The article stresses the importance of learner wellbeing and the development of tools and strategies to support well-being in the post-pandemic era. AI-powered tools can help users focus on their uses of technology. A relatively new concept is attentional literacy,

a macro literacy that helps users combat “digital disorder, digital disconnection and [...] digital distraction” (Pegrum et al., 2022).

The article discusses chatbots as an example of an AI-powered tool for language learning. Advancements in speech recognition software have made available chatbots in both text and audio form, and with the development of deep learning AI applications such as LaMDA, chatbots are set to become increasingly sophisticated. Research has shown that chatbots can support language learners in several ways, including providing a delimited context to practice English, preparing less confident learners for speaking by lowering their “affective filter”, and improving learning confidence, motivation, and self-efficacy. However, the article also acknowledges the limitations of chatbots, such as going off-topic, displaying grammar issues and the novelty factor wearing off.

In conclusion, the article highlights the need for responsible and ethical use of AI-powered edtech tools in education. It emphasizes the importance of addressing privacy concerns, ensuring transparency in data collection, and prioritizing learner well-being. The article encourages institutions, teachers, and learners to become informed about the ethical issues surrounding AI in education and take steps to ensure the safe and beneficial use of these technologies.

Personal observations/recommendations:

A valuable insight is that chatbots in their current weak AI version are most appropriate for lower-proficiency learners. It has to be said, though, that this article was written before the launch of Chat GPT-4. The concepts of attentional literacy and affective filter seem particularly pertinent, and should be taken into account in future applications of edtech tools in educational settings.

Paper references:

Liu, M. (2023). Exploring the Application of Artificial Intelligence in Foreign Language Teaching: Challenges and Future Development. *SHS Web of Conferences, 168*.

Link to the paper:
https://tinyurl.com/ynpf4m29

Article summary:

This article explores the growing use of AI in foreign language teaching, highlighting both its advantages and challenges.

Speech recognition technology allows students to practice speaking and listening skills, providing immediate feedback on pronunciation and intonation. Students can interact with the language more naturally and gain confidence in their communication skills.
Machine translation technology assists students in understanding foreign language texts by providing quick and accurate translations, improving translation efficiency and quality. Students can focus on learning and consolidating language knowledge.
Natural Language Processing (NLP) technology offers personalized learning materials by analysing student performance in various language areas. NLP helps students learn language more naturally by analysing authentic language data such as news articles, social media posts and conversation transcripts.

Chatbot technology enhances students' language skills by providing a personalized and interactive learning experience. Chatbots enable students to practice speaking and listening naturally, receiving immediate feedback and corrections on pronunciation, grammar, and vocabulary usage. They also act as a source of language learning materials, providing real-time translations, definitions, and explanations of complex grammar structures.

Facial recognition captures facial expressions, such as changes in the mouth, to help students better learn a foreign language. By observing the teacher's mouth shape changes and pronunciation style, students can imitate and learn more effectively.

AI offers a number of advantages. First of all, AI provides students with plenty of language materials and practice opportunities through speech recognition and machine translation. AI tailors teaching content and methods based on students' individual learning situations and characteristics. Furthermore, it provides students with fast and accurate language materials and practice opportunities.

On the other hand, among the disadvantages of AI there is the inability to fully replace human teachers: AI cannot fully replicate the role of human teachers, particularly in aspects of language expression and interpersonal communication. Moreover, AI

teaching methods are often mechanized and monotonous, lacking a human touch and failing to provide diversified learning experiences. There are also technical limitations and safety risks: the accuracy of speech recognition technology can be affected by heavy accents; machine translations may be inaccurate and chatbot technology could lead to privacy risks.

The article predicts that AI in foreign language teaching will become more intelligent, interactive, personalized, and efficient. Future trends include personalized education: AI will analyse student data to customize teaching content and methods. AI will also simulate real-life scenarios to help students apply their language skills. It will use games, virtual reality and conversational agents to make learning more engaging. In addition, AI-powered language learning platforms and robots will assist students in mastering language knowledge and skills.

The article concludes that AI has significant potential in foreign language teaching, but careful consideration and exploration are needed to address challenges and fully utilize its benefits. The article offers several suggestions for the successful implementation of AI in foreign language teaching, including training teachers on AI technologies, ensuring data security and privacy protection, using AI for personalized education and contextualized teaching, developing humanized teaching methods, and continuously innovating in AI application approaches.

Personal observations/recommendations:

This article offers a very straightforward and effective summary of the challenges and future development of AI.
Its added value lies in the overview, provided in the introduction, of the integration of AI technology into education (especially in foreign-language learning) in China and in the United States, which are two of the main countries of reference in this area of research.

Paper references:

Makhmutova, A., Kondrateva, I., & Zinnatullina, A. (2004). Dictation practice enhanced by artificial intelligence: a modern approach to language learning. In *INTED2024 Proceedings* (pp. 1225-1232). IATED

Link to the paper:
https://library.iated.org/publications/INTED2024

Article summary:

This article explores the idea of using dictation practice in language learning, focusing on the role of artificial intelligence. The authors begin by examining the cognitive and linguistic benefits of dictation, including improved listening comprehension, spelling and punctuation skills, vocabulary retention and understanding of sentence structure. They argue that dictation helps students connect oral and written expression, a key aspect of language acquisition.

The article discusses two different types of dictations, phonemic and orthographic dictation. It highlights orthographic text dictation as particularly valuable, as it allows students to practice writing meaningful texts in the target language based on verbal cues. The article lists various benefits of dictation for both teachers and students: one the one hand, it enables class-wide participation, helps identify and correct student errors quickly, eases lesson preparation and grading; on the other hand, it provides active class participation, improves note-taking skills, offers writing practice, including penmanship, helps identify and correct errors, and develops a sense of responsibility for correcting mistakes.

The article explores how AI can revolutionize dictation practice by making it more interactive, personalized, and impactful. AI technologies like Automatic Speech Recognition (ASR) and Natural Language Processing (NLP) can provide real-time feedback and identify errors in grammar, spelling and punctuation.

The benefits of AI-driven dictation are the following: it compares student transcriptions with accurate versions generated by AI speech recognition systems; detects and provides feedback on errors; exposes students to various accents and speech speeds; adjusts difficulty levels and provides personalized materials based on student progress. The authors stress the efficiency of AI in streamlining the correction process, offering immediate and personalized feedback.

The article emphasizes the potential of AI chatbots in enhancing dictation exercises. These chatbots can transcribe dictated content, compare it to the original text and provide instant feedback on pronunciation, grammar and vocabulary. Their key features are: precise speech recognition; intelligent error rectification; adaptive learning strategies; constructive feedback and user-friendly interface. By incorporating these

features, AI chatbots can significantly improve student learning outcomes and accelerate language proficiency.

The authors present a case study of an AI-supported Telegram bot designed to enhance dictation practice. They discuss the role of modern messengers like Telegram in online education, highlighting the potential of Telegram bots to create interactive and engaging learning experiences.

The authors argue that the bot offers several benefits, including automated grammar checking, structured text evaluation and cross-platform availability. Furthermore, the article highlights the bot's ability to provide personalized instruction and analyse student mistakes. The bot tracks student progress, adapts difficulty levels and offers targeted feedback to address individual weaknesses, tracking progress and recurring mistakes. It analyses error patterns to identify specific areas where students struggle and tailor subsequent dictations to address these weaknesses. The AI also uses its knowledge of common errors to provide pre-emptive prompts and tips, preventing mistakes and enhancing accuracy in real-time.

The article concludes that integrating traditional dictation exercises with modern technology like AI-powered chatbots can revolutionize language instruction. The authors emphasize the benefits of this approach for both teachers and students, leading to improved language skills, personalized learning experiences and increased efficiency in language teaching.

Personal observations/recommendations:

AI-driven dictation seems a good practice to add to a teacher's toolbox. Telegram bots should be considered as a way to reimagine the learning process in L2 teaching. Moreover, the exposure of students to various accents and speech speeds represents a great advantage for, among other things, learning English as a lingua franca of international communication, a language use which includes a whole range of diatomic, diamesic and diaphasic variations.

Paper references:

Nikonova, E., Yakhyaeva, K., Pivkina, N., & Schetinina, A. (2023). Using Artificial Intelligence Tools in Teaching a Foreign Language in Higher Technical Institutions. *European Journal of Contemporary Education, 12*(2).

Link to the paper:
https://doi.org/10.13187/ejced.2023.2.578

Article summary:

This article considers the integration of digital intelligent technologies into foreign language instruction at technical universities.

The authors argue that technological advancements and the increasing digitalization of society necessitate the use of digital tools in education, including foreign language teaching, in particular in Russia.

Different elements of intelligent digital education platforms and systems can be used in universities for teaching a foreign language. Massive Open Online Courses (MOOCs) on platforms like Coursera, edX, and My Education FP can be used to improve skills and knowledge, develop competencies in a specific field, prepare students to study abroad, and enhance job prospects. Internet services and portals like Cisco Webex, Google Classroom, Google Forms and LearningApps can be employed to administer learning assignments, video lectures (streamed or recorded), administer tests and quizzes, including online testing, online voting, progress assessment and analysis, sharing materials between students and teachers/lecturers, and data retrieval. Digital learning management platforms such as Moodle, Ilias and Edmodo can be used for distance learning and direct classroom instruction, testing, listening, monitoring of attendance and progress, feedback, and sharing experiences. Finally, university-developed intelligent applications using artificial intelligence algorithms can personalize the learning process and develop student-cantered strategies.

The article emphasizes the potential of AI in optimizing teaching and learning processes, particularly through personalized learning based on data analysis. It reviews AI applications like chatbots and discusses the advantages of using AI algorithms to handle routine tasks, freeing up teachers for professional development.

The authors outline a five-stage strategy for implementing AI in higher education institutions, highlighting the need for planning, design, development, testing and monitoring. They also address the challenges of developing and structuring AI algorithms, including the need for extensive databases and rigorous checks for accuracy.

The article describes a pedagogical experiment conducted at Saint Petersburg Mining University to assess the effectiveness of integrating digital technologies into foreign language teaching. The experiment involved control and experimental groups, with the experimental group utilizing digital technologies while the control group received traditional instruction.

The results of the experiment indicated that the use of digital learning enhanced student learning activity and motivation. While statistically significant differences between the groups were not observed, students in the experimental group demonstrated improvements in lexical skills and overall performance.
The authors conclude that digital learning platforms and AI have the potential to significantly improve the effectiveness of education. They call for interdisciplinary collaboration to develop advanced language learning systems that leverage the power of AI.

The article highlights the increasing importance of digital technologies and AI in foreign language instruction, particularly within the context of technical universities. It offers valuable insights into the challenges and opportunities associated with implementing these technologies in educational settings.

Personal observations/recommendations:

The authors recommend a known off-the-shelf free solution, DialogFlow, based on Google's cloud solutions, designed to make chatbots. The platform apparently offers a friendly interface, and many of the processes are performed automatically with a reasonably good quality.

