mapub.org/mapeh

MAP Education and Humanities

Volume 6

MAP Education and Humanities (MAPEH) is a scholarly peer-reviewed international scientific journal published by **MAP** - *Multidisciplinary Academic Publishing*, focusing on empirical and theoretical research in all fields of education and humanities.

E-ISSN: **2744-2373**

ORIGINAL RESEARCH PAPER

THE USE OF ARTIFICIAL INTELLIGENCE IN ENGLISH LANGUAGE TEACHING AND LEARNING: A PHENOMENOLOGICAL STUDY INTO VIENNESE MIDDLE SCHOOLS

Benjamin W. Jones

Pädagogische Hochschule Niederösterreich, *Vienna, Austria*

Correspondence concerning this article should be addressed to Benjamin W. Jones, Pädagogische Hochschule Niederösterreich, Vienna, Austria. E-mail: benjamin.jones.2021@teachforaustria.at.

MAP EDUCATION AND HUMANITIES

Volume 6

ISSN: 2744-2373/ © The Authors.
Published by **MAP** - *Multidisciplinary Academic Publishing*.

Article Submitted: **10 November 2025**
Article Accepted: **04 December 2025**
Article Published: **05 December 2025**

Publisher's Note: **MAP** *stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.*

ABSTRACT

Current research has highlighted both the potential and challenges of integrating artificial intelligence (AI) in English language teaching and learning (ELT/L). Studies have focused on AI technologies in education, encompassing personalised, independent learning for students and effective instructional and administrative support for teachers. However, classroom settings, particularly at lower secondary level, are currently under-researched as tertiary education has been the principal focus. Consequently, this study investigates how and why AI is being used and integrated in ELT/L in urban middle schools in Vienna. It explores teachers' perceptions, experiences, and motivations surrounding AI tools and their integration. Using a qualitative, phenomenological design, data were collected through semi-structured interviews with nine English language teachers and two headteachers from five participating middle schools. A thematic analysis revealed the themes of evolving teaching practices with AI tools, student use and impact, AI for personalised and autonomous learning, and teacher readiness and willingness to use AI. The findings of this study suggest that while AI is beginning to transform certain aspects of ELT/L in Viennese middle schools, there are barriers to successful adoption. These include teacher willingness, readiness, and training also students' digital skills and the potential misuse of AI. These insights contribute to a rapidly growing body of research on AI in language education and offer practical implications for teacher education and future research in AI-supported ELT/L.

Keywords: Artificial Intelligence, English language teaching and learning, Viennese Middle School, Lower Secondary School

https://doi.org/10.53880/2744-2373.2025.6.81

HOW TO CITE THIS ARTICLE
W. Jones B.(2025). **The Use of Artificial Intelligence in English Language Teaching and Learning: A Phenomenological Study into Viennese Middle Schools**.
MAP Education and Humanities, 6, 81-108. doi: https://doi.org/10.53880/2744-2373.2025.6.81

1. Introduction

Opinions on the use of artificial intelligence (AI) in Austria within an educational context are divided. Recently, surveys have revealed that Austrians' views on this new wave of technology range from advocating for a complete ban and efforts to limit potential harm, to the possibility of revolutionising the teaching profession through personalised and individualised learning. Perspectives on the use of AI in education demonstrate a high degree of variation (Helm & Große, 2024, pp. 371-378). A closer examination indicates that many teachers are already using AI and perceive it to be useful. According to a survey by the Austrian Federal Publishing House (ÖBV), 44.3% of educators in Austria reported having already used AI in their daily school life, and 55.9% found that AI was beneficial to student learning (ÖBV, 2024, p. 9). Such viewpoints are more than likely only to increase. One interesting aspect of the questions posed is that the focus was not simply on whether AI should be used in schools, but rather on when and how it should be used. These AI-powered tools are here to stay. Asking the binary question of "yes" or "no" is therefore belated; instead, the focus should be placed on considering the ways in which it should be used, the extent to which it should be used, and the guidance and limitations that should be placed on AI's usage.

Regarding current support, the Ministry for Education has outlined its stance on AI as a "chance for Austria's schools" (BMBWF, n.d.). AI is described as a technology capable of personalising learning, fostering innovation, and preparing students for a future increasingly focused on digital technology. While AI is often praised for its potential, digital technologies should not be overestimated, nor relied upon to deliver beyond their limits. As Selwyn (2021) notes, "any technology must also be considered in terms of the limits and constraints it imposes" (p. 9). Given its promises and challenges, AI should also be explored in relation to its interaction with the complex realities of education. The integration of AI tools does not happen in isolation but is embedded within broader educational systems shaped by pedagogy, policy, and social context.

This study primarily focuses on a Viennese middle school, examining AI's role in promoting educational equality within Austria's educational system. As an urban institution, its structures are significant, especially when considering differences between urban and rural schools (Zehetner et al., 2022; Eder & Neuweg, 2024). Education involves real individuals and experiences. Consequently, education and learning are inherently "phenomena that involve real people who live in real, complex social contexts from which they cannot be meaningfully abstracted' (Phillips, 2014, p. 10). Each educational experience is personal and distinct. Phillips' focus on context aligns with Selwyn's perspective on understanding the link between education and technology. Selwyn highlights that "learning is deeply intertwined with various dimensions of social life, such as family background, socioeconomic circumstances, gender, race, (dis)ability, and social class" (Selwyn, 2021, p. 6). This understanding is crucial when considering Viennese middle schools, which can generally be characterised as schools with students who have a migration background, are not L1 speakers of German, often come from lower socio-economic backgrounds, and frequently have parents with limited or no formal education (Erling, 2023; Soukup-Altrichter, 2024). Early academic tracking remains a core characteristic of the Austrian education system. Students are separated into differentiated institutions, grammar schools (AHS) and compulsory secondary schools (middle school), after successful completion of the fourth year of primary education. This early selection process, according to the OECD, affects equal opportunities in reading abilities (2020). Viennese middle schools, especially, have subsequently been perceived as "residual schools" (Flecker et al., 2020, pp. 306-307). Recognising these intersections is vital to understanding how AI and other technological advances are integrated into such educational settings. Therefore, examining the role of AI in Viennese middle schools demands a nuanced understanding of the socio-educational context.

This study investigates teachers' perceptions of integrating AI into English language teaching (ELT/L) in Viennese middle schools. The main research question asks: How and why have AI-powered tools been incorporated into ELT/L in these schools, and what are teachers' views on them? This broad question was expanded into several sub-questions:

- How have English teachers in Viennese middle schools integrated AI tools into their teaching?
- Which AI tools are used by these teachers?

- Why have they chosen to incorporate AI tools, and what benefits do they see?
- How do teachers perceive their own readiness to use AI in ELT/L?
- What are their views on students' use of AI in language learning?

The study involved semi-structured interviews with 11 participants, with both teachers and headteachers in Viennese Middle schools, across five different schools. Since the research is exploratory, a qualitative and phenomenological approach was employed. This approach provided deeper insights into how school leaders and English teachers experience and interpret the integration of AI in their classrooms. Overall, the research aims to contribute to the ongoing discussion about AI's role in ELT/L in Viennese middle schools, in order to offer insights into how such tools can be best implemented to support teaching and learning.

2. Literature Review

2.1 AI in Education

In 2022, the release of ChatGPT led to a rapid increase in AI use, highlighting an urgent need to explore its benefits and challenges within the education system. Since then, the Federal Ministry for Education, Science and Research (BMBWF) has made efforts to provide assistance and guidelines for students and educators. Similar to the definition provided by the OECD, the BMBWF follows the European Parliament's definition of AI as "the ability of a machine to display human-like capabilities such as reasoning, learning, planning and creativity" (European Parliament, 2020, para. 1; see BMBWF, 2023, p. 6). This understanding aligns with Baker et al.'s (2019) definition of "computers which perform cognitive tasks, usually associated with human minds, particularly learning and problem-solving" (p. 10). Consequently, AI systems can self-learn, mimic human cognitive processes, and significantly impact their environment. In line with these definitions, the understanding of AI in this study will remain broad.

As artificial intelligence is a broad term encompassing various intelligent systems, it encompasses equally numerous subsets and aspects. One such subset is generative AI, which includes, most notably, ChatGPT. Having proliferated in recent years, these programs are now well known to many (Hockly, 2023). According to Lim et al. (2023), generative AI can be defined as a technology that leverages deep learning models to generate human-like content in response to complex and varied prompts. Deep learning models are comprised of an algorithmic system that, when provided with sufficient data, uses artificial neural networks to be able to "make predictions or solve problems, such as identifying objects in pictures or winning at particular games, for example" (Baker et al., 2019, p. 10). Using these models, generative AIs can synthesise, create, compose, analyse and translate a significant number of texts. Thus, their integration into education and language learning is marked with a great deal of transformative potential. Therefore, it is now necessary to view AI's application in an educational setting.

The use of AI in education (AIEd) represents one of the many ways in which AI has pervaded society. In categorising the use of AI systems in education, Baker et al. (2019) define three types of AIEd: learner-facing, teacher-facing, and system-facing (see also Crompton et al., 2024; Pokrivcakova, 2019). As this study seeks to investigate the usage of AI in ELT/L, this categorisation is helpful in the differentiation of these tools. On the one hand, learner-facing systems are able to diagnose areas of improvement and to support and differentiate and personalise instruction and tasks accordingly. Furthermore, they can give students feedback on their work (Baker et al., 2019). On the other hand, teacher-facing tools include "automating tasks (such as assessment, plagiarism detection, administration or feedback); providing insights about the progress of a student or class; helping teachers to innovate and experiment" (Baker et al., 2019, p. 12). This categorisation highlights key differences in terms of the ways in which AI programs and systems can be used in an educational context.

2.2 English Language Teachers and AI

2.2.1 AI tools and Lesson Planning in ELT/L

Lesson planning is time-consuming and mentally demanding (Bauml, 2014). As a result, GenAI and LLMS are emerging as valuable tools to support this task. AI can act as a helpful teaching assistant (Mishu et al., 2025; Mohamed, 2024). In education, this is a central issue. As AI becomes part of teachers' workloads, teacher training must include this essential skill. It also highlights the ongoing need for critical digital literacies to ensure responsible, effective AI use.

Various AI tools like ChatGPT, Educational Copilot, and Educaide.ai aid teachers in lesson planning by generating complete lesson plans from basic prompts, offering instructions and guidelines (Tang et al., 2024). English teachers can customise lessons based on learning objectives, topics, materials, and CEFR levels (Kusuma et al., 2024; Mishu et al., 2025). Structuring lessons around goals and levels promotes a competence-based approach, a key of the new middle school curriculum. Planning with AI, however, is not limited to ChatGPT; programs like Diffit, Twee, and Gamma support lesson preparation. Ease, however, does not necessarily mean that teachers implement the generated lesson plan directly. Research suggests that some teachers use AI tools to assist in drafting lesson plans. This is especially the case when they need a quick structure or outline (Shamsuddinova et al., 2024a), implying that there is a spectrum and a degree to which AI tools are used for lesson planning. Materials compiled by AI tools can supplement this structured approach to a lesson; these can include summaries and levelled texts, creation of presentation notes and the modification or updating of previously used lesson content to match new groups and new needs (Bonner et al., 2023). Specific AI tools can offer support, not only in lesson planning but also in designing activities and tracking students' progress, leading to more efficient work practices.

Teaching is not only comprised of planning, but it also involves complex, dynamic processes like classroom relationships, interactions, assessment, and skill development. However, planning is time-consuming. AI significantly reduces this by helping teachers focus on other tasks (Pokrivcakova, 2023; Mishu et al., 2025). AI benefits both new and experienced teachers by offering new ideas, inspiration, and private experimentation outside the classroom, boosting confidence (Moorhouse, 2024). While AI aids planning and saves time, it is not a substitute for pedagogical training and insight to ensure quality lessons.

2.2.2 AI tools and ELT/L Material Creation

Recently, there has been a growing interest in the use of AI tools to support teachers in the creation and development of teaching and learning materials. Similarly, this trend has been reflected in the literature on AI in language learning. Generally, educators face recurrent challenges in their work; these include time constraints, a lack of appropriate materials, and the need to personalise activities. Recent studies have been conducted on the use of AI tools, such as ChatGPT, to investigate how they can alleviate teachers' workloads and effectively adapt to the demands of the profession (Bonner et al., 2023; Kusuma et al., 2024; Moorhouse, 2024).

