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Walking in different shoes: unveiling the attitudes of Chinese university teachers and students towards generative AI

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Abstract: The rise of Generative Artificial Intelligence (GenAI) technologies and applications, such as ChatGPT, has prompted significant changes to the landscape of higher education. Amidst the excitement and debates about the potential of GenAI in education, it is often too easy to ignore the perspectives and attitudes of students and teachers towards GenAI and their views on how technology should be integrated into the learning environment. This study fills a gap in the literature by conducting a survey of Chinese university students and teachers to explore and compare their use patterns and attitudes toward GenAI. Intriguingly, the results revealed that despite the differences in use patterns, both teachers and students exhibited similar positive attitudes toward the utility and positive impact of GenAI. However, students seemed to be more concerned about the use of GenAI tools than teachers. The study also examined if language teachers and non-language teachers have different use patterns and attitudes toward GenAI. The study highlights the significance of considering both teacher and student perspectives in policy-making and curriculum design related to GenAI, as well as the need to understand the nuanced attitudes of teachers from different disciplines to provide targeted support.

Keywords: generative artificial intelligence; higher education; technology integration; teacher beliefs

1 Introduction

The integration of Artificial Intelligence (AI) technologies has become increasingly prevalent in our daily lives. At Higher Education Institutions (HEIs), AI-based applications such as automated grading systems and personalized learning

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platforms have greatly impacted teaching and learning processes and have profoundly changed teaching activities in various academic disciplines, particularly in Science, Technology, Engineering and Mathematics (STEM) subjects (Chiu 2023; Wang et al. 2021; Zawacki-Richter et al. 2019). However, it was not until the rise of Generative AI (GenAI) that the potential impact on academic practices truly became apparent (Farrelly and Baker 2023; Wang et al. 2024).

GenAI refers to "a class of artificial intelligence systems designed to generate content or data, such as text, images, video, music, computer code, or even complex combinations of these media, that closely resemble human-created content." (Farrelly and Baker 2023, p. 2). One of the most prominent examples of GenAI is ChatGPT, which is a conversational AI system that generates human-like text responses to user inputs (OpenAI 2022). With its intuitive interface and ability to produce coherent text, ChatGPT has attracted considerable interest from both students and educators at HEIs (Shahzad et al. 2024; Tseng and Warschauer 2023). In the field of language education specifically, a systematic review of publications from ChatGPT's first year revealed how it can be applied across multiple areas including conversation practice, writing support, and teaching material development (Li et al. 2024). Beyond formal language instruction, studies have shown that students have also embraced ChatGPT as a tool for self-directed language learning (Liu and Ma 2023). While still early in its adoption, GenAI tools like ChatGPT appear to be establishing themselves as potentially valuable aids in students' language learning journey. As such, it is important to investigate the attitudes held by students and teachers towards GenAI and how exactly they use GenAI tools.

Attitudes towards technology have been a longstanding research topic in the field of technology acceptance and researchers have discussed the multidimensionality of attitudes, which typically includes enthusiasm, enjoyment, boredom, and interest (Ardies et al. 2015). For an emerging technology like GenAI, teachers' and students' attitudes can significantly influence the integration and effectiveness of GenAI in teaching and learning (Kong et al. 2024; Teo et al. 2018). However, research examining stakeholder perspectives on emerging technologies often lacks a balanced representation of different voices. While a few studies have explored the responses of the academic community towards GenAI, they have primarily focused on either teachers' perspectives (Walter 2024) or students' views in isolation (Ding et al. 2023; Kurniati and Fithriani 2022), without making a direct comparison between the two groups. However, understanding the differences in attitudes towards GenAI between teachers and students is crucial.

In addition, as GenAI tools become increasingly prevalent in education, it is crucial to understand how different groups of teachers respond to and utilize these technologies, particularly the potential differences between language teachers and those in other disciplines. While previous studies have highlighted teachers' general

concerns about the potential misuse of GenAI and associated ethical issues (Ghimire et al. 2024), there has been limited research directly comparing language teachers' attitudes with those of non-language teachers. Language teachers may be more apprehensive about the impact of GenAI on their teaching profession compared to teachers from other fields, particularly due to the potential for students to use GenAI to bypass language learning opportunities and circumvent requirements in writing tasks. Consequently, they may exhibit different patterns of GenAI adoption in their teaching practices compared to their non-language teaching colleagues. Exploring these differences between language and non-language teachers can provide valuable insights for developing targeted support and resources that address their specific needs and concerns while facilitating the responsible integration of GenAI.