Paper references:

Flowerdew, L. (2024). Corpus-based ESP Genre Analysis and Corpus-Assisted Discourse Studies (CADS): Exploring Connections. *Journal of Corpora and Discourse Studies*, 7, 22-42.

Link to the paper:
https://jcads.cardiffuniversitypress.org/articles/10.18573/jcads.124

Article summary:

Corpus-assisted discourse studies (CADS) and corpus-based genre analysis (CBGA) are two distinct but related fields that use corpus linguistics to analyse language. CADS focuses on political and media discourses, while CBGA focuses on academic and professional genres. Despite their different focuses, CADS and CBGA share many commonalities in terms of their linguistic inquiries.

The article examines three key linguistic insights from CADS research: co-selection/co-occurrence, lexical priming, and evaluative cohesion, showing how these areas are also relevant to CBGA.

Co-selection/co-occurrence refers to the tendency of words to occur together in predictable patterns. In CADS, this principle is used to analyse how language is utilized to create meaning and persuade audiences. For example, Partington and Marchi's (2015) analysis of the word "job" in press briefings by the Obama administration showed that it was frequently used to praise government officials and service personnel, creating a positive image of the administration.

In CBGA, co-selection/co-occurrence is used to help students understand the conventions of academic writing. For example, Diani (2012) used a corpus of linguistics research papers to show her students how the verb "argue" tends to co-occur with negative evaluations of reported claims, teaching them about the rhetorical strategies used in academic discourse.

Lexical priming is the idea that exposure to a word or phrase can influence the way we interpret and use language. Hoey's (2005) theory of lexical priming suggests that words are mentally primed for collocational use based on our previous encounters with them in speech and writing.

CADS research is primarily concerned with receptive primings, which occur when we encounter language in contexts where we are not expected to be active participants. In contrast, CBGA focuses on productive primings, which occur when we are expected to produce language in specific contexts.

For example, Charles (2007) used a corpus of successful theses to show students how the conjunction “while” is often used to concede a point before defending the writer’s own position, teaching them a specific rhetorical strategy used in academic writing. Evaluative cohesion refers to the way in which evaluation is spread throughout a text, creating a coherent overall impression. In CADS, this principle is used to analyse how language is used to create and maintain particular evaluations of people, events and ideas.

For example, Alessi and Partington (2020) analyse how a negative impression of George Bush is created through a chain of negatively evaluated items in a newspaper article. In CBGA, evaluative cohesion can be mapped onto rhetorical move structures to help students understand how writers construct arguments and convey their stance.

For example, Flowerdew (2016) analyses a grant proposal abstract, showing how it follows a Problem-Solution pattern and uses evaluative language to persuade the reader of the merits of the proposed research.

Both CADS and genre analysis are evolving fields that are increasingly focusing on contextual features and the impact of digital technologies on language use. The article suggests that future work in both areas will likely involve more interdisciplinary collaborations and investigations of how digital and multimodal genres are utilized.

Moreover, both discourse analysis researchers and DDL (Data Driven Learning) practitioners have considered the impact of ChatGPT on future corpus work, which has implications for CADS and CBGA. Notably, Curry et al. (2024) present three replication studies of previously published work designed to investigate the affordances of using ChatGPT for conducting automated qualitative analysis. In two of their cases studies, ChatGPT performed poorly. Meanwhile, Crosthwaite and Baisa (2023), while exploring the potential advantages and disadvantages of GenAI vis-à-vis the use of corpora for DDL, note that from current large language models underlying applications like ChatGPT it is not possible to track the domain of texts from which the corpus is derived.

Personal observations/recommendations:

At the moment there seem to be significant drawbacks in using GenAI for CADS research and CBGA activities. Nonetheless, it’s worth monitoring the progress of GenAI in these two related fields. Based on the theory of lexical priming, researchers and teachers should use chatbots more often to explore and teach collocational uses in speech and writing.

Paper references:

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)

Link to the paper:
https://jonedu.org/index.php/joe/article/view/3115

Article summary:

This literature review examines the impact of AI on the future of English language teaching and learning. The authors explore the effectiveness of AI tools such as intelligent tutoring systems and chatbots in improving language proficiency and learner engagement. AI-driven language assessment methods, including automated scoring systems and speech recognition technology, are examined as well. The authors highlight the potential benefits of AI in improving language proficiency and assessment, while emphasizing the importance of responsible implementation and ongoing evaluation to ensure ethical and equitable practices.

AI can benefit both teachers and students in teaching and learning English. More specifically, AI technologies can assess learners' strengths and weaknesses and generate customized learning paths and materials, allowing teachers to address students' specific areas for improvement. AI-powered chatbots and virtual language assistants can engage students in realistic conversations, provide instant feedback and offer opportunities for extensive language practice. AI technologies can provide immediate feedback on pronunciation, fluency, grammar, vocabulary, and sentence structure. AI algorithms can analyse vast amounts of data to identify relevant learning materials, including authentic texts, videos and interactive exercises. AI-based language assessment systems can automate the grading and evaluation process. AI-powered language support tools and translation services can aid in understanding and translating complex texts. Finally, AI can generate valuable data and analytics on students' progress and performance.

The review also identifies challenges and ethical considerations associated with the integration of AI in English language teaching and learning. Some of these challenges include concerns related to data privacy, algorithm bias and the potential impact of AI on learners' motivation and social interaction. The authors highlight the need for careful implementation, ongoing monitoring and ethical guidelines to ensure responsible use of AI technologies in language education.

The authors conclude that AI has the potential to significantly impact English language teaching and learning by enhancing personalized instruction, providing efficient

language assessment and fostering learner autonomy. However, they emphasize the importance of careful consideration of pedagogical implications, ethical concerns and the role of teachers to maximize the benefits and mitigate the challenges associated with AI integration.

Personal observations/recommendations:

Personalized instruction undoubtedly is one of the main advantages of integrating AI in English language teaching and learning, especially in contemporary university classes, where often the students come from very diverse ethnic, cultural and linguistic backgrounds. The opportunities for extensive language practice offered by chatbots, able to generate customized learning paths and materials, should not be overlooked.

Paper references:

Benabdallah, A. (2023). Investigating the Future of ESP Teaching in the Age of Artificial Intelligence. *Annals of Ştefan cel Mare University of Suceava Annals of Philosophy, Social & Human Disciplines Series*, 2: 77-93

Link to the paper:
http://www.apshus.usv.ro/arhiva/2023II/APSHUSDec2023_77_93.pdf

Article summary:

The article examines the perspectives of 40 English for Specific Purposes (ESP) instructors working in 40 Algerian higher education institutions on the integration of Artificial Intelligence (AI) ESP teaching. The study focuses on potential applications of AI in ESP and their capacity to influence the field of ESP teaching. The author adopts a case study approach: a web-based questionnaire was employed as the primary instrument for data collection. This questionnaire sought to measure the teachers' awareness of AI, its potential uses in ESP, and their perception of its advantages and drawbacks.

The article starts with an outline of the history of ESP teaching, highlighting its shift from traditional educational methods to the incorporation of technology-based approaches. This transition is driven by the need to match the learners' requirements and the demands of digital tools as applied in education. The author underlines that a significant body of literature advocating for the integration of diverse forms of communication, media, and technological tools testifies the recognition of the technology's importance in ESP classrooms.

Pages 80-81 is dedicated to exploring the use of AI in ESP classrooms. The author underscores the potential of AI-related technologies to enhance both teaching and learning experiences; Zhu's (2022) article is mentioned as an example where an AI tool is shown to be beneficial to ESP teaching (this works investigates the use of the Back Propagation Neural Network (BPNN) for identifying learning difficulties and evaluating teaching quality). The article also discusses Ahmed et al. (2022), where the use of ChatGPT in ESP teaching and learning is discussed (as a tool to create customized grammar and vocabulary courses tailored to specific target settings).

Starting from p. 82 the research by Benabdallah is illustrated. Its goals are to determine ESP Teachers' Awareness of AI and to explore the role of AI in enhancing ESP teaching. The results are discussed on p. 84ff. A majority of ESP instructors who participated in the research demonstrated an understanding of AI and its possible applications in education. Many were able to define AI and express support for its inclusion in their ESP classrooms.

Teachers who favoured the use of AI in their classrooms motivated this by referring to the desire to stay updated on technological advancements, cater to learner needs, and

leverage AI's capabilities in the teaching processes. Specifically, they saw AI as potentially beneficial for syllabus design, lesson preparation, objective setting, optimizing time management, as well as in the area of evaluation and assessment. They also recognized its potential for facilitating tasks like translation, text summarization, and paraphrasing. Finally, the study found a strong consensus among teachers regarding the need for technical training for both instructors and learners to ensure effective use of AI in language teaching.

Based on these findings, the article concludes by emphasizing the importance of aligning ESP teaching practices with the evolving needs of learners in the digital age. The author specifically recommends that governments and departments of education take proactive steps to invest in the necessary infrastructure, including access to AI tools and applications, and training initiatives for both instructors and students. The ultimate aim is to bridge the gap between practical, real-world applications and the demands of a digitally driven learning environment.

All in all, the article underscores that AI has the potential to significantly enhance the teaching and learning of ESP, but its successful integration requires careful planning, investment in training and resources, and a thoughtful approach to its implementation in order to avoid a potential gap between perception and implementation: factors such as limited access to AI tools, insufficient training, and potential scepticism may contribute to this gap. AI can serve as a valuable tool to support ESP teachers and learners, but it should not be seen as a replacement for the fundamental roles and responsibilities of skilled ESP practitioners.

Personal observations/recommendations:

The article offers a comprehensive review of the literature, tracing the history of ESP teaching from traditional educational methods to the incorporation of technology-based approaches. It then focuses on a valuable collection of examples showcasing the use of AI in ESP teaching. The questionnaire directed at 40 teachers reveals their openness to integrating AI into various aspects of teaching. However, the article rightly highlights the need for enhanced training for both students and educators in the effective use of AI in classrooms, as well as the necessity of institutional support and intervention.

Paper references:

Du, J., Alm, A. (2024). The Impact of ChatGPT on English for Academic Purposes (EAP) Students' Language Learning Experience: A Self-Determination Theory Perspective. *Education Sciences*, 2024, 14, 726.

Link to the paper:
https://doi.org/10.3390/educsci14070726

Article summary:

The article explores how ChatGPT impacts English for Academic Purposes (EAP) students' language learning experiences, specifically through the lens of self-determination theory (SDT). The qualitative study focuses on how using ChatGPT in EAP learning environments affects students' basic psychological needs of autonomy, competence, and relatedness.

The authors interviewed 24 postgraduate EAP students at a New Zealand university, all of whom had been using ChatGPT for language learning for at least three weeks. The interviews were semi-structured and focused on the three basic psychological needs outlined in SDT, namely autonomy, competence and relatedness. A thematic analysis was conducted using the software MAXQDA.