The use of AI tools to generate teaching resources emerges as having high potential. Such optimism was found not only in active teachers with experience but also in pre-service educators and first-year teachers of English (Pokrivcakova, 2023). Similar findings were confirmed by Moorhouse's (2024) study on first-year teachers, who actively use GenAI tools to create novel language materials. However, one contributing factor to the beneficial use of AI for this purpose, noted by a wide range of educators, was the lack of adequate content in existing materials or online. A similar theme emerged in the research to suggest that teachers actively prefer tools such as ChatGPT for finding and producing comprehensive resources over traditional search engines (Kusuma et al., 2024). This move from internet searches to AI is interesting as it suggests that teachers are using AI to save time in the creation of teaching materials, shifting their focus from looking for relevant content to creating relevant materials (Bonner et al., 2023; Mohamed, 2024). Thus, AI allows teachers to experiment more with material generation (Moorhouse, 2024).

Language learning is dependent on a wide range of skills; it therefore demands a variety of techniques, methods, and activities. AI tools can create this diverse offer of teaching materials through a simple prompt. AI outputs can include grammar and vocabulary exercises, reading comprehension texts and writing that is tailored to learners' different levels (Bonner et al., 2023; Moorhouse, 2024). Shamsuddinova et al. (2024) noted that AI was particularly helpful in creating repetitive and low-level tasks. Such activities are an essential component of language learning, and regular practice with appropriate and topic-specific tasks can aid in the language acquisition process. Not only can AI tools produce these necessary materials but they can also adapt existing materials to match differing proficiency levels and generate individualised tasks (Kuhail et al., 2023). This function pertains predominantly to AI's capacity for providing personalised learning and differentiation and will be discussed later in this literature review. Thus, the literature contains many examples of the practical uses of AI for creating teaching resources, illustrating the many ways in which teachers can use AI for their lessons.

Despite the ease with which materials can be generated using AI, these tools a, also bring a specific set of ethical and practical limitations. Therefore, it is crucial to explore the challenges of using AI to create teaching materials, as Selwyn notes, "technology must also be evaluated within the framework of its conditions and shortcomings" (2021, p. 9). For example, Kusuma et al. (2024)(2024) argue that AI tools can sometimes provide vague, generic or irrelevant content, especially when the prompts are not specific. However, Kusuma et al.'s (2024) (2024) study focused on pre-service teachers and their usage of ChatGPT. As this study focuses on active teachers with greater experience, their different insights, gained through many years in the classroom, will likely affect how they search for or create materials. Similarly, its sole focus on ChatGPT as AI, despite its being one of the most popular tools, constrains the scope of this study. Therefore, teachers must remain critical of the output they receive from AI tools. Educators must check the accuracy and appropriateness of the resources they have created before using them in class (Mohamed, 2024; Pokrivcakova, 2023), especially when considering culturally sensitive or nuanced teaching points. Ultimately, AI-produced resources cannot be fully personalised to the same extent as those by a human teacher.

Furthermore, there is also the ethical concern that ChatGPT and other LLMs draw on pre-existing content from data sets and do not consider copyright (Hong, 2023). This raises the question of 'whose work it is anyway?' Moreover, considerable thought must be given to a situation in which students receive work created by AI, which AI then assesses. When using AI, therefore, it is important to remain critical about the output that students receive and to remember that human oversight in the teaching profession is fundamental. As previous studies have noted, new digital technologies powered by AI are promising, with the potential to alleviate teachers' workload; however, a clear understanding of when and how to use them appropriately is necessary, , not only in the creation of teaching materials but also in the design of lesson plans.

2.2.3 AI for Differentiation

Differentiation and personalising learning represent a challenge in any type of school and classroom, as children learn at different paces (Piaget, 1970; Vygotsky, 1978). Classrooms are inherently heterogeneous, with diverse needs, especially in Viennese middle schools with various first languages and skill levels. Despite the intention to support all students, studies indicate AI can help address this heterogeneity (Zhou et al., 2025; Tang et al., 2024). Assessments and feedback enable students to identify areas for growth, with Zhou et al. (2025) using AI to tailor instruction to individual needs, fostering targeted development. In ELT/L, GenAI offers personalised support, allowing educators to delegate differentiated instruction, making learning more efficient.

Differentiation is a key concept in the Austrian education system. As previously noted, external differentiation occurs through the process of academic selection. Another form of internal differentiation takes place when middle school students are assigned two levels in the compulsory subjects of German, first modern language, and mathematics. In this context, the system distinguishes between academic levels and the maximum grades students can achieve. However, differentiation can take many forms, becoming particularly significant when considered in the context of teaching and learning. This study focuses specifically on differentiated instruction within the classroom. Tomlinson (1995) asserts that "in a differentiated classroom, the teacher plans and implements varied approaches to content, process, and product in anticipation of and response to student differences in readiness, interest, and learner needs" (1995, p. 10). The core concept of differentiation shifts teaching away from a one-size-fits-all approach and towards an adaptive process, allowing each student the opportunity to learn in the most effective manner for them. In this subchapter of this literature review, various aspects of differentiation will be explored.

AI tools support teachers through an automated process. With adaptation being one of the key aspects of AI in general, it is possible to envisage how these tools can be integrated into teaching to help with the adaptation of resources for students, i.e. differentiation and personalised instruction. Tools like Diffit and Eduaide.ai generate lesson plans at varying complexity. Especially, Diffit is designed for US curricula but adaptable for other countries. These tools help teachers tailor tasks for diverse learners, as shown in studies by Bonner et al. (2023) and Kohnke (2024). In middle schools with dual grading systems of grading within the same class, this quick adaption represents significant assistance to teachers (Kohnke et al., 2023a), ensuring that weaker learners can receive the same content and stronger learners can be

suitably challenged. In both cases, there is a positive effect on language learning. Mohamed (2024) and Kusuma et al. (2024) confirm AI's ability to create tailored lesson plans and adapt tasks based on student groups, exemplified by Microsoft's Reading Progress, which tracks and generates individualised reading materials.

2.3.4 AI and Improved Instructional Effectiveness

There are numerous ways in which AI tools and software can enhance teachers' efficacy and effectiveness, whilst also reducing their workloads. In turn, this can improve their teaching abilities and positively impact their instruction and outcomes in teaching the English language. However, it is still important to note that teachers' perceptions of the usefulness, efficiency and innovative potential of AI are central to its adoption (Jiang, 2022; Shamsuddinova et al., 2024a). Teachers' feedback and assessment of AI's usefulness is a common theme. Tools like Automated Evaluation Systems (AES) help reduce grading time, freeing up teachers for other tasks. They can efficiently mark grammar and vocabulary and review writing for mistakes, allowing teachers to focus on providing meaningful feedback (Mohamed, 2024; Nazaretsky et al., 2022). AI tools also offer personalised responses, enhancing feedback responsiveness and supporting differentiated learning. However, it is important to consider when AI should be used. Since tools such as ChatGPT are always accessible, students can get outside help with language skills through human-like interaction, supplementing teacher feedback. This can benefit both teachers and students. While AI can handle routine tasks, the literature also highlights its potential to improve instructional quality and help with creativity.

The ability to teach English is dependent on both content knowledge and pedagogical skills. Teachers, therefore, need to develop a repertoire of methods for teaching and explaining a language to learners. However, as one size does not fit all, in an educational sense, new techniques and activities are often needed to suit different classes, even those working at the same level. Shamsuddinova et al. (2024b) found that AI supports not only efficiency but also innovation in teaching methods. In their study, teachers reported that AI can act as a partner and an assistant that aids them in their pedagogical capacity and creativity.

Furthermore, AI can also offer dynamic ways in which to engage students through varied tasks at the appropriate level (Bonner et al., 2023; Mohamed, 2024). Essentially, AI's transformative potential lies not in replacing teachers but in augmenting their cognitive and creative capacities. As such, they argue, AI can be seen as a friend and a helper (Shamsuddinova et al., 2024a). However, other researchers say that there is a distinction between automating tasks teachers already perform and enhancing pedagogical skills (Moorhouse, 2024). In any case, this is all dependent on teachers' willingness to adopt the technology, which will be subsequently discussed.

2.2.5 Teachers' Willingness to Adopt AI

Factors that influence willingness, such as trust, perceived ease of use, professional identity and beliefs about teaching, can be understood through Davis's (1989) Technology Acceptance Model (TAM). This was used by Bonner et al. (2023) Mohamed (2024) in their studies to understand teacher willingness to adopt AI. According to the model, "users' acceptance of a system and their behavioural intention to continue using it largely depends on two principal determinants, namely, perceived usefulness and perceived ease of use"(Fathali, 2024, p. 33). Therefore, this model anticipates perceptions of usefulness and ease as being factors influencing acceptance and intention. In a mixed-method study that aimed to explore student teachers' perceptions of AI in EFL, Belda-Medina and Kokošková (2023) found that teachers' perceptions of AI changed after conducting AI-guided writing tasks. These guided writing tasks formed part of the study, with surveys being conducted both prior to and after their completion. Essentially, teachers' perceptions shifted after learning to use ChatGPT, increasing trust in the system. Similarly, pre-service teachers interacted more with AI, becoming more likely to trust and adopt it. Nazaretsky et al. (2022) found that teachers' trust in AI significantly impacts their willingness to integrate AI into their classrooms. However, misconceptions and a lack of understanding often hinder trust, affecting how teachers adopt technology. Overall, effective integration depends on teacher preparedness to embrace AI.

The preparedness of teachers also emerged as a theme in the literature, based on their willingness to adopt AI in ELT/L. Whilst AI may have been part of the curriculum for recently graduated

students or current trainees, its rapid growth in the past few years suggests that this is probably not the reality for most teachers. Teachers' need for digital literacy skills and professional development programs was found to be a significant factor in teachers' preparedness for AI and their willingness to adopt it in ELT/L (Hockly, 2023; Kohnke et al., 2023b; Nazaretsky et al., 2022). However, digital literacy skills must now include AI literacy skills in teacher training and development programmes. In this regard, AI literacy can be defined as "a set of competencies that enables individuals to critically evaluate AI technologies; communicate and collaborate effectively with AI; and use AI as a tool online, at home, and in the workplace" (Long & Magerko, 2020, p. 2). Participants in the study reported increased confidence in using AI tools and recognised the usefulness of AI technologies through scaffolded tasks and hands-on training. In a similar context, Lee et al. (2025) studied pre-service teachers participating in GenAI-based lesson design projects. These projects encouraged the collaborative use of tools such as ChatGPT, Copilot, and DALL-E3 and led to an improvement of AI literacy and pedagogical skills. Furthermore, in order to effectively train teachers to become literate through professional development programmes, the ethical use of AI should be integral in training curricula (Hockly, 2023). Kohnke et al. (2023) reported that these programs should specifically focus on teachers' skills, "such as hands-on workshops, self-paced learning experiences and personalised or individualised coaching" (p. 5). If effective, these courses can increase teacher preparedness, trust and willingness to use AI in the classroom.

However, there is a caveat to the willingness and preparation of teachers in relation to AI. Teachers should be trained to use AI tools not only efficiently but also effectively. In this respect, AI should support teacher autonomy and creativity, rather than simply automating teaching into standardised routines. Nevertheless, it is important to remember that teachers' willingness to integrate AI tools is not automatic; rather, it is shaped by their beliefs, confidence and experiences (Lan, 2024). By increasing the perceived usefulness of the tools, reducing technical barriers and building trust though professional support, educational institutions can increase the likelihood of the successful adoption of these tools. One area over which teachers have less control relates to the ways in which students use AI for language learning, which will be discussed below.

2.3 AI tools for English Language Learning

2.3.1 Student-Centred AI for Language Learning

Students in ELT/L are increasingly using AI chatbots and other programs to learn and improve their language skills in general. Such programs offer accessible and on-demand language interaction (Belda-Medina & Kokošková, 2024). These tools can provide sequences and activities that develop the core skills of language proficiency: speaking, writing, reading, listening, and grammar. One study has shown that the use of Chatbot-Assisted Dynamic Assessment (CA-DA), a form of automated, adaptive feedback tailored to the learner, , significantly improved vocabulary acquisition and retention (Jeon, 2023). Other studies have found that students find ChatGPT can act as a personal tutor, which can provide feedback and aid in vocabulary and grammar learning (Shaikh et al., 2023). However, the language level certainly plays a role in the learner's ability to work effectively with an AI. If a student cannot understand the prompt, then it is of no use to the learner. In this respect, Young and Shishido (2023) found that ChatGPT-generated dialogues are readable for A2-B1 CEFR levels. The CEFR language level for middle schools in Austria over the four years is A1-A2+. Therefore, the relevance of these tools for this study and research area for ELT/L cannot be understated. This new leap in technology allows students to learn independently of a classroom environment, especially given the adaptability and readability of the content produced by AI programs. Considering that learners can now access valuable, interactive content anywhere and at any time, this has significant implications for the way in which English has traditionally been taught. In other words, the traditional classroom environment, incorporating the clear roles of teacher and student, can be broken down so that students can learn independently. Essentially, language learners can utilise these tools, allowing them to develop skills, especially in the case of speaking abilities and how and where students can practice.