This study aims to bridge the research gaps by surveying Chinese university teachers and students to investigate their use patterns and attitudes towards GenAI. Additionally, it will explore potential differences in attitudes between language teachers and non-language teachers regarding their use and attitudes towards GenAI, an area that has received limited attention in existing research. The study will first review the existing literature on attitudes towards AI, particularly those related to teachers and students at HEIs. It will then describe the survey design and data analysis process of the current study. Finally, it will present the results of findings and discuss the implications of the findings from pedagogical and policy perspectives.

2 Literature review

Since the introduction of ChatGPT in November 2022 (OpenAI 2022), GenAI has brought profound changes to teaching and learning at HEIs (Walter 2024). For example, GenAI has been used in programming courses to help students understand programming concepts and assist with programming tasks (Bucaioni et al. 2024). It has also been applied in medical education to aid in medical diagnosis and treatment planning (Kung et al. 2023). As GenAI tools are developed based on vast amounts of text data, their text generation abilities are remarkable, making them a natural fit for the field of language education. Previous studies have shown that the key areas of application of GenAI in language education include conversation practice, writing assistance, teaching material generation, and assessment and feedback (Li et al. 2024).

Although GenAI adoption within Higher Education has increased due to the various affordances that these tools offer to both teachers and students, it is overly simplistic to assume that teachers and students are equally aware of the capabilities of GenAI tools and utilize them in a similar manner. It would also be wrong to assume

that they share uniformly positive attitudes towards the use of GenAI as their perspectives are often mixed and nuanced. To better understand these attitudes, it is helpful to examine how technology acceptance has been studied historically. The extended Technology Acceptance Model suggests that attitudes towards technology are shaped by two key factors: perceived usefulness and perceived ease of use. These attitudes, in turn, influence both the intention to use technology and actual use patterns (Kelly et al. 2023). Building on this framework, research specifically focused on AI acceptance has demonstrated that users' attitudes significantly impact how they perceive and interact with AI systems (e.g., Bergdahl et al. 2023). Unlike traditional technologies where users tend to hold relatively consistent attitudes, research suggests that people's views on AI are notably diverse and often contradictory (Ding et al. 2023). Several factors may contribute to this variation in perspectives. One key factor is that many users feel they have limited choice in engaging with AI-powered services, as these technologies have become deeply integrated into many aspects of daily life (Bergdahl et al. 2023) and are thus pervasive. Additionally, AI systems are generally perceived as more complex and sophisticated than traditional technologies, leading some individuals to express concerns about AI potentially surpassing or replacing human capabilities (Cave et al. 2019). These divergent views have become even more apparent with the emergence of GenAI technologies. In higher education specifically, while some scholars enthusiastically advocate for GenAI by highlighting its transformative potential for educational purposes (Bozkurt 2023; Tseng and Warschauer 2023) and as such call for an increased focus on developing the AI literacy of both teachers and students (Shah 2023), others raise important concerns about ethical implications, potential biases affecting certain student groups (Liang et al. 2023), how best to adopt AI technology in educational institutions with appropriate safeguards (Selwyn 2024), and the uncertain future of specific academic disciplines such as corpus linguistics (Crosthwaite and Baisa 2023).

Several studies have investigated students' and teachers' attitudes towards GenAI, building on the theoretical frameworks of technology acceptance discussed earlier. The following sections of this literature review will discuss both students' and teachers' use patterns and attitudes towards GenAI based on recent research studies. The extent to which the research literature has established similarities or differences between language teachers versus non-language teachers' use patterns and attitudes towards GenAI will also be outlined.

2.1 Students' use patterns and attitudes towards GenAI

Previous studies have demonstrated that students are active users of GenAI tools (Farrelly and Baker 2023). For example, students have reported using GenAI tools for

academic tutoring, learning support as well as pastoral support (Ngo and Hastie 2025). In particular, students have used GenAI tools widely in academic writing tasks and have found them to be helpful in enhancing their writing motivation and confidence (Guo and Li 2024; Meniado et al. 2024; Wang 2024). For instance, Meniado et al. (2024) found that students utilized ChatGPT throughout different stages of the writing process – from brainstorming and organizing ideas to refining outlines, clarifying concepts, and editing drafts for appropriateness and accuracy. In a similar study, Guo and Li (2024) examined how Chinese EFL students created and used personalized GenAI chatbots to support their writing. The students employed these chatbots for various writing tasks, including generating ideas, producing outlines, and identifying errors. Students interacted with the chatbots by requesting assistance, customizing responses, and obtaining translations. Notably, the use of self-made chatbots appeared to positively impact students' writing motivation by helping them establish clearer writing goals, build greater confidence, and develop more positive attitudes towards writing. Wang's (2024) study identified similar advantages to the integration of ChatGPT into various stages of students' writing processes. These included increased efficiency in their work, easing their cognitive load and reducing writing anxiety, as well as opening up new learning opportunities, providing immediate feedback, and improving their overall attitudes towards writing.