The study found that ChatGPT significantly enhanced students' perceived autonomy in language learning. Four main topics emerged from the data concerning the learning process:

(i) Students appreciated the flexibility and the freedom to learn at one's own pace by using ChatGPT for EAP learning (the ability to use ChatGPT at any time, allowing them to tailor their learning schedules to their individual needs); (ii) Students felt empowered to identify and address their specific language-learning needs through ChatGPT, fostering a sense of control over their learning process; (iii) ChatGPT provided a comfortable environment for students to practice their language skills, particularly speaking, without fear of making mistakes, thus avoiding the fear of judgment; (iv) Some students expressed concern about an overreliance on ChatGPT, which would lead them to become overly dependent on the tool, potentially hindering the development of autonomous learning skills in the long run.

According to the authors, ChatGPT also had a significant impact on students' sense of competence, both in academic and everyday contexts. ChatGPT provided students with feedback and corrections, helping them to improve their pronunciation, grammar, and vocabulary; it provided students with relevant examples to illustrate language concepts, aiding their understanding and application; moreover, students felt more capable and confident in their ability to complete language tasks after using ChatGPT.

At the same time some concerns also emerged from the data with respect to the parameter of competence. Some students questioned the tool's accuracy and relevance of responses as well as the ability to adequately support complex language tasks, particularly academic writing; some students also worried that ChatGPT might not be able to adapt to students' improving competence and skills as they progress.

As for the third parameter of SDT-Theory, namely, relatedness, the authors suggest that the impact of ChatGPT on relatedness was mixed. Some students felt a sense of companionship and guidance from their interactions with ChatGPT. At the same time, many students highlighted the limitations of AI in replicating the emotional and social connections essential for a sense of belonging, which is a fundamental lever in terms of motivation to achieve educational goals. Moreover, some students reported feeling more isolated due to reduced face-to-face interaction with classmates and teachers, and some expressed concern about the potential for ChatGPT to increase competition among classmates, enhancing peer pressure.

All in all the study highlights the nuanced ways in which AI tools like ChatGPT can impact the motivational dynamics of language learning. ChatGPT demonstrated potential in supporting autonomy and competence, but limitations were highlighted in terms of reduced emotional connection with the educational environment. Because of this, integrating AI tools into language education should be carefully planned in order to ensure that strategies are implemented to address potential challenges like social isolation.

The study acknowledges limitations, including the focus on a specific student population and the potential for bias in ChatGPT's responses. The authors recommend future research explore the use of ChatGPT in diverse EAP contexts and cultural settings, the long-term effects of ChatGPT on language development and critical thinking and the ethical implications of using AI in language education.

Personal observations/recommendations:

This paper excellently addresses fundamental issues related to the integration of AI tools within language-for-specific-purposes courses. Within the framework of SDT, the authors conduct interviews with students who have used ChatGPT in EAP learning. While students responded positively to the autonomy, personalization, and safe environment offered by ChatGPT, they also expressed concerns about becoming overly reliant on this AI tool. Despite the observed improvements in students' competence, the authors emphasize the perceived lack of emotional connection in the educational improvement, which could negatively impact student motivation. Moreover, the bibliography includes seminal works in the field, further reinforcing the study's academic rigor.

Paper references:

Boeru, M. (2024). Exploring the use of AI Tools in Teaching English for Specific Purposes (ESP). *Scientific Bulletin 'Mircea cel Batran' Naval Academy*, *27*(1), 91-96.

Link to the paper:
https://tinyurl.com/3azsumvt

Article summary:

The article starts with a historical overview on AI. It then focuses on AI in the field of education, particularly language learning and teaching.

Section 2 is devoted to a review of relevant literature on the use of AI tools in English Language Teaching (ELT). It acknowledges the transformative impact of AI on ELT over the past decade, citing various applications and tools beneficial to both learners and teachers. The article discusses several studies that have explored the pedagogical implications of integrating AI into language classrooms, such as Liu et al. (2021), who found that AI-based tools have the potential to significantly improve students' English writing performance, enhancing their self-efficacy and self-regulated learning, and reducing their cognitive load. Another study by Shin (2018) demonstrated the effectiveness of AI in blended classes using the Flipped Learning approach, resulting in significant improvements in students' speaking, listening, and reading skills.

The article further highlights the positive impact of AI-based authoring platforms on teachers, enabling them to create personalized teaching activities and provide comprehensive and personalized feedback.

It then proceeds to provide an overview of various AI tools, categorizing them into several types, including language learning apps, pronunciation and speaking practice tools, support in the writing process, translation tools, virtual reality (VR) and augmented reality (AR), real-time assistance and interactive practice, and personalized learning experiences.

Section 3 focuses on the practical application of an AI tool in ESP, *Diffit for teachers*. The article describes Diffit as an AI-powered authoring platform designed to assist teachers in creating individualized materials that cater to students' specific language needs. The tool enables teachers to produce adaptable materials suitable for different proficiency levels, promotes comprehension and engagement through open-ended prompts, offers a variety of question formats and scaffolding, and incorporates visuals and graphics to create an inclusive learning environment. The author provides a detailed account of using Diffit to create a complete set of materials on "Troubleshooting Electrical Faults Onboard Merchant Ships" for Marine Electrical and Electronic Engineering students. The process involves accessing the Diffit website, inputting the chosen topic, and utilizing the generated text, resources, and quizzes. The author highlights Diffit's features, such

as providing a bibliography, generating a summary, offering key vocabulary lists with definitions and example sentences, and creating various types of questions and prompts.

The article then shifts focus to chatbots, describing them as computer programs designed to simulate human communication using AI. More specifically the study points to the positive impact of chatbots like ChatGPT on ESP teaching. Kovačević (2023) is cited for discussing the areas where ChatGPT can be leveraged in ESP, including generating specialized texts, creating vocabulary and comprehension activities, serving as a virtual tutor, and providing real-time feedback and assessment.

The article introduces a specific chatbot, *The Maritime and Naval English Guide-Maritime English Enhancement*, hosted by YesChat.ai. This chatbot aims to improve learners' professional communication skills through interactive role-plays, voice recognition for Very High Frequency radio conversations, and feedback. The author provides a practical example of using the chatbot to simulate VHF radio communication scenarios.

The article concludes by reiterating the significant impact of AI tools on the teaching and learning of English, particularly in reshaping processes, methods, pedagogies, and dynamics while addressing current challenges. It underlines that AI tools have the potential to offer personalized learning experiences, promote interactive practice, enhance writing skills through feedback, and contribute to a more inclusive, dynamic, and engaging learning experience for students.

Personal observations/recommendations:

The article provides a highly valuable collection of AI tools relevant to ESP teachers, including, among others, language learning apps, pronunciation and speaking practice tools, support for the writing process, translation tools, as well as virtual reality (VR) and augmented reality (AR) applications. It further explores the use of two distinct tools, which can serve as significant sources of inspiration for educators. The first is Diffit for Teachers, an AI-powered authoring platform designed to help teachers create personalized materials tailored to students' specific language needs. The second is a specialized chatbot, The Maritime and Naval English Guide-Maritime English Enhancement, hosted by YesChat.ai.

Paper references:

Brebera, P., & Bezdickova, Z. (2024). The potential of blended ESP assignments in the age of AI-generated students' language production. In *INTED Proceedings. 18th International Technology, Education and Development Conference. Valencia, Spain. 4-6 March, 2024*. Valencia, IATED: 1365-1370.

Link to the paper:
10.21125/inted.2024.0410

Article summary:

The article explores the intersection of blended learning, specifically in English for Specific Purposes (ESP) courses with the rising influence of AI in education. The authors argue that while AI tools offer unique opportunities, human-driven mediation remains crucial for meaningful language learning. They examine intra-linguistic mediation, a recently established category of the updated Common European Framework of Reference for Languages, defined as a key skill for learners to navigate the complexities of language in the AI era.

The authors conducted their research with university students studying healthcare and transport engineering. They structured their investigation in two stages, focusing on how students utilized various mediation strategies while completing integrated blended learning assignments. These assignments involved online forum discussions on the learning management system Moodle, followed by in-class presentations and discussions.

Stage 1 employed a questionnaire to gauge students' perceptions of their own mediation strategy use. The strategies included linking to previous knowledge, adapting language, breaking down complex information, amplifying a dense text by providing examples, and streamlining text for clarity.

Stage 2 took a deeper look at students' actual language production during the assignments. The health studies group's assignment was modified to incorporate elements inspired by AI, specifically prompting students to engage in reflective writing about healthcare ethics dilemmas and personal experiences. This modification aimed to encourage original thought and limit reliance on AI-generated text, prompting students to connect their writing to their knowledge and experiences.

The transport engineering group's assignment remained unchanged, but their language production was analysed using Text Inspector. This tool helped researchers identify potential differences in vocabulary complexity and the use of academic language across different parts of the blended assignment, allowing them to compare students' perceived strategy use from Stage 1 with their actual language choices.

The study revealed important insights into the specific ways students in these two fields engaged in intra-linguistic mediation: (i) Healthcare students successfully generated original, personalized work in their reflective writing assignments, demonstrating the effectiveness of well-designed tasks in minimizing over-reliance on AI-generated text and promoting authentic language production; this finding suggests that carefully structured assignments can guide students toward utilizing their own experiences and knowledge, fostering deeper engagement with the subject matter and encouraging genuine language use; (ii) Transport Engineering students utilized the strategies of linking to prior knowledge and breaking down information more frequently than they realized, highlighting the importance of raising awareness about their language choices and the strategies they employ in communication; students also showed a greater tendency to amplify dense text through examples and comparisons in their spoken presentations compared to their initial perceptions from the questionnaire, suggesting a potential gap between perceived and actual strategy use.

The authors conclude that while AI offers valuable opportunities for language learning, human-driven mediation remains an indispensable element for meaningful communication. They advocate for future learning designs that prioritize developing mediation skills, encouraging students to actively process information, select appropriate language, and communicate their intended message effectively. They also underscore the need to raise students' awareness of their own language choices and the strategies they employ.

In conclusion, the study emphasizes the need to reimagine language education in the context of readily available AI tools. By focusing on the development of intra-linguistic mediation skills, educators can equip students with the ability to navigate the complexities of language, utilize AI responsibly, and ultimately become more effective communicators.

Personal observations/recommendations:

Interesting article offering a valuable reflection on the fact that AI tools have huge potential in the field of ESP education but this potential is vacuous without the ability to mediate information and the exercise of critical sense towards the tasks the tools can help solve and towards the use of the tools themselves.

Paper references:

Dou, W. (2024, June). The Application of Generative AI Technology in ESP Courses for Civil Engineering Majors. In *2024 International Conference on Artificial Intelligence and Digital Technology (ICAIDT), Shenzhen, China 7-9 June 2024*, Los Alamitos, CA, USA, IEEE Computer Society: 144-147.

Link to the paper:
https://tinyurl.com/3d24j5kn

Article summary:

This article investigates the use of ERNIE Bot 4.0, a large language model developed by Baidu, in enhancing the English writing proficiency of civil engineering students in English for Specific Purposes (ESP) courses. The study focuses on the impact of this technology on both writing skills and student motivation for writing.

The introduction highlights the importance of ESP in Chinese universities and the significance of the College English Test Band 6 (CET6) for graduation and career prospects. The authors emphasize the need for teaching reforms to effectively address the practical needs of language learning and teaching, particularly in the area of writing, which plays a key role in CET6. The study aims to explore how Generative AI technology can contribute to improving educational quality and efficiency.