Speaking and writing practice can be challenging to manage both inside and outside the classroom; however, AI tools provide new opportunities for learners to engage with authentic content and develop these productive skills. A key advantage of such tools over traditional methods lies in their ability to deliver immediate feedback, supporting faster and more autonomous learning.

Several studies have highlighted the effectiveness of AI applications such as Alexa, EAP Talk, Babbel, Duolingo, and other dialogue systems in facilitating autonomous speaking practice and providing instant corrections (Dizon & Tang, 2020; Ericsson et al., 2023; Zou & Wang, 2024). Zou et al. (2024) found that EAP Talk improved learners' fluency and grammar while increasing motivation and convenience, and Dizon and Tang (2020) reported that students used Alexa for speaking and listening practice beyond the classroom. Similarly, Ericsson et al. (2023) observed that middle school students using an AI dialogue system experienced greater motivation, improved pronunciation, and a safe space for autonomous speaking. Despite some variability, their study offered valuable insights into AI's potential for younger learners, who described these tools as fun, easy, and useful for developing speaking skills.

Comparable benefits have been observed for writing development. AI writing tools such as Grammarly and Microsoft Word's Spellchecker both examples of automated writing evaluation (AWE) systems offer real-time feedback on grammar, accuracy, fluency, and style (Kern, 2024; Klimova et al., 2023). This feedback promotes learner autonomy and reduces teacher workload (Goodwin-Jones, 2022). Supporting this, Dizon and Gayed (2021) found that middle-school learners using Grammarly showed improved grammatical accuracy and lexical richness, while Ebadi et al. (2023) demonstrated that combining Grammarly with teacher feedback significantly enhanced grammatical accuracy and writing fluency.

2.3.2 Personalised and Independent Learning

Personalised learning is similar to differentiation, albeit with a focus on the student and the benefits that they can draw from this. According to Bulger (2016), "personalised learning describes adaptation to a student's unique combination of goals, interests, and competencies and the ongoing process of shifting instruction as these conditions change" (p. 4). Considering this definition of personalised learning, it is evident that differentiated instruction and personalised learning are similar. More individualised and personalised learning can similarly be seen to mitigate the problems associated with heterogeneity and mixed abilities in classrooms. The research on personalised and independent learning revealed many potential AI tools and AI uses that can help with this.

The first usage of AI for student and independent learning can be seen in AI's role in targeting and enabling learner autonomy (Fryer et al., 2020; Goodwin-Jones, 2022; Nazaretsky et al., 2022). Learner autonomy is crucial because it demonstrates how students can organise, initiate, and manage their learning both in and outside the classroom environment, while following a guided learner path. However, this does not imply that the student must handle their learning independently; teacher involvement remains essential and must be balanced appropriately (Kuhail et al., 2023; Lim et al., 2023; Mohamed, 2024). The adoption of AI tools and targeted uses can help in developing the necessary skills for independent learning; these will be subsequently discussed.

Chatbots and LLMs, such as ChatGPT, can assist in this respect by providing students with round-the-clock access to feedback. This feedback is automated; thus, the learner has constant access to it (Kuhail et al., 2023; Mohamed, 2024; Shaikh et al., 2023). In terms of language learning, students can practice grammar and vocabulary topics, either to explain or to develop these areas of English language learning. A common example of this is Duolingo's AI-powered Duolingo Max, which offers "explain my answer" on-demand, context-specific grammar and vocabulary explanations of learner responses, extending teacher-like support on demand, and helping to develop learner-autonomous practice outside class time.

AI tools can further help students through personalised and independent learning in terms of accuracy. In this regard, mistakes and corrections can be addressed directly and with accuracy through the chatbot. Shaikh et al.'s (2023) study suggests that this simulates real-life dialogue through the use of ChatGPT, and the motivation of the student increases accordingly. These are areas of language learning in which students can assume responsibility for learning and language acquisition without the need for a teacher. Moreover, it is not only chatbots that can help in this respect; Intelligent Tutoring Systems (ITS) were equally noted as having a similar effect. In this study, this will not be discussed in any great detail as this did not emerge in the participants' responses. However, examples of an ITS include Squirrel AI Learning (Jones, 2018). Nonetheless, learner autonomy was found to increase through the use of these programs.

3. Methodology

3.1 Research Problem

The main aim is to investigate the current status and use of AI tools in English classrooms in Viennese middle schools. The second aim is to explore teachers' perceptions, beliefs, challenges, and perceived benefits regarding AI in English language teaching (ELT).

As a phenomenological study, the project examines how AI is used for teaching and learning English in this specific context. The choice of setting is based on the researcher's three years of experience teaching English in a Viennese middle school, as well as the relevance of AI to everyday educational practice. Middle schools remain underrepresented in AI-related research, which further justifies the focus of this study.

3.2 Research Questions

This research aims to provide insight into the current usage and integration of AI in ELT and teachers' beliefs about it: How and why have AI-powered tools been integrated in ELT/L in Viennese middle schools, and what are teachers' perceptions of them?

This offered a broad scope and was subsequently expanded into the following sub-research questions:

- How have English teachers in Viennese middle schools integrated AI tools into their teaching practices?
- What AI tools are being used by English teachers in Viennese middle schools?
- Why have English teachers chosen to integrate AI tools into their teaching, and what advantages or benefits do they perceive?
- What are English teachers' perceptions of their own readiness and preparedness to use AI tools in ELT/L?
- How do English teachers perceive students' use of AI in the context of English language learning?

3.3 Research Design

This qualitative, phenomenological study explores teachers' and school leaders' experiences and perceptions of AI integration. Phenomenology examines how individuals experience phenomena, not establishing causality or generalisations (McMillan, 2021, p. 344; Grant, 2020, p. 10). The focus is on AI tools in ELT/L and teachers' perceptions of them. Since teachers are key decision-makers in curriculum delivery, their experiences are central. Semi-structured interviews gathered descriptive data, similar to other qualitative research (e.g., Shamsuddinova et al., 2024; Mohamed, 2023; Moorhouse, 2024; Kohnke, 2024a).

3.4 Sampling

Participants included Viennese middle school English teachers and headteachers. Interviews with both groups enabled a process of triangulation. Eleven participants were interviewed, typical for phenomenological samples (McMillan, 2021, p. 337). They were fully informed and gave consent (McMillan, 2021, p. 41).

One reason for selecting middle schools in Vienna was their underrepresentation in scholarly research (Erling et al., 2023). Furthermore, as an English teacher at a middle school in Vienna's 16th district, the researcher was able to recruit colleagues from their school and utilise their connections to this and other schools to gather participants. These sampling methods can be described as convenience and purposeful sampling, in the sense that the participants were "accessible" and had "characteristics that are targeted by the study" (McMillan, 2021, p. 143). The researcher, a teacher in a Viennese middle school, acted as a "complete insider" (McMillan, 2021, p. 366), providing contextual understanding.

Participants came from five schools in Vienna's 3rd, 16th, and 18th districts. Most were male, and many had under five years of experience, suggesting possible self-selection by younger teachers more open to AI. Nearly all taught multiple subjects, typical of Vienna's middle schools, which may affect how teachers adopt AI tools, given workload and time constraints.

Table 1.
Participant Data

Participant	Gender	Age	Years of Teaching Experience	Subjects
Participant 1	female	32	4	English, German, Geography, Art
Participant 2	male	63	38	English, Biology, P.E., Music
Participant 3	male	61	36	Headteacher, English, P.E.
Participant 4	male	45	18	English
Participant 5	female	34	5	English, Maths, Art, I.T., Biology, P.E., Career Education
Participant 6	male	27	1	English, German, Biology, Art, I.T.
Participant 7	female	38	4	History, Career Education, P.E., Art
Participant 8	male	29	3	English, Physics, P.E., Chemistry,
Participant 9	female	32	3	English, Career Education, P.E., SEN
Participant 10	male	54	30	Headteacher, Mathematics, Physics, I.T.
Participant 11	male	30	4	English, History, Geography, P.E.

3.5 Instruments for Data Collection

Data were collected through semi-structured interviews, a common method in phenomenological studies (McMillan, 2021, p. 345). Interviews provided in-depth insight into teachers' and school leaders' experiences and perceptions of AI, which cannot be easily captured through quantitative methods (Cohen et al., 2018, p. 28; Dörnyei, 2007, p. 135).

3.6 Procedure

Semi-structured interviews followed Braun's (2013, p. 78) model, allowing flexibility while enabling participants to raise issues important to them. Conducted in English or German for comfort, all interviews were anonymously recorded via Apple Voice Memos and securely stored. Transcribed with noScribe, then checked and translated by the researcher with the help of DeepL, translations were proofread for meaning, minimising translation bias through careful review. Thematic analysis involved familiarisation, coding, and theme development.

3.7 Data Analysis

An inductive thematic analysis (Braun & Clarke, 2006) was used to identify patterns and meanings from the data, suitable for an exploratory educational study. It reports patterns within data, highlighting key meanings related to the research question (Braun & Clarke, 2006, p. 79). Themes were based on explicit participant statements rather than interpretations (p. 84). This semantic approach offered a flexible, systematic way to interpret teachers' perspectives without pre-existing theories. To increase validity, teacher and headteacher data were triangulated, enabling perspective comparison and enhancing credibility.

4. Results

This section outlines the study's key findings. The passages were grouped into five themes:

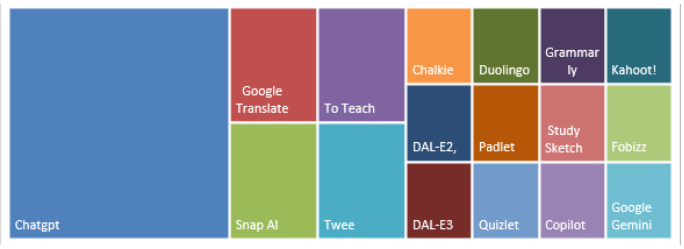
- AI for ELT/L teaching practices
- Teacher readiness and views on AI tools
- Students' use and impact of AI tools on language learning
- Challenges and concerns of AI tools in ELT/L.
- Head teachers' perspectives on AI among teachers and students

Firstly, participants were asked to name any AI-powered tools that they had used or were familiar with in an ELT/L context. Their responses reveal a broad range of tools with varying levels of frequency and application. The frequency with which these programmes were mentioned is illustrated in Figure 1.

As shown in the treemap above, ChatGPT was the most frequently mentioned tool. OpenAI's programme was mentioned in all but one of the eleven interviews. Other commonly cited tools were Google Translate, SnapAI, ToTeach and Twee. SnapAI is the built-in GenAI for Snapchat, which is popular amongst young people. ToTeach and Twee,

however, are explicitly designed for educational purposes. ToTeach is a student-facing AI that creates activities and personalised learning paths for learners. Twee is predominantly for teachers to develop teaching materials from existing texts, audio, and videos. The remaining tools in the diagram were mentioned only once. Among the AI tools in this list, Kahoot, Fobizz, Duolingo, and Study Sketch are all educational tools. Fobizz is the AI program selected by the BMBWF to be implemented as part of its AI pilot scheme. The rest are largely GenAI tools, which have varying functions.

Figure 1.
Reported AI Tools



4.1 Theme 1: AI Tools for English Language Teaching Practices

Lesson Planning

Lesson planning was a central focus of this study. Most participants indicated that integrating AI into language teaching saved time and boosted their efficiency. Participant 8 specifically said, "just Twee alone can take so much work off your hands… with pre-, post-listening… planning is basically what takes up a lot of time." This view was widely shared among most participants. However, some offered more nuanced perspectives on using AI in lesson planning. Participant 6 mentioned, "because I've only been teaching for a year, I would say that I started planning with AI relatively early on," Suggesting a generational shift toward AI use in ELT/L; newer teachers may adopt AI tools more naturally. Additionally, AI can assist with long-term planning and lesson development. Describing their use of ChatGPT, Participant 9 explained, "if I enter that I have 20 hours until the next test… the AI can break it down into 20 teaching hours… I can simply ask the AI a question, and it will answer me." Participants 1, 5, and 11, with four to five years of experience, also reported using AI for planning. One noted, "I sometimes use it for planning. It does not mean that I'm not planning myself anymore, but it just saves me a lot of time and makes my planning more efficient" (Participant 1). Time-saving was again emphasised. Nonetheless, AI complements rather than replaces traditional planning methods in ELT/L. In this context, lesson planning is a key application of AI, covering both long-term and short-term efforts. Furthermore, newer teachers may adopt AI more easily, with experienced educators using it selectively to save time and enhance efficiency.