Although research suggests that students generally maintain positive attitudes towards GenAI, their views are nuanced. Students, like teachers, may have their own anxieties and concerns about the technology. For instance, previous research has indicated that students are apprehensive about the potential for academic misconduct that GenAI might introduce into their learning experience (Gillissen et al. 2022). They also have wider concerns about artificial intelligence more broadly relating to how it might impact their chosen discipline or future career as well as the rapid pace of change which might make the knowledge or skills they are studying obsolete before they even reach graduation (Mollick 2024). It is crucial to acknowledge and address these concerns to ensure the responsible and effective integration of GenAI in educational settings. For instance, Ding et al. (2023) examined students' perceptions of ChatGPT and found that while the majority expressed intentions to use it in their future learning, they also voiced concerns about potential misuse and limited understanding of the tool's capabilities. Interestingly, a study conducted by Johnston et al. (2024) indicated that students prioritize clarity and fairness in the use of these technologies, suggesting that universities should consider implementing a default, institution-wide policy, allowing flexibility for lecturers to permit alternative uses of ChatGPT in certain assignments. Overall, they believed that an outright ban on these tools would be regressive and potentially hinder their future career prospects. These mixed sentiments were echoed in a study by Baek et al. (2024), where thematic analysis and natural language processing of open-ended responses revealed

inconsistent views about the consequences of using ChatGPT. While some students expressed confidence in their ability to use the tool appropriately, others worried about institutional repercussions.

Notably, Baek et al. (2024) found that demographic factors like income level and academic discipline significantly influenced students' attitudes. Computer science majors, for instance, were particularly concerned about potential job displacement due to generative AI, while students from higher-income backgrounds generally demonstrated more positive attitudes compared to their lower-income peers. These findings suggest that while students are broadly optimistic about GenAI's potential, their attitudes are shaped by various personal and contextual factors.

2.2 Teachers' use patterns and attitudes towards GenAI

It is important to acknowledge that studies looking into the adoption of AI-based technology at HEIs have traditionally underrepresented teachers' voices (Zawacki-Richter et al. 2019). This is also true of the literature on technology integration in higher education settings more broadly as the student voice has been the most prominent whereas the voice of academics often remains sidelined (Hanson 2009). There also appears to be an implicit assumption that teachers should readily embrace new technologies that promise improved teaching and learning outcomes, without sufficient consideration of their beliefs, attitudes, and potential concerns regarding these technologies (Henderson and Corry 2021; Rofi'i et al. 2023). Indeed, Selwyn (2024, p. 11) notes that "educators are positioned as having little control over the nature, pace and direction of this technological change". However, studies on teachers' perception of GenAI use have generally revealed that they have serious concerns about the transparency of AI algorithms and even fear job replacement (Kizilcec 2024). Unfortunately, any resistance to the integration of AI into education often results in teachers being positioned as being in deficit particularly in relation to their tech savvy students (Selwyn 2024).

Despite the aforementioned concerns, many teachers also recognize the potential benefits of GenAI in education. For instance, a study of teacher educators in English language teacher education programs found widespread agreement that GenAI could significantly impact curriculum design, instruction methods, and assessment practices (Moorhouse et al. 2023). This sentiment was echoed in qualitative interviews conducted by Chiu et al. (2024), where teachers acknowledged GenAI's transformative potential across multiple areas including student learning, professional development, assessment, and administrative tasks. In other disciplinary areas, there also seems to be recognition of GenAI's potential benefits. For

example, a scoping review on the use of GenAI in nursing revealed its potential to enhance nursing education by creating personalized learning materials suited to learners' specific skill levels and interests, providing real-time feedback, and generating realistic simulation scenarios. Indeed, most studies in the review conveyed a positive attitude towards incorporating GenAI into nursing education, emphasizing the role that GenAI can play as a learning assistant to bolster students' understanding and better equip them for a healthcare field increasingly shaped by technology (Park et al. 2024).

However, compared to students' generally optimistic outlook discussed earlier, teachers tend to take a more measured approach to adopting GenAI in their own teaching practice. Such a conservative stance appears to stem from two main concerns. The first reason for teachers' cautious approach stems from their concerns about the potential negative consequences that AI could bring to teaching and assessment practices. For example, in an analysis of 194 university teachers' responses about AI, McGrath et al. (2023) found that teachers expressed significant concerns about fairness and accountability in the potential use of AI in assessment. Similarly, a study examining medical educators' perceptions of GenAI revealed that the majority of faculty members worried about academic integrity issues, particularly students' potential cheating behaviors and the possibility of GenAI providing inaccurate information for students. This is compounded by the fact that many educators are aware of the difficulties of detecting AI-generated content and thus flagging potential academic integrity violations. For example, a study conducted by Waltzer et al. (2024) found that although college instructors performed significantly better than chance, they still struggled to identify ChatGPT-generated text, achieving an average accuracy of only about 70 %. This indicates that college instructors face notable challenges in discerning AI-produced writing from that of their students especially as they cannot rely on AI-detection tools as the solution. Educators have also expressed concerns about GenAI potentially reducing meaningful teacher-student interactions in the feedback process and also eroding the trust between teachers and students as the availability of ChatGPT and other GenAI tools may cause teachers to increasingly question the authenticity of student responses to homework and assessment tasks (Farazouli et al. 2023). Additionally, Chan et al. (2023) further highlighted teachers' apprehension about students becoming overly dependent on GenAI tools and their ethical use in academic settings.