After an overview of Generative AI (section II), where the authors discuss two key concepts related to Generative AI, i.e., Large Language Models (LLMs) and the Transformer Model, in section III the article introduces ERNIE Bot 4.0, a generative dialogue product developed by Baidu based on ERNIE LLM. ERNIE Bot 4.0 represents a significant upgrade from its predecessor, ERNIE BOT 1.0, with enhanced understanding, generation, logic, and memory capabilities. The article highlights ERNIE Bot 4.0's diverse functions, including multi-turn conversations, text creation (e.g., writing emails, drafting copy, translating text), mathematical calculations, logical reasoning, and image generation. These capabilities make ERNIE Bot 4.0 a potentially valuable tool for improving efficiency and user experience in various domains, including education.

The study focuses on two specific functions of ERNIE Bot 4.0 relevant to education: continuation and polishing. The continuation function enables the seamless extension of text, while the polishing function refines language usage and optimizes sentence structure to enhance text quality.

Section IV is devoted to the research design. The author details the methodology employed in the study. Two groups of freshman civil engineering students from Beijing University of Civil Engineering and Architecture participated in the experiment, with one group serving as the experimental group (Class B8) and the other as the control group (Class B21). The teaching materials comprised ten authentic CET6 writing topics,

evaluation criteria focusing on five key aspects of essay writing, and two teaching tools: ERNIE Bot 4.0 and iWrite 2.0 automatic writing evaluation software. The study employed a mixed-methods approach, combining quantitative analysis of pre-test and post-test writing scores using iWrite 2.0 and qualitative data from focus group interviews to assess changes in students' emotions and attitudes towards English writing. The experimental group used ERNIE Bot 4.0 for text continuation and polishing before submitting their final essays to iWrite 2.0 for feedback and revision, while the control group followed a traditional writing process.

In Section V the author points out that the experimental group (using ERNIE Bot 4.0) demonstrated significant improvement in their writing proficiency compared to the control group, as evidenced by the paired t-test results of their post-test writing scores. The study concludes that integrating ERNIE Bot 4.0 into ESP writing instruction effectively enhances civil engineering students' writing abilities and outcomes. The authors also suggest that the use of ERNIE Bot 4.0 contributes to increased student motivation and enthusiasm for writing.

The conclusion section emphasizes the positive impact of ERNIE Bot 4.0-assisted English writing instruction on both writing proficiency and enthusiasm among civil engineering students. The authors call for further research to explore the applications of generative AI technology in language teaching to improve teaching effectiveness and learning efficiency.

Personal observations/recommendations:

This paper presents an intriguing approach to the issue. The design of the experiment is well-executed and should be taken into consideration in future experimental studies on the topic of ESP teaching and AI tools.

Paper references:

Christoforou, M. (2022). Enhancing the ESP lesson with IMMERSE: a pedagogical example of a metaverse language learning platform. In Conference Proceedings. Innovation in Language Learning 2022.

Link to the paper:
https://tinyurl.com/hvccv8u3

Article summary:

The article explores the use of the metaverse language learning platform, IMMERSE, to improve English for Specific Purposes (ESP) teaching. The author argues that virtual reality (VR) is becoming increasingly prevalent in education and offers unprecedented opportunities for student interaction with lesson content.

Advantages of VR in language learning include increased student motivation and engagement. It also allows for the simulation of contextualized learning scenarios and helps students practice their public speaking skills. VR offers a multisensory experience that replaces traditional interaction with immersive environments. Additionally, the increasing affordability of standalone VR headsets has made this technology more accessible to a wider range of learners.

Many VR applications lack a pedagogical foundation and are not designed to support teaching practices. Integrating VR applications like Mondly VR and ImmerseMe into a pedagogical context is crucial. The ESP field can benefit from VR by providing students with virtual trips to professional contexts, increasing the experiential element and simulating authentic conditions. However, the implementation of VR in ESP is still in its early stages.

The article then explores the use of a specific VR toll, IMMERSE. Founded in 2017, it focuses on long-term language interactions in realistic immersive contexts. It is the first synchronous VR language teaching and learning platform. IMMERSE offers generative AI-powered avatar practice that allows 24/7 access to pronunciation, vocabulary, and guided role-play conversation practice with dynamic avatars. It promotes a sense of community among students with common learning interests and needs.

IMMERSE allows students to practice functional language in authentic environments, developing their ability to use language in real-world contexts, as it offers "experiences" in various real-life contexts, including networking events, news stations, hotel rooms, airports, and medical offices.

The platform also fosters the development of transversal soft skills like collaboration, problem-solving, and communication through simulated professional scenarios. Students can practice in authentic professional situations such as networking events, news stations, hotel rooms, and airports. This allows them to interact with other users

and apply their transferable skills in a safe and controlled environment. Moreover, IMMERSE offers students the opportunity to practice public speaking in front of a virtual audience. This can help them overcome their fear of speaking in a second language and develop their presentation skills. This platform also allows instructors to design meaningful tasks that students can complete to achieve a common goal, encouraging collaboration, problem-solving, and communication. IMMERSE creates a sense of community among students, allowing them to interact with people who share their professional interests.

The article also provides brief examples of IMMERSE's capabilities, such as the "Airport Departure" and "News Station" experiences. The latter showcases the interactive "Placeables" feature, which allows teachers to position objects like whiteboards or scoreboards within specific virtual rooms.

The article concludes that IMMERSE has the potential to enhance the learning experience of ESP students by providing more engaging ways to communicate, interact, and collaborate. Christoforou encourages ESP instructors to implement this technology and for students to familiarize themselves with it.

Personal observations/recommendations:

The article highlights a promising application of AI powered VR, showcasing how IMMERSE can provide highly realistic and controlled English language practice experiences.

Paper references:

Rudik, I., Onyshchuk, I., & Maryna, T. G. (2024). AI tools for creating ESP learning materials: empowering educators and learners in the digital age. Оргкомітет конференції: Голова оргкомітету: ректор ОНУ імені ІІ Мечникова, проф. Труба ВІ Заступник голови оргкомітету: декан факультету РГФ, проф. Кравченко НО Члени оргкомітету: завкафедри іноземних мов профеійного спрямування Набока О. М, доценти кафедри іноземних мов профеійного спрямування: Віт НП, Онищук ІЮ, 142.

Link to the paper:
http://zfs-journal.uzhnu.uz.ua/archive/33/part_2/18.pdf

Article summary:

The article examines the transformative potential of artificial intelligence (AI) in teaching English for Specific Purposes (ESP). The article focuses specifically on the use of advanced AI tools, such as natural language processing (NLP) and large language models like GPT-3, to generate highly personalized and dynamic learning materials. The authors debate various implementations of these tools in different scenarios, starting from a comprehensive literature review and case studies to understand current practices, challenges, and opportunities in developing AI-assisted ESP materials.

Content generation and language modelling have diverse applications across various domains. These include text summarization, which creates concise summaries of longer texts; dialogue systems, which enable chatbots to engage in natural language conversations; content creation, which generates articles and descriptions for various subjects, such as marketing or journalism; language translation, improving translation quality; and text completion, predicting words in context for auto-completion in text editors and search engines.

The authors highlight that an effective use of AI could be in personalization of the material, as teaching involves connecting the material to students' personal experiences and interests to enhance understanding and motivation. AI can help bridge this gap by suggesting ways to relate academic concepts to students' interests. This approach complements traditional coursebooks and reduces teacher workload by integrating technology into education.

In English for Specific Purposes (ESP) courses, where content must align with rapidly changing industries, traditional coursebooks struggle to keep up with updates. AI, however, can dynamically adapt to industry changes by analysing real-time data and curating relevant content. For example, in healthcare or finance, AI can ensure course materials stay current with the latest standards.

AI is revolutionizing the creation of multimodal and interactive materials by enhancing content generation and user engagement. Multimodal materials combine text, images, audio, and video, while interactive materials enable dynamic user interactions. AI plays a key role by generating and adapting these materials, such as creating captions, descriptions, and audio transcripts, and synthesizing different media types. It also personalizes content by analysing user behaviour and preferences, tailoring experiences to individual needs.

AI enhances interactivity with tools like natural language understanding for chatbots, augmented reality (AR), and virtual reality (VR) for immersive experiences. Additionally, AI improves accessibility by supporting speech recognition, text-to-speech, and image recognition, helping users with disabilities interact with content. Through continuous feedback, AI optimizes materials over time, offering insights into user preferences and guiding future content development.

Using artificial intelligence (AI) in English for Specific Purposes (ESP) presents both opportunities and challenges. One challenge is the domain-specific nature of ESP, as AI models trained on general English may struggle with specialized terminology. However, collecting and annotating domain-specific datasets is also time-consuming. Additionally, developing AI-powered ESP platforms presents challenges, particularly in ensuring data privacy and providing accurate proficiency assessments.

Despite these challenges, AI offers significant benefits. It can help teachers create differentiated materials and personalized learning experiences more efficiently, reducing the effort needed for tasks like lesson planning. AI can suggest instructional methods and provide curated resources for teaching specific topics. Furthermore, AI can assist in designing alternative assessments, encouraging students to apply learning in real-world contexts, and suggesting project-based activities. By breaking down complex skills into manageable parts, AI helps teachers present abstract concepts more clearly. In summary, Rudik et al. (2024) offers a comprehensive overview of the transformative role of AI in teaching ESP. The article highlights both the opportunities and challenges presented by this technology, emphasizing the need for a balanced approach that combines the power of AI with the experience and pedagogical skills of teachers.

Personal observations/recommendations:

Although this work does not present any case studies or an experimental approach, it offers an interesting compilation of ways in which AI tools can be integrated into ESP teaching and the benefits they can provide. Among the advantages highlighted are the customization of materials based on students' needs and the ability to update content, which is particularly relevant in certain ESP fields where materials may evolve rapidly.

Paper references:

Shestakova, E. (2023). Using Generative AI in ESP Classes to Teach Formal Style. *Available at SSRN 4469507*.

Link to the paper:
https://tinyurl.com/2t9m9f9m

Article summary:

The author explores the use of generative AI systems, such as ChatGPT and GPT-4, in English for Specific Purposes (ESP) classes to teach formal style. Shestakova argues that these AI systems are particularly suitable for this purpose due to their ability to recognize and mimic different functional styles of language.
The article acknowledges the varied reactions within academic institutions regarding the use of generative AI in education. While some universities have banned the use of these tools due to concerns about academic integrity, others encourage educators to establish principles for the responsible use of such technologies. Shestakova emphasizes that using generative AI as illustrative material, rather than as a source of information, can mitigate many of the drawbacks associated with these systems, such as "hallucinations" or inaccurate information.

Shestakova suggests that generative AI can be a valuable tool for teaching formal style in ESP classes for several reasons: AI tools can make lessons more interactive and stimulating for students, facilitate the personalization of materials and activities based on individual student needs, and expose students to a technology that is increasingly important in the workplace.