Creating Teaching Materials

Most participants in the study reported using AI to create teaching materials, even though this was not directly asked in the interview. This is the most frequently commented use of AI for ELT/L in middle schools. Seven of the participants noted that they use AI tools, particularly generative AI, to create a wide range of language activities for students. These included reading texts, listening tasks, vocabulary exercises, cloze texts, and complete worksheets. Several respondents further noted AI's value for automating repetitive tasks for students, such as grammar topics. This allowed teachers to concentrate on more creative tasks. However, most participants did not specify how they used AI to create teaching materials. The exception to this was participants 7 and 8. Participant 7 described the process of using Twee to create reading and listening texts. They also made comprehension and vocabulary activities from a selected video or topic. This process highlighted Twee's ability to adapt linguistic output to specific proficiency levels and to produce a range of materials according to the teacher's preferences. The participant shared excitement about AI's teaching potential in ELT/L. Another participant highlighted the way in which Twee could automate worksheet creation for vocabulary and grammar. These examples demonstrate the tool's adaptability and efficiency in producing teaching content. However, most participants indicated that they did not use the AI-generated materials verbatim, but instead adapted them to better suit their lesson objectives.

Furthermore, the majority of respondents noted that they subsequently adjusted their activities to meet the lesson requirements. Respondents described using AI not only for creating teaching materials but also for changing existing content to match their learners' needs. Furthermore, Participants 5, 9, and 11 used AI to adapt learning materials in published textbooks, which they felt lacked suitable content for middle schoolers. One respondent expressed their dissatisfaction with the books provided by the school: "I'm often not

very satisfied with the textbooks, or rather, I have the feeling that the textbooks I have available are not adapted for my children and my school" (Participant 11). This led the participant to use AI to create more suitable materials. This example also reflects the theme of differentiation, as adjusting existing materials with AI enables teachers to better address the diverse needs of learners. Participants' responses regarding AI's assistance in creating teaching materials were similarly found to be effective in creating lesson plans.

Differentiation

This research project focused on differentiation, personalised learning, and independent learning. It specifically looked at their nature in ELT/L and Viennese middle schools. All participants noted that AI programs, such as ChatGPT or Twee, can help provide differentiated instruction for students. Some participants described using AI primarily as a time-saving assistant for task adaptation, while others used it more creatively to design entirely new materials tailored to student needs. Alongside this, the nature of the Austrian school system was equally reflected in the views of the majority of participants.

An aspect mentioned by several participants was AI's ability to support differentiation in heterogeneous classrooms. Participant 7 illustrated this, explaining that AI tools make it easy and efficient to create multiple versions of the same task to address varying learning levels within a class. They noted that, unlike traditional approaches that required considerable time to modify materials manually, AI allows teachers to adjust task complexity quickly, producing differentiated versions suited to students' abilities. This capacity was seen as particularly beneficial in Viennese middle schools, where a wide range of abilities and learning levels within classes necessitate targeted teaching materials. This view was echoed by Participants 8 and 1, who described the process of streaming students into Standard and AHS Standard groups within the same class. This streaming in a selective system increases the need for different teaching methods. Participant 11 highlighted this, saying the education system "is not a one-size-fits-all." Overall, participants identified differentiation as a fundamental requirement in middle school teaching, with AI offering a practical means of achieving it despite the structural complexities of the system.

Furthermore, reviewing existing textbooks and conducting internet searches were each described as time-consuming processes (Participant 7); such tasks can be replaced by an AI tool that can take one task and produce variations tailored to students' needs. Similarly, Participant 5 stated that course materials used in middle schools are not conceived for heterogeneous classes. In this respect, AI can aid in differentiation, meaning that teachers "can say much more quickly, just make my vocabulary lists, help me with that" (Participant 5). In this specific ELT/L context, the development of vocabulary learning and understanding in coursebooks can be complemented through the use of AI. In addition to vocabulary support, Participants 6 and 9 described how AI can facilitate the simultaneous adaptation of tasks for varying levels. Participant 9 noted the ease of generating differentiated tasks, explaining, "AI means I can create three different worksheets on the same topic with a single click." This ease was similarly noted in the interview with Participant 6, who commented that AI tools enable teachers to "fall back on this possibility of easier differentiation," particularly when addressing different learning levels simultaneously. The last quote indicates a likely way in which teachers will utilise AI in the future, suggesting that it will become a default tool for teachers when differentiating materials.

AI for Teacher Support

The final aspect of the theme of Teacher Integration of AI in ELT/L in middle schools relates to miscellaneous uses. One key area in this respect was idea generation, whereby AI tools are used by teachers to innovate their lessons and create new content. For example, Participants 1, 5 and 6 noted that they use AI to support planning and gather inspiration for teaching. Participant 9 mentioned a key use of AI. They noted that it could assist teachers who are teaching subjects outside their expertise or who entered the profession through lateral entry programmes. Indeed, this participant noted they themselves were not "a trained English teacher," despite teaching the subject. In this respect, they reported that AI helped prepare them for ELT/L. Another aspect identified was that AI allows teachers to focus more on students and the classroom environment: "it lets the teacher concentrate more on problem issues in the class, which we don't do always or we don't get to" (Participant 4). These varying yet interconnected comments express how AI can help educators in middle schools in their roles as language teachers. Having discussed the results

from the participants' responses on how they use AI in their teaching practices, the next theme to be examined is teachers' perceptions of student use of AI in ELT/L.

4.2 Theme 2: Teacher Readiness and Perceptions

Using AI in an ELT/L context means that educators must be willing, ready, and equipped to effectively incorporate this technology into their language teaching. This study focused on teachers' perceptions, which stood out in participants' responses and discussions. Responses indicate that the participants held a wide range of views. Whilst most of the teachers interviewed were generally willing to integrate some form of AI into their work, there were discrepancies in terms of how prepared they were to use it effectively and efficiently. Furthermore, there were differences in terms of the adequacy of training they had received, both in terms of initial teacher training and in continued professional development.

Most participants showed willingness, but Participant 6 focused on practicality and immediate success when discussing their openness to use AI in teaching. "If I try a new tool and it does not work after the second try, I have neither motivation with AI nor any desire to continue and invest more time." Thus, ease of use and design are key factors in incorporating AI tools into teachers' practices. Furthermore, Participant 6 suggested that a good understanding of an AI tool takes time, which can hinder the experience. Initial success was also posited by this participant as being necessary for the adoption of AI, noting that "if something comes out on the first try, then that's nice and beautiful. So, I think it also depends on the tool" (Participant 6). As described here, the participant suggested that the usability of a specific tool is essential in their adoption. Another participant reflected, "I haven't invested so much time yet to discover new tools or all the tools that are available" (Participant 7), suggesting both time constraints and the overwhelming nature of the numerous available technologies. A sense of ongoing transition was also present: "I have to honestly admit that it's also a leap that I still have to take for myself" (Participant 8), acknowledging the gap between current practice and future goals. For some, the rapid development of AI tools added to the challenge: "I don't think I can ever be too well prepared because the systems adapt and change so often" (Participant 4). Adapting to new technologies is essential to support students and enhance their future education and careers. In addition to this, Participant 4's response also addressed the challenges of equity for students in Viennese middle schools: "The kids that we teach are often already at a disadvantage, and if we can bring it into the school some way, it's easier for them because this is going to be their future." The challenges of the future, particularly with regard to AI and targeted education for middle schoolers, are the themes of this response. However, to address certain issues, teachers must be prepared to utilise AI tools in their English lessons, planning, and other areas. Indeed, this was a reported aspect of this study, emerging in the varied self-evaluations of teachers' preparedness through their studies, self-study, or professional development programmes.

In terms of being prepared through the teachers' education and studies, only one participant had received AIEd as part of their initial teacher training. Participant 6 noted that they were finishing their MEd and that AI "was partly a topic in my training, but it was about how we are allowed to use AI, so we as students. I think AI was mentioned once as a tool, but not really somehow in detail." Describing only the ways in which university students can use AI, rather than teachers, indicates that AI-based tools have not yet been adopted into teacher training curricula. The potential uses as a student are very different compared to those as a teacher. No other participant mentioned that they had any formal education with AI as part of their teacher training. However, Participant 9 mentioned that they had undergone an internal professional development programme on AI, although this course was not discussed in any detail. Furthermore, Participant 11 expressed the desire to undertake a course similar to their headteacher's training, but, at the time of the interview, this had not yet taken place. Finally, Participant 7 mentioned that they would like to attend a training course for using AI but had not yet got around to it. Similarly, this interaction between AI proliferation and preparedness was mentioned by one teacher who noted, "because there are already so many different AI programs and tools, but they work well or poorly or work well or poorly in different languages. Um, that's why it's rather difficult to implement" (Participant 6). On one hand, almost all of the participants lacked formal training with AI and its possible uses in education and in ELT/L. On the other hand, many participants noted that they had trialled AI in their own time and were mainly autodidactic. Indeed, teachers expressed the ability to use AI and understand how to implement it in teaching as mostly a process of self-study, trial and error, and experimentation.

Despite various challenges, most participants reported feeling ready in attitude but not fully prepared in practice. Participant 6 noted being generally open to using AI but lacking the necessary skills. Participant 5 felt confident with the technical side but uncertain about how to manage its use with students and had not fully considered its ethical implications. Participant 9 felt well prepared due to frequent computer use, while Participant 11 described limited knowledge and hoped to learn more in the future. Overall, this theme shows that while most teachers are open to the idea of using AI in their work, there remains a significant discrepancy between being willing and actually feeling prepared. Many participants said they were curious and even excited about the possibilities AI offers, but they also pointed out that they have not received enough training, either during their studies or in their current jobs, to really understand how to use it well. In most cases, the teachers were figuring things out on their own, experimenting when they had time, and learning by doing. A few felt confident with the technical side of things, but even so, they raised questions about how to use AI responsibly in the classroom or how to guide students in using it effectively. Others mentioned that the sheer number of tools and their rapid evolution made it hard to keep up.

4.3 Theme 3: Student Use and Impact of AI Tools on Language Learning

According to the data, the theme of middle school students' use of AI in ELT/L emerged as one of the most critical aspects of this study. The participants discussed their thoughts on how students currently use AI and how they could use it in the future. Furthermore, their perceptions regarding its usefulness, support, and critical application were central elements in many discussions. In general, the participants showed support for the use of AI in ELT/L by students. However, they noted that its use must remain critical and responsible. Many participants acknowledged that AI is now a part of students' everyday lives. Most students have mobile phones, iPads or digital equipment, which means that they are regularly confronted with some form of AI (Participant 7; Participant 11). On this topic, the support of AI in an educational context was drawn upon to ensure that students had utilised the advantages of AI (Participant 1, 4, 7, 11), not only outside but also inside the classroom. This was often discussed in relation to acquiring new skills through the use of AI. However, as stated above, the teachers also perceived the necessity of remaining critical of AI tools. In this regard, Participant 1 expressed the view that when working with ChatGPT for an assignment or for language learning, students have to "read it," and not just "copy" it. Additionally, "it's actually important to reflect on it in the learning process and actually analyse the results" (Participant 7). Furthermore, teachers have to be ready to scrutinise students' work after it is produced to ensure academic integrity and interaction with AI with the material, rather than simply accepting a blind copy of AI-generated output from students (Participant 5). Similarly, teachers need to actually instruct students on how to use AI in their work, so that students "know how to work with it [AI]" and engage "critically" with it (Participant 1). This aspect of AI support alongside critical use was a common perception voiced throughout many interviews. Many participants also gave concrete examples of how students can use AI in ELT/L.

In terms of developing language skills amongst students, the participants reported numerous ways in which AI can help with this, ranging from correcting spelling and grammar to pronunciation. Being able to write a grammatically and lexically accurate text in a specific style or form is a requirement of students learning English in Viennese middle schools. On this subject, Participant 5 noted that students can use AI to look up a "grammatical rule" to ensure that their text is accurate. Furthermore, Participant 1 discussed the benefit of students using Grammarly to check their spelling, punctuation and grammar. This was described as being advantageous for both students and teachers. Other participants further discussed writing, including, most notably, how AI can specifically help with the construction of written work, showing students "what the structure of the texts looks like" (Participant 8). Such assistance allows students to practice successful writing on their own terms. Effectively, this constitutes the use of AI to aid students in independent learning in ELT/L, which was another key aspect of this study and will subsequently be discussed.