The second reason for teachers' conservative attitude towards GenAI appears to stem from their perceived lack of technical knowledge and confidence in using these tools effectively. Research has shown that many teachers report insufficient knowledge and resources to fully leverage AI in their teaching practice (McGrath et al. 2023). These challenges are intensified by the fact that many educators are

already overburdened with heavy teaching responsibilities, large classes, pressures to increase research output, and the expanding administrative duties demanded by their institutions which act as barriers to technology integration. Additionally, there are notable differences across academic disciplines in terms of teachers' confidence levels with GenAI tools. While educators from Computer Science backgrounds generally express high confidence in their technical understanding of GenAI tools, educators from other disciplines tend to report much lower confidence levels, particularly when it comes to detecting AI-generated content in students' work (Ghimire et al. 2024) as previously mentioned. This disparity in technical confidence, combined with the earlier discussed concerns about negative consequences and the barriers often faced when trying to integrate new technologies into their teaching, helps explain why many teachers take a measured approach to adopting GenAI in their classrooms.

However, most existing studies have focused on examining either student or teacher populations in isolation, without directly comparing their attitudes towards GenAI using consistent measurement tools. While the study by Chan and Lee (2023) attempted to compare these two stakeholder groups, it relied on non-validated instruments that lacked theoretical grounding in established AI attitude frameworks. This methodological limitation extends to research focusing on single populations as well. For example, Ding et al. (2023) relied primarily on self-reported experiences rather than systematic measurement when studying students, while Moorhouse and Kohnke's (2024) qualitative study of teachers included only thirteen participants, limiting generalizability. These methodological shortcomings collectively create a significant research gap, namely, the absence of robust, comparative studies using validated measurement tools to systematically examine how teachers and students differ in their attitudes toward GenAI.

2.3 Language teachers versus non-language teachers: use patterns and attitudes towards GenAI

In addition to the comparison between teachers and students, another important dimension to consider is how use patterns and attitudes towards GenAI may vary among teachers from different academic disciplines. Several core concerns are shared among academic faculty across disciplines, many of which have already been discussed in this literature review. These include ethical implications, academic integrity issues, and the risk of students becoming overly reliant on generative AI, potentially leading to skill erosion. Additionally, the impact of AI on assessment practices and the need for clearer policy guidance are concerns that transcend

disciplinary boundaries. While individual attitudes toward GenAI are likely influenced more by personal experience and familiarity than by discipline alone, emerging evidence suggests certain disciplinary trends. Although it would be reductive to assume uniformity within disciplinary groups, some broad patterns can still be observed and acknowledged. For example, language teachers, who are responsible for planning and delivering foreign language courses for college students (Trent et al. 2013), may have different attitudes towards GenAI compared to non-language teachers due to the implications of GenAI technologies for their teaching practice and their professional identity.

Firstly, GenAI tools have become increasingly prevalent in academic writing contexts due to their text generation capabilities. As van Dis et al. (2023) noted, these tools can assist researchers at different stages, from dissertation writing to literature reviews and peer review tasks. Since writing instruction is central to language teaching, language teachers may experience unique challenges as GenAI tools become more integrated into educational practices. While teachers in other disciplines might view GenAI as one of many available teaching tools, language teachers must carefully consider how these technologies affect core aspects of language learning and assessment. For example, GenAI's ability to generate linguistically appropriate text creates particular considerations for writing assessment in language courses (Roe et al. 2024). This suggests that language teachers may need to thoughtfully adapt their teaching approaches and assessment practices to account for GenAI's capabilities while still maintaining pedagogical effectiveness and academic integrity (Jiang et al. 2024).