The article presents concrete examples of how to integrate generative AI into ESP lessons, focusing on the task of writing a CV and cover letter. The task is divided into three stages: first, individual work where the student prepares preliminary materials for the lesson; second, a supervised classroom session guided by the teacher; and finally, a collaborative phase where students engage in peer discussions to exchange and provide feedback.

Students are tasked with preparing information for their CVs electronically before collaborating with the teacher to create effective AI prompts. The AI-generated output is then analysed to identify key elements of formal style, with a focus on comparing the original text to the revised version. Students are encouraged to reflect on the use of verbs, verbal phrases, adjectives, and sentence structures appropriate for a CV. In addition, they examine the overall structure of the CV, paying close attention to its sections and how each contributes to a professional presentation. Students are also invited to share their analyses with peers, using the feedback and insights to manually refine and edit their drafts. While Shestakova provides an example of a CV writing task that instructors can adapt for classroom use, she also suggests that the same strategy can be applied to teaching other types of formal texts, such as cover letters.

In summary, Shestakova's article argues that generative AI can be an effective tool for teaching formal style in ESP classes if used responsibly and thoughtfully. It provides practical examples and guidance on how to integrate these tools into classroom activities to enhance student learning and prepare them for the demands of the future workplace.

Personal observations/recommendations:

The article highlights the potential uses of AI tools in ESP teaching while acknowledging their limitations. A possible formal writing task is clearly presented, involving students interacting with ChatGPT under teacher supervision. This approach proposes integrating traditional teaching methods with new technologies.

Paper references:

Synekop, O., Lytovchenko, I., Lavrysh, Y., & Lukianenko, V. (2024). Use of Chat GPT in English for Engineering Classes: Are Students' and Teachers' Views on Its Opportunities and Challenges Similar? *International Journal of Interactive Mobile Technologies, 18(3)*.

Link to the paper:
https://tinyurl.com/3v9v995v

Article summary:

The primary objective of the study is to investigate the perceptions of students and teachers regarding its use in this specific context, focusing on the application of ChatGPT in English for Engineering, an area with limited existing research. Moreover, the study aims to analyse the attitudes of learners and teachers towards its integration into teaching and learning, its potential impact on academic integrity, and the specific strategies employed by both students and teachers in utilizing this AI tool.

The research adopts a quantitative approach, employing online questionnaires to gather data from 22 ESP teachers and 60 university students at the Igor Sikorsky Kyiv Polytechnic Institute. The questionnaires, structured into three main sections (attitudes towards ChatGPT, academic integrity, and usage strategies), were administered in June 2023, following the introduction of ChatGPT in Ukraine and its subsequent use in ESP teaching and learning practices. The questionnaires featured both multiple-choice questions and Likert scale statements, with response options spanning from "strongly disagree" to "strongly agree". Responses were gathered using the Google Forms platform.

Students generally held a positive view of ChatGPT, recognizing its value as a tool for ESP learning and acknowledging its advantages. In contrast, teachers expressed a more neutral stance, uncertain about its benefits and drawbacks in teaching, although they recognized its potential. Regarding academic integrity, significant discrepancies emerged between student and teacher perspectives. Teachers viewed the use of ChatGPT for completing assignments as a violation of academic integrity, while students were more uncertain. Both groups agreed on the need for university-wide guidelines on AI usage. In terms of usage strategies, students primarily employed ChatGPT for text analysis, grammatical rule exploration, and synonym/antonym comparison. Teachers, on the other hand, preferred using ChatGPT for generating learning tasks, creating report topics, and adapting authentic texts.

The study's findings underscore the importance of considering both technological and motivational factors when integrating ChatGPT into ESP courses. Students' enthusiasm for this innovative tool contrasts with teachers' cautious approach, driven by concerns about academic integrity and the development of language skills. In terms of skills

development, teachers largely shared the view that ChatGPT is unlikely to have a significant impact, or that its effect on students' English language communication skills—an essential focus in Engineering English courses—remains uncertain. This perspective was similarly held by the students. The questionnaire revealed key differences between students' and teachers' views on academic integrity and AI use. Teachers believed using ChatGPT for assignments violated academic integrity, while students were more uncertain. Most teachers supported AI plagiarism checkers, but students were divided, indicating a lack of awareness. Both groups disagreed on students collaborating with AI in writing, with teachers concerned about defining contributions.

Students preferred using ChatGPT for analysing texts and grammar, while teachers focused on generating topics and adapting authentic texts, reflecting their different needs. To integrate ChatGPT effectively into ESP classes, the authors suggest that teachers should employ a 5-Wh strategy: defining the purpose of using ChatGPT (*what*), choosing appropriate activities (*what kind of*), deciding *when* and *where* to use it, and adjust tasks based on students' proficiency (*who*). ChatGPT should be a supplemental tool, supporting, but not replacing, student effort.

The study emphasizes the need for careful planning, training, and policy development to ensure the effective and ethical integration of ChatGPT into engineering English courses. While ChatGPT offers new opportunities for language learning, the role of teachers remains crucial in providing support, feedback, and meaningful learning experiences. The authors suggest further research to monitor the evolving attitudes and experiences of students and teachers as they become more familiar with ChatGPT. Additionally, investigating the impact of ChatGPT on student academic performance would be valuable to assess whether its use leads to positive or negative outcomes.

Personal observations/recommendations:

This interesting article presents a questionnaire administered to students and teachers regarding the use of ChatGPT, their attitudes toward this tool, and the issue of academic integrity. Based on the concerns expressed by both teachers and students, the authors propose a useful operational strategy for employing AI tools, aimed at enhancing their use in ESP teaching and learning.

Paper references:

Taylor, P. (2024). Blended learning challenges of EFL undergraduate students: Student learning experience in an AI-integrated ESP course. Studies in English Language and Education, 11(3), 10

Link to the paper:
https://tinyurl.com/2n7dtb5c

Article summary:

The article delves into the complexities faced by university students learning English as a Foreign Language (EFL) in a blended learning environment that incorporates Artificial Intelligence (AI) into a specific-purpose English (ESP) course. The study specifically focuses on the learning experiences of students in an economics-focused English course at a Thai public university, utilizing Microsoft Teams and its AI-powered tools. Microsoft Teams has recently integrated a number of AI-powered language learning tools for its education version, e.g., Reading Progress, Insights, Reflect, and Turnitin. This offers an opportunity for English language teachers to adopt these tools in their BL ESP course design to enhance student learning experience, and an in-depth investigation of its potential is needed.

The author provides examples in which way AI-powered tools were implemented in the course design. For instance, in synchronous activities, students practised answering questions in Microsoft Teams assignment using OneNote/ Microsoft Word with Microsoft Editor, an AI-powered proofreading tool. In asynchronous activities, instead, they practised reading and pronunciation using Microsoft Reading Progress, an AI powered adaptive learning system for reading and pronunciation.

The study employed a mixed-methods approach to collect data from 57 Thai university students of varying English proficiency levels. Data was gathered through Microsoft Teams analytics, analysing student performance on assignments and quizzes, as well as their self-reflections on their learning progress and experiences. Additionally, learning experience questionnaires were administered, utilizing a 5-point Likert scale to gauge student perceptions of synchronous and asynchronous learning activities, teacher support, and technological challenges. Finally, semi-structured group interviews were conducted with 10 participating students to explore the specific challenges they faced in blended learning environments, particularly in relation to their experiences with Microsoft Teams.

The data analysis revealed both similarities and differences in the challenges faced by students in blended learning environments. While poor internet connection was identified as a primary technological challenge, overall, students expressed relatively few concerns about technology or online learning.

Regarding asynchronous learning, students reported lower satisfaction with at-home learning activities, emphasizing the need for increased support and motivation in these modes.

In terms of language proficiency, higher-proficiency students achieved better academic results but reported more negative blended learning experiences, possibly due to a lack of challenge in assigned tasks. Conversely, lower-proficiency students faced more challenges but also reported more positive experiences, benefiting from teacher support in using AI and ESP.

Both questionnaires and interviews highlighted the significance of teacher support and feedback, especially in face-to-face interactions, to overcome blended learning challenges. Students expressed a desire for more detailed feedback than provided by AI, emphasizing the crucial role of teachers in facilitating ESP learning.

The findings suggest that blended learning challenges are influenced not only by external factors like technology but also by internal factors such as student motivation. A lack of challenge in tasks can lead to decreased motivation, even among higher-proficiency students. The ESP component proved crucial, emphasizing the importance of teacher support to meet the specific needs of students in this context.

The study underscores the complexity of blended learning challenges in ESP contexts and highlights the importance of considering both technological and motivational factors when designing courses. While AI offers new opportunities for language learning, the role of teachers remains vital in providing support, feedback, and an effective learning experience. Further research is needed to explore blended learning challenges in diverse ESP contexts, particularly in light of the rapid development of AI.

Personal observations/recommendations:

The article provides a valuable bibliography. It introduces a novel approach to using Teams for teaching and research that was previously unknown to me. Furthermore, it offers a detailed account of the tasks assigned to students.

Paper references:

Yang, H., & Kyun, S. (2022). The current research trend of artificial intelligence in language learning: A systematic empirical literature review from an activity theory perspective. *Australasian Journal of Educational Technology*, *38*(5), 180-210.

Link to the paper:
https://doi.org/10.14742/ajet.7492

Article summary:

This article provides a systematic review of empirical research on AI in language learning, examining papers published from 2007 to 2021. The review analyzes 25 papers from peer-reviewed journals. The objective of the review is to pinpoint trends in AI technology, research designs, and language learning outcomes within AI-supported language learning environments. It also explores the utility of the Activity theory in understanding this evolving domain.

The review uncovers AI's application in supporting various facets of language acquisition, encompassing vocabulary, pronunciation, all four fundamental language skills (reading, writing, speaking, listening), and dialogue. Researchers have also leveraged AI to assess the learners' levels of attention and engagement, interest in the subject, and overall attitudes towards learning.

The review highlights three overarching categories of objects, or aims, within the studies, namely, intelligent tutoring systems, AI-supported automatic assessment systems, and AI technology for assessing learner-related issues.

The article points out that studies predominantly focused on the effectiveness of AI in bolstering students' learning across diverse language elements and demonstrated its efficacy in elevating learners' pronunciation, facilitating error correction, fostering a willingness to communicate, augmenting engagement in language learning, and mitigating anxiety.

Research on AI in automatic writing evaluation exhibited a shift from evaluating the effectiveness of AI-supported automatic writing evaluation to understanding learners' engagement with automated feedback. Although the findings revealed that automated feedback primarily targets mechanical errors and learners' engagement often remains at the level of superficial error correction, researchers found that combining automated feedback with input from teachers and peers could significantly benefit students' learning.