Independent learning

When considering the teachers' perspectives on independent learning specifically, numerous aspects emerged. These ranged from the ability to provide scaffolded support for individual learners to helping students in large, diverse classrooms. For example, AI can break down complex tasks into more straightforward steps for learners, offering personalised learning experiences so that

students can work independently (Participant 9). Furthermore, the participant described AI use as enabling students to take ownership of their own work without needing support from the teacher. Another relevant example of AI usage was provided by Participant 4, who noted that AI can assist with extension work for students who work at different paces, individualising learning paths, and adapting to the learner and their way of thinking in the process. Specifically, they described AI as being able to "accommodate everyone and give the teacher more time to think about the kids who need more help, allow kids to work more independently if they want to" (Participant 4). This presents advantages to both the student and the teacher. It is not only in the classroom environment that students can benefit from AI in relation to learning English; AI tools such as chatbots provide students with the opportunity to practise speaking and interacting in the English language at home as well. This supports autonomy and self-regulation (Participant 9). Chatbots were described by Participant 9 as being "very good for learning a language." The connection between independent learning and the use of technology in ELT/L and education was further noted by teachers as having a significant impact on student motivation through engagement with AI. This theme recurred in many interviews and represented a key advantage of students using AI as this was seen to impact on student motivation and engagement positively.

The classroom environment is not ideal for every learner. However, multiple participants in this study mentioned that the use of AI in English lessons can motivate students and engage them more fully in the learning experience. It was mentioned that most middle schools now have iPads or some form of digital hardware that they can use in their lessons, taking advantage of the Austrian government's initiative (Geräteinitiative Digitales Lernen) to provide digital devices to all students. One participant noted that "the use of digital media in the classroom is more interesting for many students than just face-to-face teaching" (Participant 8). Another participant described capturing students' interest by using AI for making lessons "more fun for the kids because it's engaging" (Participant 1). Similarly, another participant had noticed increased student interaction with AI and opined that "interaction with AI is good for learning" (Participant 9). Participant 5 further expanded upon this increase in interaction, engagement and motivation with AI, by specifically saying that, "I also think that it can be very motivating for students who are not keeping up or are underchallenged, that they can get tailor-made English resources. It's much more interactive and motivating." When students have access to materials that are adapted to their language level through AI, it increases their engagement in the lessons. However, it should be noted that greater interaction and motivation with AI can be achieved through the use of digital media and AI in English lessons only as long as students have the requisite digital skills to be able to use this software effectively. This issue constitutes the first of the challenges to student use of AI in ELT/L, as perceived by teachers.

Student's digital skills

Despite various challenges, most participants reported feeling ready in attitude but not fully prepared in practice. Participant 6 noted being generally open to using AI but lacking the necessary skills. Participant 5 felt confident with the technical side but uncertain about how to manage its use with students and had not fully considered its ethical implications. Participant 9 felt well prepared due to frequent computer use, while Participant 11 described limited knowledge and hoped to learn more in the future. Interviewees frequently commented on students' digital skills, with factors such as students' age, language proficiency, and class level influencing teachers' perspectives on AI usability in ELT/L. Participants emphasised that students' basic digital literacy needed to be addressed before AI could be effectively used. Participant 9 stated that "it's the digital skills that children still need to develop in order to be able to use AI in such a way that it really helps as a learning partner," and Participant 7 highlighted that younger students in early grades required more support with basic digital platforms. Participant 6 noted that age isn't strictly tied to digital literacy. However, it's often better to introduce AI to older students who have foundational skills. Younger students usually need to focus on basic digital skills first before working with AI.

Participants noted their awareness of AI's potential uses in ELT/L for middle schoolers. However, they also expressed many concerns about students misusing AI. For example, teachers frequently mentioned cheating and dishonesty. Considering the use of AI for cheating during tests and other assignments, the "cheat sheet" was seen as a precursor to the development of AI (Participant 7). This was further expanded upon by another participant, who stated, "you should not give a writing task as homework where you cannot

see if they do it themselves" (Participant 1). In their view, students cannot be relied on to produce their own work for homework and other written assignments independently without using AI. Such tasks are a fundamental part of language learning, relating to accuracy, fluency, and critical thinking. This concern was often related to the assertion of over-reliance and dependency on AI for learning. Many participants expressed the concern that students can become overly dependent on AI tools, which can lead learners to complete tasks without engaging cognitively or learning independently. Therefore, students must use AI tools and programs responsibly and critically.

Teachers worried that students might lose their critical thinking when using AI tools. Some also doubted their ability to manage this challenge effectively. Some of the responses from participants suggest that students cannot use AI critically or reflectively, instead accepting outputs without question. It is worth noting here that Participant 7 argued that teachers should "make [students] understand that [AI] is a useful aid, but not the solution to everything" and "that it is not going to do the work for them." This assertion suggests that AI has its benefits but should not be seen as a go-to replacement for learning and critical thinking. In addition to this, another participant added that there should be "a balance between AI and independent work. Just because AI is so cool doesn't mean that I can use it for everything. I have to be able to do some things myself" (Participant 11). In other words, whilst AI and digital tools can be fun, the student should still be responsible for their learning. This concern can be addressed by teachers providing guidance and boundaries, thereby offsetting the potential lack of critical thinking and learning.

4.4 Theme 4: Challenges and Concerns with AI tools in ELT/L

The participants mentioned key challenges with AI that haven't yet been covered. They focused mainly on the reliability and bias of AI software, as well as the technical limitations in Viennese middle schools. Data protection was specifically mentioned by the interviewer but was not addressed by any of the teachers. Most of the participants were aware of various challenges concerning the data that is being used by AI software, such as ChatGPT. Two relevant aspects were discussed by two participants. Participant 11 reflected on the credibility of AI-generated content, noting that although it can appear professional and convincing, it is ultimately based on unverified information from the internet and lacks oversight by experts, meaning students must learn to critically evaluate it. This raises important issues: AI-generated content can seem accurate, but without expert verification, it may be biased or unreliable. In this respect, Participant 1 emphasised the need to critically assess the sources behind AI content, comparing it to social media platforms such as TikTok and Instagram, where misinformation is common. The information provided by AI tools and chatbots cannot be taken as fully reliable, reinforcing the need for students and teachers to remain critical in their use of AI in learning. In addition to these concerns, participants also remarked on the more practical challenges of integrating AI in middle schools.

A few participants in this study noted that technical infrastructure hampered their desire to incorporate AI into their lessons. Firstly, the quality of the internet in some schools was deemed unstable and lacking (Participant 1; Participant 9). Although this issue lies beyond teachers' control, it significantly impacts the way in which they utilise digital media and AI tools in the classroom. Without oversimplifying the matter, stable internet is essential for the integration of AI tools in language lessons; the lack of it was described as "frustrating" (Participant 9). Internet problems were reported to be exacerbated by students and their digital devices. As part of the government's digital initiative scheme, all students in lower secondary school are given the opportunity to purchase a device at a reduced cost, with the school having autonomy over the decision. Participants 1 and 9 remarked on the use of these devices among students, explicitly mentioning the iPad that each child possesses at school. The teachers remarked that, frequently, these devices were not present during the lesson, not charged, or not properly maintained, rendering them essentially useless in a classroom environment. This was noted as a challenge.

4.5 Theme 5: Head Teachers' Perceptions of AI Tools amongst Teachers and Students

In comparing the headteachers' responses to the insights provided by the teachers, there is firstly a strong indication that teachers are using AI in their practices. Whilst this is not exclusively linked to ELT/L, there is an awareness from headteachers concerning the use of AI tools amongst their staff. The extent of this depends on certain factors, such as the date at which teachers completed

their training. This demonstrates a commonality between the school leader's perspective and the teachers' responses on their own usage of AI in ELT/L. However, the responses also suggest that there is contextual divergence between different schools. Whilst some schools are well-equipped and institutionally prepared, others are hampered by outdated tools that do not support AI.

In answering questions about teachers' integration of AI in their teaching and the infrastructure needed to enable this, both headteachers maintained that they were aware that their colleagues were using AI in their teaching practices. Participant 10 stated explicitly that they knew of teachers using AI in certain classes, and this was especially in relation to teachers who had recently graduated. Here they noted, "those who have just come out of their academic careers are used to using it, and they use it as a matter of course here" (Participant 10). Whilst aware that not "100% of teachers" were using AI, the headteacher expressed that some colleagues "find that it's simply faster to use AI" (Participant 10). Similarly, Participant 3 added that, "we as a school have said that we want it [AI] because it is part of our future and an essential part of the future for our children." Echoing the perceptions of the teachers, AI integration is seen by headteachers as being essential for students' prospective lives, both during and after middle school.

In terms of the schoolwide implementation of AI in teaching and learning practices, there were discrepancies between the headteachers' and the teachers' responses. Participant 3 expressed the view that their school "has always been very open to digitalisation and has already done a great deal of preparatory work in this area," being equipped with "digital boards in all classes," having "provided all children with iPads", and having "Wi-Fi throughout the school." Having already achieved this level of digitalisation on an institutional level, they described the integration of AI as being " the next logical step" (Participant 3). Here, it is essential to note that Participant 3's school is participating in the Austrian-wide, governmental AI pilot scheme for implementing AI in schools using the AI Fobizz. However, this is the only Viennese middle school taking part in the scheme. Conversely, Participant 10 mentioned technical barriers that impede the use of AI in their work practices. This was not in relation to teaching practices but rather the fact that "the system we work with is predetermined, it's this virtual workplace under Windows. And unfortunately, it is so outdated that the programs available in it do not yet allow the direct integration of this Windows, for example, Copilot." The headteacher felt that this program would expedite their work process, but unfortunately, it was not possible to use it. Thus, technical barriers hindering the use of AI in the work environment represented an issue that was similarly raised by some teachers in the study.

Alongside general insights on teachers' integration of AI into their teaching practices, this study sought to elicit responses specifically on the middle school environment and differentiation through AI. Both headteachers agreed with the majority of teachers that AI can support differentiation and personalised learning, in the context of both teacher use and student use. Participant 10 noted that "AI helps to adapt materials, teaching materials, to these different ability levels," illustrating how AI enables teachers to tailor content to suit students' varying needs and abilities. Similarly, Participant 7 emphasised the flexibility of AI in creating multiple versions of the same task, explaining that "we can actually take one and the same task and let the tool develop three different variants," highlighting how differentiation can be practically implemented. Participant 3 extended this discussion by reflecting on how AI allows students themselves to engage in differentiated, exploratory learning. The participant explained that AI-powered educational programs can automatically adjust to a learner's level, and students who find a task too challenging can quickly recognise this and select a more suitable example, much like they would in a hands-on, game-based learning environment. This trial-and-error process enables learners to discover effective strategies independently, thereby fostering experiential learning and self-regulated differentiation (Participant 3). However, the extent to which students can independently benefit from such tools was not viewed uncritically. Participant 10 compared the current challenges of digital literacy and AI use to the early days of the internet and personal computers in education, noting that students' success depends heavily on their language proficiency and ability to craft effective prompts. They observed that "students who are simply not as eloquent and not as good at language have real difficulties" in identifying relevant information and that AI may "actually be more helpful as a tool for supporting better students," potentially widening existing achievement gaps as "the high-performing students will become even better because they know how to use an AI and the weaker students will be overwhelmed" (Participant

10). This facet of individualisation and differentiation further underscores the convergence between teachers' and headteachers' views. Both groups recognise AI's potential to enhance differentiation, though teachers tended to frame this in terms of instructional design, while headteachers offered more student-centred perspectives on experiential and autonomous learning. To build on this understanding of differentiation, we need to explore how both groups view teacher preparedness.

5. Discussion

Although this qualitative study was limited to 11 educators across five middle schools in Vienna, it nevertheless demonstrates that AI has become a significant topic in education. Teachers in ELT/L are using AI in diverse ways; there are clear benefits and potential for AI support in creating teaching materials and lesson plans. In the urban middle school context, where educators often teach large, heterogeneous classes, AI tools can help address varying language levels, learning needs, and classroom dynamics. This can be seen in their own practices or in student usage of AI tools in lessons. Furthermore, educators can more easily and effectively tailor their resources to match students' needs and provide differentiated instruction. However, while teachers show a willingness to explore AI and its uses in ELT/L, there remains a lack of structural and institutional support. Time constraints, lack of training, limited digital infrastructure, and the demands of the curriculum pose significant barriers.

Additionally, the practical, social, and ethical challenges of AI integration are pronounced in the middle school environment. Students' digital skills and basic digital literacy need to be developed before AI can be successfully introduced. This prerequisite is often assumed in literature (Ericsson et al., 2023), yet findings from this study suggest that it is a critical and under-discussed barrier. The results of this study, in relation to the research question, will be explored and examined further in this subchapter.