Secondly, GenAI technologies impose a unique set of challenges on language teachers' professional identity. Research by Felten et al. (2023) analyzed how different occupations are exposed to advances in AI language modelling. Their findings revealed that English language, literature, and foreign language teachers were among the occupations most heavily exposed to AI language models. This varying level of exposure may influence how teachers from different disciplines view and approach GenAI. As a result, language teachers may have unique concerns about how GenAI affects the long-term employability of their students and themselves in language-related professions compared to teachers in other disciplines. These concerns may be further intensified, particularly for language teachers in higher education, who often find themselves on the periphery of academia (Ding and Bruce 2017). The advancement of generative AI could heighten their sense of precariousness within the institution, potentially influencing their attitudes and willingness to engage with AI. If perceived as a threat to their professional identity and job security, generative AI may be met with greater resistance, further shaping their openness to its adoption.

Understanding the differences in attitudes toward generative AI (GenAI) between language teachers and non-language teachers is therefore essential for several reasons. These differences may necessitate tailored professional development support systems to ensure educators feel equipped to use GenAI effectively. Confidence plays a significant role in the willingness to engage with new technologies, and numerous studies have identified the lack of appropriate training and support as a major barrier to adoption (Ertmer and Ottenbreit-Leftwich 2010; Mercader and Gairin 2020). For instance, if language teachers express greater anxiety about GenAI and its potential impact on their professional identity, targeted training interventions will be necessary to help them integrate AI into their teaching practice in a way that aligns with their pedagogical goals (Mah and Groß 2024).

Moreover, understanding the differences in attitudes between language teachers and non-language teachers is crucial for developing more nuanced, discipline-specific GenAI integration policies and guidelines. While many institutions have recently established GenAI policies, these frameworks often adopt a generalized approach that may not adequately address the distinct pedagogical concerns of different academic disciplines (Moorhouse et al. 2023). This generalized approach presents particular challenges for language education, where the development of authentic language production skills requires careful consideration. Without discipline-sensitive guidelines, students might be inadvertently encouraged to use GenAI tools in ways that undermine their language development, such as generating coursework without engaging in the valuable process of language learning themselves. Therefore, a more refined understanding of how attitudes differ across disciplines could therefore help institutions develop more effective, contextually appropriate policies that balance innovation with educational integrity (Luo 2024).

Unfortunately, current research has tended to either examine teachers' attitudes in isolation, focusing on either language or non-language disciplines separately or has presented a combined analysis of teachers' attitudes in general (as in some of the studies aforementioned in this literature review) without providing a comparison of how the attitudes of teachers vary depending on the subject they teach. For instance, Kim and Kim (2022) investigated STEM teachers' perceptions of AI-based tools for scientific writing, finding that most viewed AI positively as an effective scaffolding tool. In contrast, Ma et al. (2024) only focused on language teachers, exploring their ChatGPT literacy and implementation challenges.

To address the aforementioned research gaps, our study aims to employ an adapted version of the validated General Attitudes Toward Artificial Intelligence Survey (GAAIS), developed by Schepman and Rodway (2020) to specifically examine

attitudes towards GenAI in educational contexts. It is hoped that through a systematic comparison between teacher and student groups as well as language teachers and non-language teachers, more robust and generalizable insights into how these key stakeholder groups view the role of GenAI in education can be provided. The research questions (RQs) of the current study are as follows:

RQ1: How do teachers' (both language and non-language) use patterns and attitudes towards GenAI differ from students?

RQ2: How do language teachers' use patterns and attitudes towards GenAI differ from non-language teachers?

3 Methodology

3.1 Participants

The study involved two distinct participant groups: students and teachers from higher education institutions in China. The student participants were recruited from a large English-as-Medium of Instruction (EMI) university in China. According to Macaro et al. (2018, p. 37), EMI refers to "the use of the English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language of the majority of the population is not English". At this particular university, the majority of students are non-native English speakers, and English is used as the medium of instruction for most non-language courses. The teacher participants were university teachers in China, recruited through both convenience and snowball sampling methods. Initially, teachers at the same EMI university were invited to participate, and then participants were asked to share the survey link within their professional networks to expand the reach. This approach allowed for a wider pool of participants given the time constraints and the dispersed nature of the teaching community.

3.2 Survey instrument

As the current study aimed to survey both teachers and students, two versions of the survey instrument were developed. Both versions contained two main parts: the first part examined participants' use patterns, and attitudes towards GenAI in education,

along with their training needs, and the second part collected demographic information. The wording of the items in each version were designed to fit with the participants' daily tasks.