The review also reveals a clear trend in the application of AI technologies for language education. This includes the creation of intelligent tutors, pedagogical agents, and chatbots, as well as the utilization of AI for automated writing evaluation. One notable

trend is the progression of intelligent tutors from intangible, online-based systems towards more tangible and independent agents, such as humanoid robots. Initially, intelligent tutors existed within online systems, lacking a concrete image. However, the evolution of AI has led to the emergence of mobile apps incorporating text or audio interactions (like chatbots) and even tangible agents with humanoid appearances, like humanoid robots. The rising popularity of mobile technology has fuelled the development of educational apps, including chatbot-based mobile language learning apps, enabling language learning to transcend the boundaries of time and location. The integration of AI-based humanoid robots, or social robots, as instructional aids, particularly in children's language learning, has gained traction in recent years. Research indicates that these robots can facilitate children's thinking and perception, with some children even perceiving them as social entities.

The prevailing research design used in the analysed studies was experimental or quasi-experimental, with some studies employing case studies or interviews. Most research aims to validate the effectiveness of AI in language acquisition through diverse experimental settings. Building upon the results of experimental designs, the authors suggest that it is imperative to implement AI-supported language learning technology in authentic classroom environments or real-world learning scenarios outside the confines of traditional classrooms.

The authors posit that Activity theory provides a valuable framework for understanding the intricate interplay between learners, educators, and AI technologies within language learning environments. Activity theory emphasizes the reciprocal interaction between the human-technology-object triad within a context shaped by rules, community, and division of labour. The authors underline that it's not just a straightforward interaction between humans and technology, although the reviewed studies primarily concentrated on individual human-AI interactions, with only a handful incorporating collaborative elements.

A second key principle of Activity theory, the concept of contradiction, is applied to the review of previous research. The analysis reveals that most learner-AI interactions centre around non-communicative language use, such as pronunciation, vocabulary learning, and error correction, while outcomes are primarily measured through objective tests. The authors underscore the limitations of AI-supported language learning technology and virtual assistants in replicating genuine communication scenarios. Because of these teachers and students may exhibit distrust towards AI-supported marking systems due to the perceived inadequacy of such systems in comprehensively assessing language skills. Additionally, it merged that some learners may have experienced discomfort interacting with humanoid robots or dislike their machine-like voices.

The authors point out a need for future research in the domain of AI in language learning, particularly in shifting the focus from experimental settings to investigating learner interactions with AI in real-life scenarios. They also suggest exploring the role of AI in facilitating collaborative language learning designs. Furthermore, they recommend investigating how language and meaning are negotiated in AI interactions, examining the

cultural roles of teachers and students in these interactions, and understanding the impact of AI on power structures within these interactions.

Personal observations/recommendations:

This review article provides an overview of the trends in AI-supported language learning research from 2007 to 2021 based on analysis of 25 studies; it offers useful insights into the complex interplay between learners, technology, and pedagogical goals, highlighting key trends and areas for future research, such as the need for more studies on collaborative learning design supported by AI, the integration of teacher pedagogy with AI tools, and the exploration of ethical concerns. The paper was published before generative AI started to be used massively, but some of the ideas are still valid.

Paper references:

Yildiz, M. (2023). Exploring the Potential of Chatbots and ChatGPT in Enhancing Vocabulary Knowledge. In *Transforming the Language Teaching Experience in the Age of AI*, Hershey (Pennsylvania), New York, Beijing, IGI Global: 160-188.

Link to the paper:
https://tinyurl.com/54xfcyv8

Article summary:

The article discusses the integration of technology into education with particular reference to the use of chatbots in language teaching and in vocabulary teaching. The author claims that chatbots offer innovative and effective ways to teach vocabulary, potentially revitalizing learners' interest. They provide contextualized examples and meaningful interactions, promoting vocabulary acquisition through conversation mimicking and engaging learners in dialogue.

Chatbots are becoming valuable tools in language education, enhancing language learning. Advancements in AI, machine learning techniques, and visual chatbot development platforms have empowered educators to create customized chatbots that provide accessible learning experiences. Platforms like Dialogflow allow non-programmers to build chatbots with natural language understanding models. These models interpret complex inquiries, handle misspellings, and offer multi-channel access for learners.

Chatbots are useful tools in language education as they facilitate natural language conversations, helping learners master language-related skills and promoting continuous learning experiences in various settings, covering aspects like vocabulary, grammar, and academic pragmatics. In higher education they are used to enhance speaking, listening, reading, and writing skills, with web-based and mobile messenger interfaces providing accessibility.

According to the author chatbots offer several pedagogical benefits, including convenience, acting as interlocutors, and reducing shyness.

The article then focuses on the use of chatbots in Teaching Vocabulary. Research on the topic suggests that chatbot use enhances vocabulary learning, motivation, and confidence. Studies have explored various perspectives on the use of chatbots to enhance vocabulary, including the effects on vocabulary skills, perceptions, motivation, the importance of curriculum-specific content, integration with digital games, the role of chatbots as mediators during reading, and the use of vocabulary learning tools.

The following section (p. 168ff.) is devoted to the use of ChatGPT in teaching vocabulary. ChatGPT can be fine-tuned to create personalized vocabulary and grammar exercises for

learners, providing valuable supplementary practice material. It offers explanations for unfamiliar terms in texts, engages in follow-up questions, and provides translations in learners' native languages. It also facilitates extensive vocabulary exploration by providing definitions, contextualized word usage, example sentences, and multiple meanings. It also provides extensive information and context, assisting learners in accessing dictionary definitions, grammatical information, phonetic transcriptions using the International Phonetic Alphabet (IPA), sample sentences, and additional meanings for polysemous words. It also explores word associations and related words, including synonyms, antonyms, and interchangeable vocabulary, provides insights into syntactic patterns and sentence constructions for specific words, and helps learners understand register and formality levels by showcasing word usage in different contexts, enabling them to adapt their language appropriately.

On a more teacher-side level it can also create flashcards and quizzes for vocabulary retention.

All in all, the article demonstrates the significant impact of AI, particularly chatbots and ChatGPT, on vocabulary knowledge and learning. These tools offer innovative and effective methods for vocabulary instruction, promoting learner engagement and multidimensional vocabulary growth. Integrate these tools into language learning processes to enhance vocabulary acquisition and overall language proficiency can be today an effective way to improve vocabulary in language teaching and learning. Further research is needed to explore the full potential of AI in language teaching and to develop more effective strategies for their implementation.

Personal observations/recommendations:

This article provides an analysis of the integration of chatbots, particularly ChatGPT, in vocabulary acquisition. It offers an excellent contribution to the field of computer-assisted language learning by providing an insightful overview of the role of chatbots and ChatGPT in vocabulary acquisition, discussing examples of ChatGPT's capabilities, such as providing explanations for unfamiliar terms, generating dictionary definitions and sample sentences, and creating vocabulary-focused exercises and quizzes.

Paper references:

Ying, Z. (2023). The Application and Reflection of Chatgpt on English Teaching and Learning. *Kurdish Studies*, *11*(2), 1670-1688.

Link to the paper:
https://kurdishstudies.net/menu-script/index.php/KS/article/download/728/356/1328

Article summary:

The article examines the potential of ChatGPT to enhance English language teaching and learning. The author suggests that AI tools like ChatGPT present new opportunities for pedagogy and scholarship, potentially transforming how English is taught and learned. The article reviews previous studies exploring AI's role in education, highlighting both the potential benefits and challenges. Studies cited suggest ChatGPT can be a valuable tool for teaching math and language, offering personalized learning experiences and improving student engagement. However, concerns are raised regarding academic integrity, plagiarism, and the need for responsible implementation strategies. The Technological Pedagogical Content Knowledge (TPACK) framework is presented as a crucial lens for examining how teachers can effectively integrate technology into their teaching practices. The article also explores research on augmented reality (AR) and virtual reality (VR) applications in education, noting their potential to create immersive and engaging learning environments.

The author argues that using ChatGPT in English language teaching aligns with key educational theories such as constructivism, collaborative learning, and Vygotsky's Zone of Proximal Development (ZPD). ChatGPT can facilitate interactive conversational exchanges, mirroring real-life social interaction, and enabling students to learn actively through immediate feedback. The article posits that ChatGPT can function as a "more knowledgeable other" to support learners within their ZPD, helping them achieve tasks beyond their individual capabilities. Additionally, it emphasizes the importance of reflection in the learning process, suggesting that learners can use ChatGPT to reflect on their interactions with AI and their learning progress.

The article also describes a mixed-method study that involved 1,000 English language learners in China. The sample included high school students (aged 15-18) and adult learners (aged 19-24) from a health professional institute. Data collection methods included surveys and interviews. The surveys utilized the TPACK framework and the Augmented Reality Applications Attitudes Scale (ARAAS) to measure attitudes and effects related to using ChatGPT in English language learning.

Quantitative results indicate a generally positive perception of ChatGPT among participants. Participants reported that ChatGPT enhanced their understanding of English language concepts, improved their language skills, increased their motivation to learn, and contributed to a positive overall learning experience. The highest mean score was associated with ChatGPT's ability to encourage active engagement in English learning.

Qualitative data analysis revealed several key themes: (i) Participants reported that ChatGPT proved effective in language learning; it provided valuable feedback, assistance, and explanations, ultimately improving their language skills and understanding; (ii) participants found that interacting with ChatGPT was engaging and motivating, encouraging them to actively participate in their English learning; (iii) participants appreciated ChatGPT's ability to tailor the learning experience to their individual needs, proving to be adaptable to individual needs; (iv) participants found ChatGPT easy to use and navigate; (v) participants suggested enhancements such as incorporating more interactive activities and improving the accuracy of ChatGPT's responses.

The author concludes that ChatGPT holds significant potential as a tool for English language teaching and learning. The findings suggest that it can enhance language acquisition, promote learner engagement and critical thinking, and personalize learning experiences; AI tools have the potential to transform English language learning. In claiming this the study align with existing research supporting the benefits of AI in education.

However, the author also emphasizes the need for further research to explore the ethical and practical implications of using AI in education and to ensure its responsible implementation. Moreover, the article also recognizes its limitations and call for further research to explore the use of AI in diverse cultural and educational settings.

Personal observations/recommendations:

This paper provides valuable insights into the perceptions and experiences of English language learners using ChatGPT. Based on a mixed-methods approach that combines quantitative surveys and qualitative open-ended questions, the article shows that the use of ChatGPT as a teaching and learning tool improves learning motivation and critical thinking, at the same time warning about unethical issues concerning AI tools in education.

Paper references:

Kohnke, L., Moorhouse, B. L., & Zou, D. (2023). ChatGPT for language teaching and learning. *Relc Journal*, *54*(2), 537-550.

Link to the paper:
https://shorturl.at/LNiy4

Article summary:

This technology review explores the potential benefits of ChatGPT, a generative AI chatbot, for language teaching and learning. It presents the affordances of ChatGPT and discusses debates and drawbacks. The review also highlights the digital competencies teachers and learners need to use ChatGPT ethically and effectively for language learning.

Intelligent chatbots have attracted the attention of language educators because of their ability to provide realistic and instant interactions in the target language. AI-powered chatbots utilize advanced techniques like natural language processing, machine learning, and deep learning to communicate intelligently and learn from interactions. Because of this they can serve as language-learning assistants and can provide linguistic input, stimulate interest, and contribute to learners' overall growth.