5.1 Integration of AI in ELT/L in Viennese Middle Schools

This study found that teachers could identify a variety of AI programs and exhibit a general awareness of AI; however, this primarily concerned GenAI. Among the 17 tools mentioned by all participants, OpenAI's ChatGPT was the most frequently cited tool. While this research project maintained a broad stance regarding AI and the tools that may be useful in ELT/L, the responses predominantly revolved around ChatGPT. This distribution was evenly spread across all participants, regardless of age or experience. The prevalence of ChatGPT as being synonymous with AI can be observed in the numerous studies, reviewed as part of this project, which focused solely on ChatGPT as part of their research (Hong, 2023; Kohnke et al., 2023a; Kuhail et al., 2023; Kusuma et al., 2024; Shaikh et al., 2023; Young & Shishido, 2023). This further supports the finding of Moorhouse (2024), who observed a growing reliance on high-profile generative AI tools. Surprisingly, educational AI tools were mentioned far less frequently. Twee was the second tool most mentioned by teachers; nevertheless, benefits were reported to educators in terms of idea generation, creating teaching materials, lesson planning, and saving teachers' time. Twee was not mentioned explicitly in the literature reviews for this study, though its capabilities mirror those of other AI programs.

Among the tools mentioned, there is a distinction between those that are teacher-facing and those that are student-facing (Baker et al., 2019) as well as non-specific, general AI. ChatGPT, Google Translate, DALL-E2/E3, Google Gemini, Copilot, and SnapAI belong to the latter group and can be used by both teachers and students alike. Generally, teachers are not aware of AI programs that could be of use to them in their practices. Very few participants mentioned anything beyond general AI tools. Nevertheless, there are clear advantages of these teacher-oriented educational resources, as ToTeach, Twee, Fobizz, Kahoot!, and Quizlet can assist in developing teaching materials and lesson plans. However, these remained largely unmentioned or inadequately described. This indicates that, while teachers in Viennese middle schools recognise AI, they are less familiar with the specific tools that are tailored to their particular needs and practices. This suggests that while integration is occurring, it is not yet strategic or fully informed.

Similarly, in the responses regarding students' use of AI and tools specifically designed for educational purposes, the tools StudySketch and Duolingo were scarcely mentioned. This limited awareness of learning-facing tools contrasts with studies by Bonner et al. (2023) and Mohamed (2024), who found that such tools can significantly enhance language learning when used and known. While this could be attributed to the low number

of teachers participating in this study, it can be asserted that teachers exhibit a lack of awareness of tools that can be utilised in an educational context. Tools specifically designed for education, ELT/L, and student learning are less recognised and not frequently utilised. The prevalence of AI tools such as ChatGPT may be linked to their mainstream appeal; however, it can also be argued that this bias is due to educators' insufficient training. Professional development programmes would increase teachers' familiarity with these tools, thereby increasing the likelihood of their use and exploration by teachers. Neither educators nor middle school students can fully benefit from AI's potential applications if they have a limited understanding of it. Thus, whilst Viennese middle school teachers are generally aware of AI, their current use is centred on a few high-profile tools, particularly ChatGPT. Therefore, this limits their ability to exploit the broader pedagogical potential of AI in ELT/L.

In considering the way in which AI tools are used, it can be maintained that the integration of AI in ELT/L in Viennese middle schools primarily revolves around practical applications that aim to enhance and address the demands of teaching. The dominant use by teachers in this study was for creating teaching materials. Vienna's middle school English teachers use AI, especially GenAI, to generate a wide range of language learning resources for students, including reading texts, listening tasks, vocabulary, exercises, cloze texts, and full worksheets. This is supported in a considerable amount of literature for example: Bonner et al. (2023), Kusuma et al. (2024), Mohamed (2024), Shaikh et al (2023), and Shamsuddinova et al. (2024b). The value lies in automating repetitive and mundane tasks, (Shamsuddinova et al., 2024b). This aligns with a growing trend in the literature, which describes how AI tools are seen as supporting teachers in material creation. AI's generation of materials alleviates teachers' workloads and adapts to professional demands. This study found that newer teachers are particularly drawn to AI tools for material creation, echoing Moorhouse's (2024) study on pre-service and first-year teachers. Additionally, this study also found that a majority of participants were using AI regularly in this area of teaching and preparation, in contrast to Kusuma et al.'s (2024) claim that AI use was more exploratory rather than fully cemented into teaching practice. Generally, middle school teachers use AI to assist them with pragmatic aspects of their work, such as simplifying repetitive tasks. Whilst it was reported in this study that AI was useful in helping with innovative task design, as observed in Shamsuddinova et al.'s study (2024b), this was not a key area of use for middle school teachers. In this regard, creating teaching material was one of the aspects for which teachers had implemented and integrated AI into their teaching practices for ELT/L. Teachers in this study further reported that they use AI for lesson planning, a practice also observed in previous literature on the topic of AI in ELT/L. This is especially in comparison with Kusuma et al. (2024), who also suggest the exploratory use of AI tools by teachers. A key novel contribution of this study is the finding that differentiation, rather than efficiency or inspiration, is the primary reason teachers in this context use AI tools. This contrasts with studies such as Mohamed (2024) and Shamsuddinova et al., (2024) where differentiation is mentioned but not foregrounded as the central motivation.

Furthermore, one of the uses of AI in ELT/L in middle schools that was underrepresented in comparison to previous research was for assessment. Despite this being specifically raised in the interviews, it was only mentioned by two participants and not in any particular detail. This contrasts with Nazaretsky et al. (2022), who describe AI assessment tools as emerging supports in language education. The minimal use found here points to a developmental gap in assessment applications at the middle school level. One potential reason for this is that many of the studies that were reviewed focused on university students. Only a handful of research papers used middle schools as their target audience. Whilst AI for assessment in language learning is deemed beneficial for language learning (Bonner et al., 2023; Kusuma et al., 2024; Mohamed, 2024; Nazaretsky et al., 2022), this has not been sufficiently explored in this study. This suggests a potential gap between the perceived potential of AI in assessment and its actual adoption at middle school level.

Collectively, these findings indicate that while AI is being integrated into ELT/L in Viennese middle schools, this integration is primarily functional and tool-driven rather than being pedagogically guided. Teachers rely heavily on widely known generative AI tools, often without awareness of specialised educational technologies. This limited scope of application reflects broader issues of access, training, and familiarity, which will be further explored through an analysis of teachers' motivations for AI use.

5.2 Teacher Motivation for Integrating AI

This project argues that teachers' motivations for integrating AI are largely pragmatic. Teachers' main reasons for integrating AI are to enhance their effectiveness, to save time, and to address challenges in the classroom and their preparation work. Participants frequently identified efficiency and time-saving as a significant factor in their responses. Specifically, they highlighted the automation and adaptive capabilities of certain AI tools as being beneficial for teachers. This was followed by the necessity to automate routine and repetitive tasks, and the hope of improving students' potential. Motivations found in this research study were also present in almost every study conducted on AI in ETL/L (Jiang, 2022; Mohamed, 2024; Moorhouse, 2024; Nazaretsky et al., 2022; Shamsuddinova et al., 2024a). However, this study offers fresh perspectives on why AI is being integrated into teaching practices in Viennese middle schools. A significant insight reveals that a major reason teachers adopt AI is to differentiate their teaching materials more effectively.

AI is widely recognised and utilised as a tool for differentiation, which is necessary in heterogeneous classes. This highlights one of the main reasons why teachers in this study used AI, with this context-specific application being notably emphasised in the findings. Classes of mixed abilities present a significant challenge for Viennese middle schools, given the Austrian education system's focus on academic selection and the streaming of middle school classes into different academic groups. To address this, teachers in middle schools utilise AI in ELT/L to generate multiple versions of the same language learning text and create tailored vocabulary lists or grammar exercises. The headteachers in this study strongly agreed with the teachers' perceptions regarding the ways in which they used AI to differentiate materials and aid in personalised learning. This aligns with the research showing AI's impact on addressing classroom heterogeneity (Tang et al., 2024) and its capability to generate individualised learning materials (Mohamed, 2024; Nazaretsky et al., 2022). However, the way in which the participants of this study explicitly mentioned AI's automation and adaptability suggests that differentiation through AI is a pedagogical necessity. This is especially illustrated by the example of using AI to adapt existing materials and textbooks that were deemed unsuitable for Viennese middle schoolers. Although Kuhail et al. (2023) reported that AI can adapt existing materials, this study provides further context regarding the extent to which differentiation and adaptation of materials can be achieved through AI. In this case, AI can be employed by teachers to support them within a system characterised by a dual grading approach and classroom heterogeneity. Differentiation remains a vital application of AI by English teachers in this framework and remains a key factor in its integration. In light of equity and equitable education (Selwyn, 2021), this project argues that AI tools can alleviate some of the challenges that are recurrent in the Viennese middle school. If teachers and students have been adequately trained to integrate and implement AI tools, this can promote a more equitable school system, as students would have targeted resources to meet their needs.

Moreover, this study found that there were numerous ways in which AI can assist students in developing core language skills. This was proposed in terms of pronunciation, through passive corrections, mimicking a human teacher's approach, which was perceived as successful. This aligns with previous studies showing that AI tools can aid speaking practice with immediate feedback and improved pronunciation (Dizon & Tang, 2020; Ericsson et al., 2023; Zou & Wang, 2024). In addition, this was coupled with the benefit of using AI for writing and grammar. Participants noted AI's utility in looking up grammatical rules and tools such as Grammarly for checking spelling, punctuation and grammar. In line with this, the research highlights Automated Writing Evaluation tools such as Grammarly for improving accuracy in writing (Dizon & Tang, 2020; Kern, 2024; Klimova et al., 2023). Therefore, there is motivation for students to use AI and, similarly, reasons for teachers to adopt these tools in their teaching practices. While teachers in this study highlighted the benefits of using AI for language learning in middle schools, a primary reason for teachers' adoption was to promote independent and personalised learning among students. This project identifies that a key motivation for integrating AI into teaching practices is to benefit students. English teachers in Viennese middle schools generally support the use of AI by students, albeit with a critical perspective. AI can enhance student motivation and engagement, provide advantages for language skill development, and facilitate independent learning. Therefore, this study argues that one of the reasons teachers are utilising AI is to enhance their students' language learning and the methods they employ in education.

This study further highlights the importance of AI tools to empower students to gain independence in their education at Viennese middle schools. AI is viewed as enabling advanced learners to independently tackle extended tasks while providing repetition and support for those who struggle. Consequently, teachers can dedicate their time to students needing more direct assistance. Additionally, the use of tools such as StudySketch to create personalised exercises and tests was emphasised, for promoting student agency in developing their resources. One finding in this regard was that AI tools can scaffold complex assignments, tailor learning paths, and adjust to individual learners' thought processes, thereby encouraging students' ownership of their work. This aligns with existing literature regarding AI's role in supporting learner autonomy (Nazaretsky et al., 2022). The potential of chatbots for providing around-the-clock speaking practice and feedback outside of the classroom, enhancing autonomy and self-regulation. This supports findings that chatbots can function as personal tutors and replicate real-life dialogue, increasing student motivation (Shaikh et al., 2023). In short, teachers in Viennese middle schools see AI as a useful way to help students become more independent learners. By supporting personalised learning, breaking down complex tasks, and offering different types of support, AI allows students to take greater ownership of their learning and work at their own pace. This contributes to the current literature on learner autonomy through AI (Fryer et al., 2020; Goodwin-Jones, 2022), by grounding the benefits of AI tools to students in concrete school environments.

Essentially, it can be argued that teachers in Viennese middle schools adopt AI in order to address practical challenges in the classroom. These include reducing workload, enhancing preparation efficiency, and adapting materials to meet the needs of diverse learners. Teachers' use of AI primarily focuses on differentiation and personalised instruction, which are particularly important in the context of heterogeneous classes. The next section explores teachers' perceptions of AI in ELT/L and in the middle school context.

5.3 Teacher Perceptions of AI Tools

Teacher perceptions are a crucial element of this study as they relate to teachers' AI willingness and preparedness, and the challenges of integrating AI into Viennese middle schools. The responses provide essential background regarding the reasons for teachers' use of AI, or lack thereof. However, this project argues that teachers in Viennese middle schools are generally willing to use AI in their practices but lack the necessary support to implement it effectively, often relying on self-study. Arguably, this latter point is the most significant contribution this study makes to the current literature, and it will be discussed in more detail below.