Specifically, the questions about use patterns were adapted from the established EDUCAUSE[1] survey framework (EDUCAUSE 2018). To measure attitudes towards GenAI, we used an adapted version of the General Attitudes Toward Artificial Intelligence Survey (GAAIS). Developed by Schepman and Rodway (2020), GAAIS offers a comprehensive approach to measuring both positive and negative attitudes towards AI across different domains. The original scale consists of 20 items — 12 focusing on social and personal utilities (positive items) and 8 addressing concerns about AI (negative items). The scale's validity was established through Exploratory Factor Analysis (EFA) and the scale also had good internal consistency reliability (Cronbach alpha = 0.88 for Positive GAAIS and 0.83 for Negative GAAIS) (Schepman and Rodway 2020). The scale has also been further validated through subsequent empirical studies (Kaya et al. 2022; Schepman and Rodway 2020). As the original scale was designed with general AI technologies in mind, a few items were removed and modified to ensure that the items asked specifically about GenAI rather than AI more broadly and were relevant to a study focused on educational contexts. The adapted version of the GAAIS was then piloted by a small sample of participants to ensure that the wording of the items was clear and easy to understand. After making necessary changes, the final adapted version was comprised of 10 items — 6 positive and 4 negative statements. The positive statements captured dimensions such as enthusiasm and perceived usefulness (e.g., "There are many beneficial applications of GenAI that can help me with my studies"), while negative statements addressed concerns and anxieties (e.g., "GenAI applications can perform better than humans"). Participants rated their agreement with each statement on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Both survey versions contained approximately 20 questions in total and could be completed in 10–15 mins (see Appendix A for the survey questions). Prior to full administration, the surveys were piloted and changes were made to items deemed to be problematic.

1 EDUCAUSE is a nonprofit association with its mission to advance higher education through technology for its over 100,000 members across more than 2,100 institutions worldwide. The EDUCAUSE annual student survey, which has been active for over 23 years, gathering insights on students' experiences with technology to inform institutional improvements in higher education. More information can be found in www.educause.edu.

3.3 Data collection

The study was conducted in two phases to gather perspectives from both student and teacher populations. In the first phase, which took place in April 2023, the student version of the survey was administered. The first author of the current paper was also the principal investigator of the student survey project and was responsible for the survey data administration. To ensure ethical research practices, an email invitation was sent to all undergraduate and postgraduate students enrolled at the university, which contained three important elements: links to the ethical approval documentation, detailed participant information, and clear instructions for completing the survey. Student participants were also informed of how their data would be anonymized and stored securely. It was made very clear that participation was completely voluntary. Students were then given two weeks to complete the survey. In the end, a total of 716 valid and complete responses were collected.

The teachers' survey was distributed during the summer of 2023, Participants were given four weeks to complete the survey and were assured of both voluntary participation and anonymity. This process yielded 129 complete and valid responses.

Detailed demographic information about both student and teacher participants is presented in Table 1. The student sample comprised 344 undergraduate and 372 postgraduate students, with a higher proportion of female students (n = 432) compared to male students (n = 249). Due to the different response rates of different years of students, there were more first-year students in the sample. Regarding academic disciplines, the majority of students (n = 379) were from non-STEM fields or expressed interest in non-STEM majors. Among teacher participants, there was a notably higher proportion of female teachers (n = 98) compared to male teachers (n = 27). The majority of teachers (n = 115) came from non-STEM disciplines, while only 14 teachers represented STEM fields. The teacher sample included participants from diverse institutional backgrounds and the majority of the teacher participants reported less or equal than 10 years of teaching experiences. Of particular interest to our study, 55 participants were language teachers, while 74 were from other academic disciplines.

3.4 Data analysis

All the data collected from both phases of the study were entered into the SPSS software version 26.0 for analysis. After merging the data of the two participant populations, a series of statistical analyses to answer the research questions were conducted.

Table 1: Survey participants' information.

Categories	Response options	Students (total: 716)	Teachers (total: 129)
Gender			
	Male	249	27
	Female	432	98
	Prefer not to answer	35	4
Year of study			
	Year 1	117	–
	Year 2	85	–
	Year 3	47	–
	Year 4	35	–
	Master students	368	–
	PhD students	64	–
Academic field			
	STEM	271	–
	Non-STEM	379	–
	Not decided	66	–
	Language teachers	–	55
	Non-language teachers	–	74
Types of institutions			
	Project 985 and Project 211 institutions[a]	–	24
	Other double first-class institutions[b]	–	5
	EMI university[c]	716	44
	Regular public undergraduate universities	–	10
	Regular private undergraduate universities	–	46
Years of teaching experiences			
	1–10 years	–	76
	11–20 years	–	35
	21–30 years	–	16
	31–40 years	–	2

[a]Project 211, launched by China's Ministry of Education in 1995, was a strategic initiative to enhance research capabilities at approximately 100 universities deemed crucial for China's development in the 21st century. Project 985 was initiated in 1999 in which 39 universities in Project 211 were further shortlisted so that they can receive more resources to become flagship Chinese universities. See Zong and Zhang (2019) for more details. [b]Double First-Class Institutions refers to the universities approved by China's Ministry of Education to further enhance the level of education development in China. The initiative first started in 2015 and now includes about 140 institutions in China. See Liu et al. (2019) for more details. [c]EMI university refers to the institutions where the first language of the majority of the teachers and students is not English, but English language is used to teach academic subjects (other than English itself). See Macaro et al. (2018) for more details.