The authors point out that ChatGPT simulates authentic interactions, supporting various language learning aspects. It can define words, provide translations, correct grammatical errors, generate diverse text genres, and create quizzes. For example, learners can use ChatGPT to understand word meanings in context, obtain dictionary definitions and examples, and even generate different types of texts related to a single topic, like advertisements, emails, and dialogues. The chatbot can adjust language complexity to suit different proficiency levels and provide vocabulary notes in both the target and primary languages. Teachers can use ChatGPT to generate comprehension questions for reading tasks.

The article underlines that despite its potential, ChatGPT has sparked debates and concerns. One debate centers around ethical use, including cheating and assessment implications. While tools are being developed to detect AI-generated text, this does not address the fundamental utility and ethical considerations of ChatGPT. Another concern is the accuracy of responses, as they may be inaccurate despite sounding authoritative. This poses a risk, especially for younger learners who may not be able to verify the information. Cultural bias inherent in the source database and algorithms also raises concerns, as the content primarily originates from English sources and may not reflect diverse cultural perspectives. These debates have led to actions like blocking access to ChatGPT in some educational institutions.

The authors highlight that these drawbacks make it essential prioritizing a principled use of ChatGPT in education and language learning and developing strategies to manage these drawbacks. Both teachers and students need to develop specific digital

competencies to utilize ChatGPT effectively and ethically. Teachers require technological proficiency to interact with ChatGPT, pedagogical compatibility to design and implement learning tasks, and social awareness to critically understand its limitations and risks. Similarly, students need to recognize the limitations, use it responsibly, and understand their digital citizenship responsibilities. Educational institutions also need to establish guidelines, modify teaching and assessment practices, and prepare students for a world where AI-driven tools are commonplace.

All in all, this technology review presents initial ideas and examples of how ChatGPT can be used in language teaching and learning. It underscores the debates, drawbacks, and potential strategies to address them. AI-driven tools like ChatGPT are here to stay, necessitating advanced digital competence among language teachers and students to leverage their benefits while navigating their risks. ChatGPT has significant potential to promote engaging and adaptive language learning, encouraging teachers to explore its possibilities responsibly and enrich education in theoretically sound ways.

Personal observations/recommendations:

This article provides a good overview of ChatGPT and its potential applications in language teaching and learning. The authors underline the potential pedagogical benefits of ChatGPT, while also acknowledging the potential drawbacks related to the technology. Examples of these drawbacks include concerns about ethical use, the accuracy of responses, and cultural bias inherent in the database. However, the authors argue that rather than rejecting the technology, it is important for teachers and learners to develop the necessary digital competencies to utilize such tools effectively and ethically.

Paper references:

Law, L. (2024). Application of generative artificial intelligence (GenAI) in language teaching and learning: A scoping literature review. *Computers and Education Open*, 100-174.

Link to the paper:
https://www.sciencedirect.com/science/article/pii/S2666557324000156

Article summary:

This literature review article examines the use of Generative Artificial Intelligence (GenAI) in language teaching and learning. Since its launch in November 2022, GenAI has gained global attention with OpenAI's ChatGPT, powered by the generative pre-trained transformer-3 (GPT-3) large-language model.
This review aims to provide a comprehensive overview of the current research landscape and identify research gaps and future directions for GenAI application in language education. It includes publications from 2017 to July 2023 and analyzes 41 papers selected from four electronic databases.

The article underlines that most of publications focus on English as a Foreign Language (EFL) learners across various educational levels, including preschool, primary, secondary, and higher education, as well as international tests like CEFR and TOEFL. The review identifies several major areas of research within language teaching and learning, with the most predominant being writing and assessment.

The author claims that many studies suggest that GenAI, including ChatGPT and other chatbots, offer potential advantages in language education. These include personalized learning, rapid responses, improved language learning outcomes, enhanced learning experiences, and increased learner autonomy. GenAI can be used for various purposes such as generating teaching materials, lesson plans, providing personalized feedback, evaluating writing tasks, and supporting writing instruction. According to the author researchers have also observed potential positive impacts of GenAI on learner motivation, creativity, engagement, and writing quality.

The article points out that concerns have been raised regarding the potential challenges, limitations, and pedagogical impact of GenAI. These concerns include ethical considerations such as plagiarism, biases, and the potential hindrance of critical thinking and research skills. Some argue that GenAI programs might be perceived as shortcuts for writing, leading to academic dishonesty. Additionally, the review emphasizes the importance of addressing data privacy and security concerns.

Another issue the author draws attention on is the discussion on the lack of AI literacy, which according to him suggests a potential lack of awareness among language researchers and educators regarding data privacy issues within GenAI. He maintains that

teachers need to be aware of how user data is collected and used by GenAI programs to educate students on data privacy.

The review concludes by highlighting the need for further empirical studies to understand the long-term effectiveness and impact of GenAI tools, addressing ethical considerations, and promoting stakeholder engagement for responsible integration in language education.

Personal observations/recommendations:

This paper provides a comprehensive overview of the use of Generative Artificial Intelligence (GenAI) in language teaching and learning, providing excellent insights into the current state of research. It underlines the need for more empirical studies to assess the effectiveness and impact of GenAI tools in language teaching and learning, which should include measures of the quality of advancement in learning processes where GenAI is used a support tool, as well as ethical issues concerning the use of AI in education.

Paper references:

Crompton, H., Edmett, A., Ichaporia, N., & Burke, D. (2024). AI and English language teaching: Affordances and challenges. *British Journal of Educational Technology*, 55(6): 2503-2529.

Link to the paper:
https://bera-journals.onlinelibrary.wiley.com/doi/full/10.1111/bjet.13460

Article summary:

The article emphasizes the crucial role of English in various global domains and acknowledges the difficulties learners face in acquiring English proficiency. AI is presented as a powerful tool to address these challenges, offering a safe and engaging environment for language learning. The study positions itself within the broader field of ELT/L, recognizing the increasing integration of technology, particularly AI, in language teaching and learning.

A significant portion of the article is dedicated to reviewing existing research on AI in education, noting that many studies lack a specific focus on ELT/L or rely on predetermined frameworks, potentially limiting the scope of their findings due to confirmation bias. The study aims to bridge this gap by conducting a comprehensive systematic review specifically on AI in ELT/L, encompassing learners of all levels and types of AI, and employing an inductive approach to uncover emerging trends.

The study reveals a preponderance of research originating from Asia, particularly China, Taiwan, and Japan, suggesting a strong regional focus on AI in ELT/L. The rapid growth in publications from 2019 onwards indicates increasing interest and investment in this field, possibly fuelled by the rise of sophisticated AI technologies and tools.

An interesting finding is the dominance of research in higher education contexts, potentially due to the ease of participant recruitment and less stringent ethical considerations, compared to K-12 or adult learning settings. This highlights a critical need for more research in non-higher education contexts to ensure the findings are generalizable across diverse learner populations.

The study identifies five main areas where AI is being utilized in ELT/L:
(i) Speaking: AI supports pronunciation training, conversational practice, and language coaching through features like visual feedback, personalized instruction, and adaptive learning.
(ii) Writing: AI enhances vocabulary development, grammar accuracy, and feedback provision. AI-powered grammar checkers and translation tools are increasingly used, raising important questions about their impact on learner autonomy and writing development.

(iii) Reading: AI facilitates vocabulary acquisition through game-based learning and adaptive platforms, emphasizing the value of contextualized learning for comprehension and engagement.
(iv) Pedagogy: AI personalizes learning through score predictions, customized lectures, and context-based instruction. However, the study cautions against over-reliance on traditional pedagogies and encourages exploration of AI-powered innovations.
(v) Self-regulation: AI tools promote learner autonomy through support for goal setting, social presence, self-inquiry, and learning independence. Chatbots and other AI systems have been demonstrated to have the potential to reduce anxiety and foster self-directed learning.

The article points out that, while studies primarily focus on the benefits of AI in ELT/L, they also acknowledges potential challenges, which include technical issues and limitations in AI systems can disrupt the learning process, limited AI capabilities in processing natural language processing, leading to unnatural interactions and learner frustration, concerns about data privacy, the opacity of AI algorithms, and the potential for an overly artificial learning environment, and the risk of inadvertently prioritize certain dialects or language varieties, potentially marginalizing diverse linguistic and cultural backgrounds.

The study concludes by urging educators, policymakers, and researchers to proactively address these challenges and guide the responsible and effective integration of AI into ELT/L. The authors call for greater AI literacy among teachers, clear ethical frameworks for AI development and implementation, and continued research to explore the full potential of AI in enhancing English language learning across diverse contexts and learner populations.

Personal observations/recommendations:

The article provides a timely overview of the literature on the use of AI in English teaching, clearly defining the advantages and disadvantages identified in previous studies, current practices and limitations of such practices.

Paper references:

Ironsi, C. S. (2024). Exploring the potential of generative AI in English language teaching. In *Facilitating global collaboration and knowledge sharing in higher education with generativeAI*, Hershey (Pennsylvania), New York, Beijing, IGI Global: 162-185.

Link to the paper:
https://shorturl.at/uC61Q

Article summary:

This article explores the potential of generative AI in English language teaching (ELT) and the implications for learners and educators.

The author underlines that generative AI has applications in various educational domains, including personalized learning, content creation, intelligent tutoring systems, automated assessments, and creativity and artistic expression. Generative AI can create personalized vocabulary exercises, tests, and examples tailored to each student's needs and learning objectives. As for vocabulary, it can provide learners with comprehensive examples and explanations of vocabulary words in different contexts; it can generate image-based exercises that correlate words with associated visuals, as well as audio clips that pronounce vocabulary terms correctly; it can enhance vocabulary development by generating contextually relevant word lists, providing synonyms and antonyms, and offering example sentences; finally it can assess vocabulary learning by generating quizzes, exercises, and fill-in-the-blank questions also in the perspective of gamification of ELT practices.

As far as the writing practice is concerned, the author highlights that generative AI can be used to create a wide range of writing prompts, encouraging students to write frequently, providing real-time feedback, identifying areas for improvement, highlighting recurring errors, and offering specific suggestions for improvement. AI-powered tools can facilitate the creation of collaborative writing environments, allowing students to brainstorm ideas and co-write stories with their peers and AI agents.

Developing speaking skills can also be affected. Generative AI can support speaking activities through the use of speech recognition software and interactive conversation partners, evaluating pronunciation, fluency, intonation, and other aspects of spoken language, offering personalized feedback and targeted exercises. Moreover, AI-driven conversational agents can simulate real-world interactions, giving students the opportunity to practice speaking in a safe and controlled environment, exposing students to authentic language patterns, proper pronunciation, and idiomatic expressions.

Generative AI can be used also in reading and listening comprehension tasks. It can be used to create comprehension questions, cloze exercises, and summaries based on

learners' proficiency levels and learning goals; it can contribute to developing reading fluency by providing real-time feedback on pronunciation, intonation, and pacing through the use of speech recognition systems.

The author underlines some challenges implied in the use of AI in ELT: first it is essential to ensure the accuracy and reliability of AI-generated content; second, generative AI systems can perpetuate biases present in their training data; third, there is a risk of over-reliance on generative AI, which may limit opportunities for developing genuine communication and interpersonal skills; finally, some ethical considerations have to be made: data privacy, algorithmic transparency, and responsible use of AI-generated content are crucial ethical considerations.