One of the main findings of this research project is that teachers in Viennese middle schools are generally willing and open to integrating AI in their practices; nevertheless, there remains a significant gap in terms of preparedness. Unlike Belda-Medina & Kokošková (2024), who report a growing trust in AI through guided exposure, this study suggests that teacher learning and experience with AI is largely self-directed. Nonetheless, there is a need for teachers to be prepared and equipped with the necessary digital and AI literacy skills. (Hockly, 2023; Kohnke et al., 2023a; Nazaretsky et al., 2022). However, the majority of teachers in this study who were currently using AI stated that they had very little formal training in this area. Indeed, this was the first barrier to adoption noted as part of this study. Only one participant mentioned AIEd having been a part of their initial teacher training, despite still being currently enrolled in their master's programme in education. Other participants were aware of professional development programmes or were being considered by their headteachers but had no official support. Aside from the pilot study scheme, it can be argued that middle school teachers have neither prepared themselves nor have they been prepared, for the rapid influx of AI into school life. It can be argued that the integration of AI into teaching practices in ELT/L has occurred predominantly through self-study and trial and error. This lack of training and unpreparedness for AI is further evident. This represented another barrier to adoption, as participants indicated that they lacked the time to explore new tools and trial the various functions of AI. Without formal training on how to use these tools, usability and immediate success with a program are critical for teacher adoption. Therefore, the findings from this research can be interpreted through Davis's Technology Acceptance Model (TAM) (Davis, 1989), as ease of use and perceptions of usefulness impact technology adoption. If a tool does not work quickly, motivation can be lost. While teachers in Viennese middle schools are generally open and willing to integrate AI into their English language teaching practices, a major barrier to effective integration

is their lack of formal training and preparedness, which forces them to rely on self-directed learning and limits widespread, confident adoption.

Another critical area in terms of teachers' perceptions of AI in ELT/L in Viennese middle schools' concerns students' digital literacy skills and the potential for misuse. In this respect, it can be observed that teachers' perceptions of the benefits of AI are explicitly linked to students' ability to use it. As part of this study, teachers often emphasised the need to address students' fundamental digital literacy skills before AI can become an effective tool. Age also emerged as a significant factor, with younger middle school students frequently lacking essential digital skills. This highlights the necessity of focusing on foundational skills prior to the introduction of AI. On the other hand, this challenge was often overlooked in the literature on AI's potential, which frequently assumes a baseline level of digital competency. Ericsson et al.'s (2023) study, which examined the use of AI dialogue systems by middle school students, reported positive outcomes in terms of motivation and pronunciation. However, this study provides additional insight by highlighting the disparities in basic digital literacy among this age group. In summary, it can generally be maintained that AI is subsidiary to other digital skills and should only be introduced after digital proficiency is established. This finding was frequently linked to students' abilities to use these tools critically.

Finally, middle school teachers expressed their perceptions in terms of the integration of AI in ELT/L in Viennese middle schools regarding student cheating and dishonesty related to AI. This relates critically to the other ideas explored in this section as this suggests another barrier to adoption. Academic integrity was particularly highlighted as being an issue within writing assignments. This aligns with critical viewpoints on AI, as highlighted by Mohamed (2024) and Selwyn (2021), who warn against the uncritical acceptance of AI-generated content. This study adds that in younger cohorts, academic integrity challenges are compounded by a lack of clarity over what constitutes acceptable AI use, a problem that teachers feel ill-equipped to address. A primary concern raised in this respect was the potential for students to become overly reliant on AI, which could result in diminished cognitive engagement and a decline in independent thinking. Teachers noted the danger of students uncritically accepting AI outputs without assessing their accuracy or potential biases. This raises a fundamental pedagogical challenge: finding a balance between leveraging the benefits of AI and ensuring that students still engage in original thought. Furthermore, teachers expressed uncertainty regarding their ability to establish clear boundaries for the appropriate use of AI by students. Such findings highlight a significant challenge in integrating AI. Although teachers see its potential, they are equally aware of the risks associated with its misuse. In this respect, students, as well as teachers, need concrete guidance on how and when to use AI in ETL/L in Viennese middle schools.

In summary, this study contributes several novel findings to the literature: the key use of AI tools for differentiation in Viennese middle schools, the reliance on self-study and experimental learning with AI due to institutional unpreparedness, and the identification of digital literacy as a precursor for successful AI use amongst students and teachers for successful AI use. These findings provide a more nuanced understanding of how and why AI is used in ELT/L in the context of middle school education.

6. Conclusion

The purpose of this phenomenologically informed, qualitative research project was to examine the state of AI in Viennese middle schools, as perceived by teachers in ELT/L. While the use of AI in education and its various applications in ELT/L have been investigated in scholarly literature, these studies have primarily focused on tertiary education and have not yet been situated within the Austrian context. Therefore, this study is one of the very few to investigate the uses of AI tools among teachers of younger, lower secondary learners, while also examining the Austrian education system, with a particular focus on Viennese middle schools. As such, the findings of this research were analysed according to the research question: how and why has AI been integrated in ELT/L in Viennese middle schools, and what are teachers' perceptions? The findings of this project generally align with those of many other studies conducted on this topic. However, they provide specific context to research on middle schools in Vienna, which are characterised by heterogeneity and mixed abilities. Thus, the results contribute new facets to AI in ELT/L.

Firstly, the major finding of this project was that middle school teachers generally use AI in three key areas: generating teaching materials, lesson planning, and differentiated instruction. While this is supported by previous research, it can be argued

that in this project, differentiation through the use of AI was dictated by the necessity to efficiently and effectively address heterogeneity in Viennese middle school classrooms. This was particularly in response to the lack of suitable existing materials for middle school students in Vienna. Furthermore, it can be maintained that teachers in this setting are motivated and open to using AI but face challenges in its adoption and in utilising its full potential. In this regard, teachers in this context lack formal training and sufficient institutional support. Consequently, educators find themselves in a situation where they can perceive the benefits of AI and its impact on their daily practice but are inadequately prepared. Finally, teachers involved in this study saw a great deal of potential in the use of AI programs for tackling mixed-ability classrooms and managing diverse classroom needs. Furthermore, this potential of AI is enhanced by its ability to support learner motivation and independence. Despite this potential, this study also found that there are a number of key barriers to the integration of AI. Teachers noted that they were constrained by time, perceived AI literacy as a subsidiary skill to students' overall digital competencies, and harboured numerous ethical concerns. Although these findings have been frequently reported in previous literature, the context of the Viennese middle school added nuances to the academic discussion on AI in ELT/L.

It can be argued that the contributions of this project to existing research are multifaceted. Firstly, this project adds valuable insights into a less-explored educational setting, as most of the existing literature on AI in ELT/L tends to focus on higher education rather than middle schools. It also confirms previous findings which have indicated that AI can support time efficiency and differentiated instruction, while tools such as chatbots and AI applications can promote independent learning and assist students in developing their language skills. In spite of this, the present study diverges from earlier research by demonstrating that, in the Viennese middle school context, AI is rarely used for assessment purposes. Moreover, this study indicates that teachers primarily rely on general-purpose tools such as ChatGPT rather than education-specific platforms. This may be linked to various factors, yet it could arguably stem from teachers' familiarity with these tools and the lack of targeted training or institutional guidance. Most significantly, the findings highlight the ways in which the school context itself, including curriculum requirements, classroom heterogeneity, and available resources, influences the adoption and application of AI in practice. Not only do the insights provided by this study confirm the existing knowledge but they also introduce new perspectives relating to middle school teaching in urban centres such as Vienna. However, it is important to consider what these mean in practice for teachers in this school setting in Vienna.

6.1 Implications

As AI increasingly influences daily school life, the question is no longer whether it will be used meaningfully, but how. This transition necessitates a reflective response across educational practices, policies, and research. Teachers cannot be left to navigate this alone. Instead, they require time, professional development, and institutional support to engage critically and constructively with these tools. Targeted professional development regarding general-purpose and education-specific AI tools should be provided to support teachers. Furthermore, time and space should be dedicated in schools to learning and experimentation with AI. The primary focus of this training should be on exploring ways in which AI can enhance differentiated instruction, particularly in linguistically and academically diverse classrooms, which are typical in Viennese middle schools. Moreover, teachers should receive practical assistance to adapt assignments, organise instruction, and address individual learner needs using AI-based tools. From a policy perspective, a concerted effort is essential, including investments in digital infrastructure to establish shared conditions for AI applications across all types of schools. Teacher development programmes must systematically incorporate AI literacy, covering not only tool proficiency but also ethical reflection and pedagogical rationale. Additionally, curriculum plans must consciously acknowledge AI as a legitimate teaching aid and provide straightforward, pragmatic guidance for its responsible and pedagogically informed use. More research is needed to fill existing gaps, particularly in primary and lower secondary education, which remains underexplored in the literature. The growing significance of formative practice at these levels necessitates a closer examination of AI applications for assessment in middle schools, particularly their potential to support enhanced formative practices and alleviate workload.

6.1 Limitations

Since this is a qualitative study, the findings cannot be generalised to a larger population. The

goal here was to explore individual experiences and perspectives in depth, rather than to produce results that apply to everyone. the insights gained are closely tied to the experiences of only English language teachers in Viennese middle schools and contexts involved in the study. Although this provided rich data, interviews were all self-reported. This means data is based on participants' accounts rather than classroom observation, which may not fully represent actual practices.

Furthermore, the sample size of 11 participants constitutes a rather small yet acceptable sample size for interviews. If this study were to be conducted again, the researcher would ensure to interview teachers from more Viennese middle schools. Five schools across Vienna further limit the scope of this research. This is particularly important in considering the varying infrastructure in different schools. It is also important to consider the role of the researcher as an insider in this area. Whilst the familiarity with the subject matter allowed the researcher to ask specific questions based on AI, bias can also be introduced. These limitations were constantly reflected upon during the data analysis and writing of results.

Conflict of Interest Statement

The author declares that they have no known financial interests, personal relationships, or affiliations that could have influenced the work reported in this paper. A conflict-of-interest statement has been provided in accordance with academic and ethical publication standards.

7. Bibliography

Baker, T., Smith, L., & Nandra, A. (2019). Educ-AI-tion Rebooted? Exploring the future of artificial intelligence in schools and colleges. Nesta. https://www.nesta.org.uk/report/education-rebooted/

Bauml, M. (2014). Collaborative Lesson Planning as Professional Development for Beginning Primary Teachers. *The New Educator*, *10*(3), 182–200. https://doi.org/10.1080/1547688X.2014.925741

Bećirović, S. (2023). *Digital Pedagogy: The Use of Digital Technologies in Contemporary Education*. Springer Nature. https://doi.org/10.1007/978-981-99-0444-0

Belda-Medina, J., & Kokošková, V. (2024). ChatGPT for language learning: Assessing teacher candidates' skills and perceptions using the Technology Acceptance Model (TAM). *Innovation in Language Learning and Teaching*, 1–16. https://doi.org/10.1080/17501229.2024.2435900

BMBWF. (2020). Die Mittelschule: Änderungen ab dem Schuljahr 2020/21 im Überblick. BMBWF. 1-44. https://www.bmb.gv.at/dam/jcr:7b6de1bc-36c1-4b54-88f0-7683120238d0/mittelschule_2020.pdf

BMBWF. (2022). Educational Paths in Austria 2022/23. BMBWF. 1–100. https://www.bmbwf.gv.at/Themen/schule/schulsystem/sa.html

BMBWF. (2023). Auseinandersetzung mit Künstlicher Intelligenz Bildungssystem. BMBWF. 1-18. https://www.bmb.gv.at/Themen/schule/zrp/ki/ki_asbs.html

Bonner, E., Lege, R., & Frazier, E. (2023). Large Language Model-Based Artificial Intelligence in The Language Classroom: Practical Ideas For Teaching. *Teaching English with Technology*, *2023*(1), 23-41. https://doi.org/10.56297/BKAM1691/WIEO1749

Braun, V., & Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (eighth edition). Routledge.

Crompton, H., Edmett, A., Ichaporia, N., & Burke, D. (2024). AI and English language teaching: Affordances and challenges. *British Journal of Educational Technology*, bjet.13460. https://doi.org/10.1111/bjet.13460

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, *13*(3), 319-340. https://doi.org/10.2307/249008

Dizon, G., & Tang, D. (2020). Intelligent Personal Assistants for Autonomous Second Language Learning: An Investigation Of Alexa. *The JALT CALL Journal*, *16*(2), 107–120. https://doi.org/10.29140/jaltcall.v16n2.273

Dörnyei, Z. (2012). *Research methods in applied linguistics: Quantitative, qualitative, and mixed methodologies*. Oxford Univ. Press.