4 Results

4.1 Differences in GenAI use patterns and attitudes between teachers and students

Before examining use patterns, it is worth noting that despite a three-month gap between the student and teacher surveys, most participants were familiar with GenAI tools, though more students (98.9 %) reported they were familiar with GenAI tools compared to teachers (88.4 %). The way participants learned about these tools also varied, with social media being the primary information source for both groups (76.8 % for students and 63.2 % for teachers). However, teachers were more likely to discover GenAI through professional networks, with 21.9 % learning about it through colleague recommendations compared to only 6.2 % of students learning about it from peers. These differences in information channels naturally influenced how the two groups went on to engage with GenAI tools in their academic activities.

Regarding the actual use of GenAI tools, our survey revealed that 61.0 % of student participants and 52.8 % of teacher participants had experience using these tools prior to completing the survey. Among the users, both groups demonstrated similar patterns in terms of frequency of use. A slightly higher percentage of students (18.6 %) reported using GenAI tools frequently compared to teachers (16.7 %). When it comes to occasional use, the figures were also similar, with students (43.1 %) only marginally more likely than teachers (42.1 %) to use these tools from time to time. Notably, among those who were aware of GenAI but had not yet used the tools, accessibility emerged as a common barrier — 13.2 % of teachers and 16.0 % of students expressed interest in trying certain GenAI tools but reported lacking access to them (Figure 1).

Our investigation into the purposes and satisfaction levels of GenAI tool use revealed notable differences between teachers and students. A significant majority of

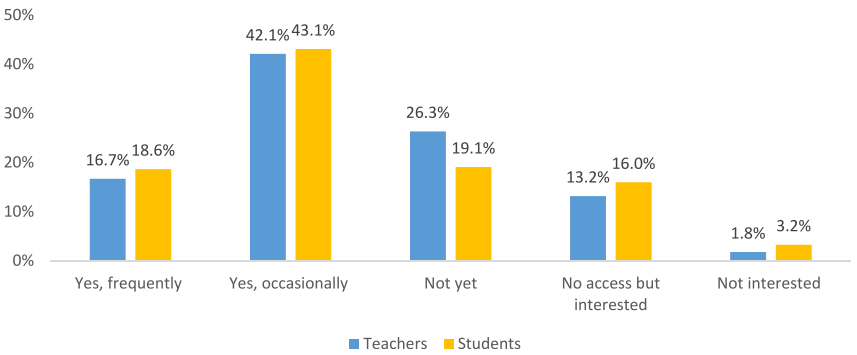

Figure 1: Use patterns of GenAI tools between teachers and students.

teachers (62.7 %) indicated they used GenAI tools primarily out of general curiosity, compared to only 29 % of students. For students, the primary uses centered around practical applications relevant to their learning tasks: language assistance, coursework support, and the generation of multimedia content like images and videos. In contrast, teachers tended to employ these tools for professional tasks, particularly research support and assessment topic generation. The different patterns reveal a notable contrast – while teachers were still in an exploratory phase with GenAI tools, students had already moved beyond experimentation to integrate these technologies into their daily learning routines. The data suggests students were possibly more advanced in practically applying GenAI to support their regular academic activities.

An interesting pattern also emerged in satisfaction levels, with teachers generally reporting higher satisfaction with the usefulness and quality of GenAI tool outputs compared to students. Specifically, over 60 % of teachers indicated they were either satisfied or very satisfied with the output quality for research (65.7 %) and assessment generation (63.6 %). These high satisfaction rates suggest teachers found significant value in applying GenAI tools to their professional tasks. In contrast, a lower percentage of students (55.4 %) reported satisfaction with outputs for language assistance or coursework help. This difference in satisfaction levels was also reflected in recommendation rates, with teachers being more likely to recommend these tools to peers (87 %) compared to students (73 %).

The disparity in satisfaction levels between teachers and students may be attributed to their different use patterns and expectations, as discussed in the previous section. While teachers primarily used GenAI tools out of general curiosity, students employed them for specific academic tasks like language assistance and coursework help. Additionally, students' greater familiarity with and experience using GenAI tools may have led to higher expectations regarding output quality. Teachers, having less experience with these tools, may have been pleasantly surprised by the capabilities demonstrated, leading to higher reported satisfaction levels despite their more exploratory use patterns.

In summary, our survey reveals several key differences in how teachers and students approach GenAI tools. While students use these tools primarily for academic tasks, teachers tend to engage with them more experimentally. Despite their exploratory approach, teachers report greater satisfaction with the tools' outputs compared to students. These findings point to the need for targeted support to help both groups effectively integrate GenAI tools into educational practices, which we will address later in the paper.