All in all, the author claims that generative AI has the potential to revolutionize ELT by personalizing learning, streamlining content creation, facilitating feedback, and creating engaging learning environments. However, he underscores that it is important to address the challenges, ethical concerns, and ensure a balanced approach that combines AI with human expertise: to fully realize the benefits of generative AI, educators should consider its potential impact on students, teachers, and the future of ELT.

Personal observations/recommendations:

This chapter provides a useful overview of the potential of Generative AI to significantly impact on ELT. The authors highlight both the promises and challenges, advocating for a balanced approach that integrates AI while addressing ethical considerations. It emphasizes the need for further research to ensure effective implementation in using Generative AI in education.

Paper references:

Lestari, E. R., & Wicaksono, B. (2023). Exploring Students' Use of Chatbot AI for Solving Grammar Tasks. *Journal on Education*, *6*(1), 9992-10004

Link to the paper:
https://jonedu.org/index.php/joe/article/view/4637

Article summary:

This article investigates how first-year English Education Department students utilized ChatGPT to complete various grammar assignments. The authors conducted a qualitative study involving 28 participants who engaged in multiple-choice, dialogue and paragraph gap-filling, and picture series story tasks. Data collection methods encompassed reflective reports submitted by students after completing each task and in-depth interviews to further understand their approaches and experiences.

The study key finding is the identification of three distinct methods students employed to solve grammar tasks with ChatGPT: copy-pasting, L1-L2 translation, and detail-directed instruction.

Copy-pasting emerged as the most prevalent method, particularly for multiple-choice and gap-filling tasks. Students simply copied the question-and-answer choices from the provided word file and pasted them into ChatGPT, relying on the chatbot to generate the correct answer automatically. Participants generally found ChatGPT's performance satisfactory for these task types, appreciating its ability to provide both accurate answers and clear explanations.

The L1-L2 translation method was employed by a smaller subset of students, primarily for gap-filling and picture series story tasks. These students opted to translate the paragraph or story prompt into their native language (Bahasa Indonesia), solve it in their native language, and then utilize ChatGPT to translate their answers back into English. This approach suggests that some students feel more comfortable tackling exercises in their native language before relying on ChatGPT for language conversion. They also noted ChatGPT's advantage over other tools in its ability to identify tenses, a feature they needed for the picture series story task.

The detail-directed instruction method was predominantly observed in the context of picture series story tasks. Participants employing this method provided specific instructions to ChatGPT, outlining the desired format, tense usage, and narrative elements based on the provided pictures and guiding questions. However, this method proved more challenging and time-consuming, leading some students to abandon ChatGPT altogether for this task type. Some encountered difficulties formulating effective prompts, resulting in responses that did not meet the task requirements and necessitating manual adjustments. Others found it easier to complete the task using

their own knowledge or seeking assistance from peers. This suggests that ChatGPT's ability to handle tasks requiring creative writing and nuanced understanding of visual cues requires further development and refinement.

The authors underscore the growing role of AI in education, particularly in language learning. Their findings suggest that students are generally enthusiastic about using ChatGPT for grammar learning, appreciating its ability to provide quick answers, explanations, and translations. This aligns with previous research indicating the perceived value of AI chatbots as learning tools. However, the study also acknowledges the limitations of ChatGPT, highlighting concerns regarding the accuracy of its responses and its potential to hinder the development of critical thinking skills if relied upon excessively.

The authors conclude by advocating for a shift in grammar assessment practices, moving away from tasks easily solved by AI, such as multiple-choice and gap-filling exercises, and towards tasks that require higher-order thinking skills and knowledge application, such as the picture series story. This necessitates the development of innovative grammar assessments that leverage the strengths of AI while promoting critical thinking and in-depth understanding. The research encourages continued exploration into the pedagogical applications of AI in language learning, focusing on designing assessments that effectively integrate human intellect with the capabilities of AI tools.

Personal observations/recommendations:

The article illustrates a case study and tries to formulate qualitative considerations on the use of ChatGPT in carrying out specific tasks, concluding that the use of AI in language teaching is more suitable in carrying out complex tasks.

Paper references:

Meniado, J. C. (2023). The Impact of ChatGPT on English Language Teaching, Learning, and Assessment: A Rapid Review of Literature. Arab World English Journal, 14(4).

Link to the paper:
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4676585

Article summary:

This review article explores the various ways in which ChatGPT can enhance the process of teaching, learning, and assessing English as a second language. It provides an examination of how ChatGPT can be utilized in English language teaching and also assesses potential drawbacks and ethical considerations associated with incorporating this technology into education.

The article begins by outlining the many capabilities of ChatGPT, a text-based generative AI. ChatGPT is trained on vast quantity of human-generated text, so it is able to produce coherent and contextually appropriate responses to user prompts. It can translate languages, summarize texts, answer questions, and even generate creative content like poems and movie scripts. The potential applications for this technology in education are wide-ranging. For example, ChatGPT could act as a virtual tutor, providing students with personalized support, or as an assistant for teachers, helping them to design lesson plans and develop instructional materials.

The study focuses on the impact of ChatGPT on English language education within the "Four Strands Framework" developed by Nation (2007). This framework outlines four key aspects of language learning: meaning-focused input, meaning-focused output, language-focused learning, and fluency development.

The study discusses previous literature which shows that ChatGPT can contribute to each of these strands. For example, it can provide students with interesting and easy-to-understand texts, personalized learning resources, and interactive language learning experiences. It can also help students produce language by assisting with tasks like outlining, revising, and proofreading. Additionally, ChatGPT can help learners focus on language accuracy by identifying and correcting errors in their writing. Finally, it can promote fluency development by providing opportunities for meaningful language use in a variety of contexts.

The study also found that ChatGPT can be a valuable tool for teachers. It can help teachers design lesson plans and develop customized instructional materials. In addition, ChatGPT can assist with assessment by generating test questions and providing feedback on student writing; moreover, it shows promise as a tool for automatically grading written work based on predefined criteria.

While acknowledging the potential benefits of ChatGPT, the article also raises concerns about its use in education. Some of the issues associated with ChatGPT include its potential to generate inaccurate or biased responses, its role in facilitating academic dishonesty, the possibility of skills deterioration due to over-reliance on the tool, and concerns regarding data privacy.

The article concludes that ChatGPT is a powerful tool with the potential to transform English language education. However, it is important to be aware of the potential downsides of using this technology and to develop strategies for mitigating those risks. The author stresses the need for policies and guidelines to govern the use of ChatGPT in educational settings. He emphasizes the need for educational stakeholders to work together to ensure that AI is used ethically and effectively.

Personal observations/recommendations:

This review article analyzes the impact of ChatGPT on English language teaching, learning and assessment, providing a comprehensive examination of ChatGPT's potential involving different aspects of L2 learning focusing on higher education settings and offering valuable insights into the potential benefits (help create personalized lesson plans, provide personalized support, create instructional materials, etc.) and challenges (unethical use of the tool, create overreliance on the tool, etc.) of ChatGPT integration in language education.

Paper references:

Tafazoli, D. (2024), Exploring the potential of generative AI in democratizing English language education, *Computers and Education: Artificial Intelligence*, 7, 100275.

Link to the paper:
https://doi.org/10.1016/j.caeai.2024.100275

Article summary:

This article examines the potential of generative AI, specifically ChatGPT, to address educational challenges faced by English language teachers in Iran. The study is a qualitative case study involving 23 high school English as a Foreign Language (EFL) teachers in Iran.

The study's findings highlight Generative AI's capacity to provide diverse and up-to-date learning materials tailored to individual learners' needs, address ideological biases, and facilitate cross-cultural communication. Moreover, Generative AI offers personalized professional development opportunities for teachers, bridging the digital divide and empowering teachers with diverse levels of digital literacy. The study emphasizes the transformative potential of Generative AI in democratizing English language education, particularly in resource-constrained environments like Iran, where traditional obstacles hinder the effective implementation of technology in education.

The emergence of Generative AI provides opportunities for language practice, enhancing students' vocabulary, grammar, and comprehension skills. However, the article acknowledges potential challenges such as biases from training data, the need for accuracy and reliability checks of AI-generated materials, and privacy and security concerns related to student data.

The study addresses a significant gap in the research by focusing on the integration of Generative AI in resource-constrained environments. Existing literature primarily examines well-resourced settings, leaving a limited understanding of Generative AI's potential in contexts facing infrastructural and socio-political challenges. The article provides a comprehensive literature review exploring the affordances and challenges of Generative AI in language education, including its impact on curriculum design, student engagement, pedagogical innovation, and technology integration.

The literature review also examines the integration of technology into English language education in Iran, emphasizing the historical and political context. It underscores the impact of politico-economic sanctions, which restrict access to educational resources, including English language materials. The ideological underpinnings of the Iranian government, which influence curriculum content and teaching methodologies, are also discussed. Despite these challenges, recent technological advancements offer new possibilities for learning and collaboration. However, there is a lack of research

specifically examining how Generative AI can be utilized by language teachers in contexts like Iran to navigate educational challenges.

The study utilizes three data collection methods: focus group sessions, semi-structured interviews, and reflective essays. Participants engaged in focus group discussions after each webinar session, providing insights into their perceptions of Generative AI. Semi-structured interviews allowed for in-depth exploration of individual experiences and suggestions. Reflective essays provided opportunities for participants to contemplate the topic of Generative AI and share their insights. Thematic analysis, aided by NVivo 12 software, was employed to analyse the data.

Five main topics emerged from the analysis: (i) Generative AI provides diverse and easily accessible online resources, allowing teachers to find materials tailored to different proficiency levels and topics. (ii) Generative AI can be used to create personalized tutoring systems that provide individual feedback and support based on teachers' needs and questions; (iii) Generative AI is viewed as a neutral tool that can mitigate ideological biases by offering access to a wide range of materials from different cultural and linguistic backgrounds, fostering critical thinking and open-mindedness; (iv) Generative AI's user-friendly platform and intuitive interface make it accessible to teachers with varying levels of digital literacy; (v) Generative AI provides opportunities for simulated conversations with people from diverse backgrounds, promoting cross-cultural understanding and connecting teachers and students with global educational trends despite restricted communication channels.

The discussion section compares the study's findings with existing literature, highlighting the potential of Generative AI to democratize English language education in resource-constrained environments. The use of Generative AI to address ideological influences and overcome technological barriers, as well as its potential to facilitate cross-cultural communication, aligns with broader discussions on technology integration and educational equity.

The article concludes by emphasizing the transformative potential of Generative AI in revolutionizing English language education in Iran and similar contexts. It suggests practical implications for curriculum design, professional development, and policy-making in language education. The study also highlights the importance of ethical considerations, cultural sensitivity, and ongoing research to fully leverage the potential of Generative AI in diverse educational settings.

Personal observations/recommendations:

Excellent paper on a side issue related to language education in countries with limited access to original language materials and how AI tools can help overcome these shortcomings.