Ebadi, S., Gholami, M., & Vakili, S. (2023). Investigating the Effects of Using *Grammarly* in EFL Writing: The Case of Articles. *Computers in the Schools*, *40*(1), 85–105. https://doi.org/10.1080/07380569.2022.2150067

Eder, F. & Neuweg, G. H. (2024). Ausgewählte Probleme der Leistungsbeurteilung

in der Sekundarstufe I. In Jesacher-Rößler, L., & Kemethofer, D. (Eds), *10 Jahre Regelschule—Die (Neue) Mittelschule*. Waxmann. https://doi.org/10.25656/01:29366

Ericsson, E., Sofkova Hashemi, S., & Lundin, J. (2023). Fun and frustrating: Students' perspectives on practising speaking English with virtual humans. *Cogent Education*, *10*(1), 2170088. https://doi.org/10.1080/2331186X.2023.2170088

Erling, E. J., Radinger, S., & Foltz, A. (2023). Understanding low outcomes in English language education in Austrian middle schools: The role of teachers' beliefs and practices. *Journal of Multilingual and Multicultural Development*, *44*(5), 412-428.

https://doi.org/10.1080/01434632.2020.1829630

European Parliament. (2020). What is artificial intelligence and how is it used? https://www.europarl.europa.eu/topics/en/article/20200827STO85804/what-is-artificial-intelligence-and-how-is-it-used

Fathali, S. (2024). Integrating a Web-Based E-portfolio to Enhance EFL Learners' Reading Skills. In J. S. Lee, D. Zou, & M. M. Gu (Eds.), *Technology and English Language Teaching in a Changing World* (pp. 31–43). Springer International Publishing. https://doi.org/10.1007/978-3-031-51540-8_3

Flecker, J., Wöhrer, V., & Rieder, I. (2020). 12. Jugendliche am Ende der NMS: Heterogenität, soziale Ungleichheit und *Agency*. In J. Flecker, V. Wöhrer, & I. Rieder (Eds.), *Wege in die Zukunft* (1st ed., pp. 305–328). V&R Unipress. https://doi.org/10.14220/9783737011457.305

Fryer, L. K., Coniam, D., Carpenter, R., & Lăpușneanu, D. (2020). Bots for language learning now: current and future directions. *Language Learning & Technology*, *24*(2), 8–22. http://hdl.handle.net/10125/44719

Goodwin-Jones, R. (2022). Partnering with AI: Intelligent writing assistance and instructed language learning. *Language Learning & Technology*, *26*(2), 5–24. https://doi.org/10125/73474

Grant, Stuart. (2021). Some Possible Ways into the Question how a Phenomenology of Education might be. In E. Creely, J. Southcott, K. Carabott, & D. Lyons (Eds.), *Phenomenological Inquiry in Education: Theories, Practices, Provocations and Directions*. Routledge.

Helm, C. & Große, C. S. (2024). Einsatz künstlicher Intelligenz im Schulalltag – eine empirische Bestandsaufnahme. *Erziehung Und Unterricht*, *3–4*, 370–381. https://www.oebv.at/images/product-images/Einsatz_kuenstlicher_Intelligenz_im_Schulalltag_Helm_Grosse_E-U.pdf

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

Holmes, W., & Porayska-Pomsta, K. (Eds.). (2023). *The Ethics Of Artificial Intelligence In Education: Practices, Challenges, And Debates*. Routledge. https://doi.org/10.4324/9780429329067

Hong, W. C. H. (2023). The impact of chatgpt on foreign language teaching and learning: Opportunities in education and research. *Journal of Educational Technology and Innovation*, *5*(1), 37-45. https://doi.org/10.61414/jeti.v5i1.103

Husserl, E. (2002). *Ideas: General introduction to a pure phenomenology*. Routledge.

https://www.taylorfrancis.com/books/9781351117586/chapters/10.4324/9781351117586-7

Jaeho Jeon. (2023). Chatbot-assisted dynamic assessment (CA-DA) for L2 vocabulary learning and diagnosis. *Computer Assisted Language Learning*, *36*(7), 1338–1364. https://doi.org/10.1080/09588221.2021.1987272

Jesacher-Rößler, L., & Kemethofer, D. (Eds). (2024). *10 Jahre Regelschule—Die (Neue) Mittelschule*. Waxmann. https://doi.org/10.25656/01:29366

Jiang, R. (2022). How does artificial intelligence empower EFL teaching and learning nowadays? A review on artificial intelligence in the EFL context. *Frontiers in Psychology*, *13*, 1049401. https://doi.org/10.3389/fpsyg.2022.1049401

Kern, R. (2024). Twenty-first century technologies and language education: Charting a path forward. *The Modern Language Journal*, *108*(2), 515–533.

https://doi.org/10.1111/modl.12924

Klimova, B., Pikhart, M., Benites, A. D., Lehr, C., & Sanchez-Stockhammer, C. (2023). Neural machine translation in foreign language teaching and learning: A systematic review. *Education and Information Technologies*, *28*(1), 663–682. https://doi.org/10.1007/s10639-022-11194-2

Kohnke, L. (2024a). Exploring eap students' perceptions of genai and traditional grammar-checking tools for language learning. *Computers and Education: Artificial Intelligence*, *7*, 100279. https://doi.org/10.1016/j.caeai.2024.100279

Kohnke, L. (2024b). Navigating the digital turn: Recent books on technological integration in ELT. *ELT Journal*, *78*(2), 216–233. https://doi.org/10.1093/elt/ccae014

Kohnke, L., Moorhouse, B. L., & Zou, D. (2023). ChatGPT for Language Teaching and Learning. *RELC Journal*, *54*(2), 537-550. https://doi.org/10.1177/00336882231162868

Kopuz, E. (2024). English Language Teachers' Insights on the Influence of ChatGPT on Professional Well-Being. *Journal of Educational Studies and Multidisciplinary Approaches*, *4*(2), 139-154. https://doi.org/10.51383/jesma.2024.107

Kuhail, M. A., Alturki, N., Alramlawi, S., & Alhejori, K. (2023). Interacting with educational chatbots: A systematic review. *Education and Information Technologies*, *28*(1), 973–1018. https://doi.org/10.1007/s10639-022-11177-3

Kusuma, I. P. I., Roni, M., Dewi, K. S., & Mahendrayana, G. (2024). Revealing the potential of ChatGPT for English language teaching: EFL preservice teachers' teaching practicum experience. *Studies in English Language and Education*, *11*(2), 650–670. https://doi.org/10.24815/siele.v11i2.34748

Lim, W. M., Gunasekara, A., Pallant, J. L., Pallant, J. I., & Pechenkina, E. (2023). Generative AI and the future of education: Ragnarök or reformation? A paradoxical perspective from management educators. *The International Journal of Management Education*, *21*(2),100790. https://doi.org/10.1016/j.ijme.2023.100790

Lo, S. (2023). Neural machine translation in EFL classrooms: Learners' vocabulary improvement, immediate vocabulary retention and delayed vocabulary retention. *Computer Assisted Language Learning*, 1–20. https://doi.org/10.1080/09588221.2023.2207603

Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–16. https://doi.org/10.1145/3313831.3376727

Mohamed, A. M. (2024). Exploring the potential of an AI-based Chatbot (ChatGPT) in enhancing English as a Foreign Language (EFL) teaching: Perceptions of EFL Faculty Members. *Education and Information Technologies*, *29*(3), 3195–3217. https://doi.org/10.1007/s10639-023-11917-z

Moorhouse, B. L. (2024). Beginning and first-year language teachers' readiness for the generative ai age. *Computers and Education: Artificial Intelligence*, *6*, 100201. Https://Doi.Org/10.1016/J.Caeai.2024.100201

Nazaretsky, T., Ariely, M., Cukurova, M., & Alexandron, G. (2022). Teachers' trust in AI -powered educational technology and a professional development program to improve it. *British Journal of Educational Technology*, *53*(4), 914-931. https://doi.org/10.1111/bjet.13232

OECD. (2018). Equity in Education: Breaking Down Barriers to Social Mobility. *OECD.* https://doi.org/10.1787/9789264073234-en

OECD. (2020). PISA 2018 Results (Volume V). Effective Policies, Successful Schools. OECD Publishing. https://doi.org/10.1787/ca768d40-en

OECD. (2024). Explanatory memorandum on the updated OECD definition of an AI system. *OECD Artificial Intelligence Papers*, *8,* 1-11. https://doi.org/10.1787/623da898-en.

Piaget, J. (1970). *Science of Education and the Psychology of the Child.* Orion Press.

Pokrivčáková, S. (2019). Preparing teachers for the application of AI-powered technologies in foreign language education. Journal of Language and Cultural Education, 7(3), 135–153. https://doi.org/10. 2478/jolace-2019-0025

Pokrivčáková, S. (2023). Pre-service teachers' attitudes towards artificial intelligence and its integration into EFL teaching and learning. *Journal of Language and Cultural Education*, *11*(3). https://doi.org/10.2478/jolace-2023-0031

Quenzel, G., & Hurrelmann, K. (Eds.). (2019). *Handbuch Bildungsarmut*. Springer VS.

Selwyn, N. (2021). *Education and technology: Key issues and debates* (First edition). Zed Books. https://doi.org/10.5040/9781350145573

Selwyn, N. (2022). The future of AI and education: Some cautionary notes. *European Journal of Education*, *57*(4), 620-631. https://doi.org/10.1111/ejed.12532

Shah, P. (2023). *AI and the future of education: Teaching in the age of artificial intelligence*. John Wiley & Sons.

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

Shamsuddinova, S., Heryani, P., & Naval, M. A. (2024). Evolution to revolution: Critical exploration of educators' perceptions of the impact of Artificial Intelligence (AI) on the teaching and learning process in the GCC region. *International Journal of Educational Research*, *125*, 102326. https://doi.org/10.1016/j.ijer.2024.102326

Soukup-Alrichter, K. (2024). Vorwort. In Jesacher-Rößler, L., & Kemethofer, D. (Eds),*10 Jahre Regelschule—Die (Neue) Mittelschule*. Waxmann. https://doi.org/10.25656/01:29366

Statistik Austria. (2020). *Bildung in Zahlen.* 1-170.https://www.za1.at/

Stickler, U. (2022). *Technology and language teaching*. Cambridge University Press.

Tang, K.-S., Cooper, G., Rappa, N., Cooper, M., Sims, C., & Nonis, K. (2024). A dialogic approach to transform teaching, learning & assessment with generative AI in secondary education: A proof of concept. *Pedagogies: An International Journal*, *19*(3), 493–503. https://doi.org/10.1080/1554480X.2024.2379774

Tomlinson, C. A. (1995). *How to differentiate instruction in mixed-ability classrooms*. Association for Supervision and Curriculum Development.

Vogtenhuber, S. (2023a). Soziale Herkunft, Leistung und Aspiration beim Übergang nach der Mittelschule in den Wiener Bezirken. *Österreichische Zeitschrift für Soziologie*, *48*(3), 451–461. https://doi.org/10.1007/s11614-023-00546-y

Vygotsky, L.S. (1978). *Mind in Society: The Development of Higher Psychological Processes.* Cambridge University Press.

Wang, S., Christensen, C., Cui, W., Tong, R., Yarnall, L., Shear, L., & Feng, M. (2023). When adaptive learning is effective learning: Comparison of an adaptive learning system to teacher-led instruction. *Interactive Learning Environments*, *31*(2), 793-803. https://doi.org/10.1080/10494820.2020.1808794

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

Yang, H., Kim, H., Lee, J. H., & Shin, D. (2022a). Implementation of an AI chatbot as an English conversation partner in EFL speaking classes. *ReCALL*, *34*(3), 327-343. https://doi.org/10.1017/S0958344022000039

Yeo, M. A. (2023a). Academic integrity in the age of Artificial Intelligence (AI) authoring apps. *TESOL Journal*, *14*(3), 716. https://doi.org/10.1002/tesj.716

Young, J.C., & Shishido, M. (2023). Investigating openai's chatgpt Potentials in Generating Chatbot's Dialogue for English as a Foreign Language Learning. *International Journal of Advanced Computer Science and Applications*, *14*(6), 65-72. https://doi.org/10.14569/IJACSA.2023.0140607

Zehetner, E., Janschitz, G. & Fernandez, K. (2022). Bildung zwischen Stadt und Land. Der Mythos Stadt-Land im Spiegel aktueller Forschungsbefunde. Zeitschrift für Bildungsforschung, 12(3), 165–177. https://doi.org/10.1007/s35834-021-00327-1

Zhao, X. (2023). Leveraging Artificial Intelligence (AI) Technology for English Writing: Introducing Wordtune as a Digital Writing Assistant for EFL Writers. *RELC Journal*, *54*(3), 890–894. https://doi.org/10.1177/00336882221094089

Zhi, R., Wang, Y., & Wang, Y. (2024). The Role of Emotional Intelligence and Self-efficacy in EFL Teachers' Technology Adoption. *The Asia-Pacific Education Researcher*, *33*(4), 845–856. https://doi.org/10.1007/s40299-023-00782-6

Zou, B., Liviero, S., Ma, Q., Zhang, W., Du, Y., & Xing, P. (2024). Exploring EFL learners' perceived promise and limitations of using an artificial intelligence speech evaluation system for speaking practice. *System*, *126*, 103497. https://doi.org/10.1016/j.system.2024.103497

Zhou, Y., Zou, S., Liwang, M., Sun, Y., & Ni, W. (2025). A teaching quality evaluation framework for blended classroom modes with multi-domain heterogeneous data integration. *Expert Systems with Applications*, 127884–127884. https://doi.org/10.1016/j.eswa.2025.127884