As was mentioned earlier, an adapted version of the GAAIS survey was used in both the teachers' survey and the students' survey to assess both their positive and negative attitudes towards GenAI tools. Both surveys showed satisfactory reliability (Positive GAAIS scale: Cronbach's alpha = 0.88 (students) and 0.79

Table 2: GAAIS positive and negative items between teachers and students.

	Teachers		Students		*t*(841)	*p*
	M	SD	M	SD		
GAAIS positive items	3.74	0.74	3.83	0.76	−1.256	0.210
GAAIS negative items	3.13	0.83	2.88	0.79	3.167	0.002

(teachers); Negative GAAIS scale: Cronbach's alpha = 0.75 (students) and 0.67 (teachers)). The findings from the surveys revealed that both teachers and students generally held positive attitudes towards GenAI adoption (Table 2). Although students reported slightly higher positive attitudes (average rating of 3.83) towards GenAI adoption compared to teachers (average rating of 3.74), the independent *t*-test revealed that the difference was not statistically significant ($t(841) = -1.256$, $p > 0.05$).

Analysis of the Negative GAAIS items revealed an unexpected finding: students demonstrated more negative attitudes towards GenAI adoption compared to teachers. After recoding the negative items, students' average rating for negative attitudes was 2.88, while teachers' average rating was 3.12, suggesting that teachers were generally more accepting and less concerned about GenAI adoption. An independent *t*-test confirmed that this difference in negative attitudes between students and teachers was statistically significant ($t(841) = 3.167$, $p < 0.05$). This finding is particularly noteworthy because previous research has typically associated older age with increased technology anxiety and resistance to new technologies (Tsai et al. 2020). However, in our study, teachers appeared to embrace GenAI adoption more readily than students. The potential reasons for this intriguing discrepancy in attitudes will be explored in detail in subsequent sections.

4.2 Differences in GenAI use patterns and attitudes between language teachers and non-language teachers

RQ2 aims to explore whether language teachers' use patterns and attitudes towards GenAI differ from those of non-language teachers. While our analysis showed that language teachers ($n = 55$) were generally more familiar with GenAI compared to non-language teachers ($n = 74$), both groups demonstrated similar patterns in their

Table 3: GAAIS positive and negative items between language and non-language teachers.

	Language teachers		Non-language teachers		*t*(127)	*p*
	M	SD	M	SD		
GAAIS positive items	4.61	0.85	4.60	0.99	-0.033	0.974
GAAIS negative items	2.91	0.86	3.01	1.20	-0.562	0.575

actual use of these tools ($\chi^2(4, N = 129) = 6.63$, $p = 0.157$). This comparable usage pattern provides an interesting foundation for examining potential differences in attitudes between these two groups.

Independent *t*-tests on the positive and negative GAAIS scales were carried out to investigate the aforementioned differences in attitudes towards GenAI between the two teacher groups. In terms of the positive attitudes towards GenAI, the results indicated that language teachers reported very similar positive attitudes towards GenAI (4.61) compared to non-language teachers (4.60), suggesting that both groups recognize the potential benefits of GenAI in their respective fields. Similarly, the average rating for negative attitudes among language teachers was 2.91, while the average rating among non-language teachers was 3.01. The independent *t*-test showed that the difference in negative attitudes between language teachers and non-language teachers was not significant ($t(127) = -0.562$, $p > 0.05$). In short, both groups demonstrated very similar levels of positive and negative attitudes towards GenAI as measured by the GAAIS (Table 3).

We also conducted a series of tests to analyze the potential external factors, such as gender, and types of institutions that may influence teachers' attitudes towards GenAI adoption. The analysis revealed that neither of these factors had a significant influence on either teachers' positive or negative attitudes towards GenAI. Overall, the results seem to indicate that regardless of their academic fields and types of institutions, teachers generally hold similar attitudes towards GenAI.

5 Discussion

5.1 Usage patterns and experience differences between teachers and students

This study investigated the use patterns of GenAI tools like ChatGPT among university teachers and students. Through an adapted version of the GAAIS survey

instrument, we conducted one of the first direct comparisons examining how GenAI is perceived by both teachers and students, while also exploring potential differences between language teachers and those in other disciplines.

The research findings revealed several interesting similarities and differences in attitudes between teachers and students. First, the results indicated that students and teachers relied on different channels to learn about GenAI. While both groups primarily obtained information through social media, teachers were significantly more likely to depend on peer recommendations compared to students. This difference may stem from students' generally higher comfort level with technology and a greater willingness to independently explore new tools like GenAI. In contrast, teachers, who often face time constraints, and other institutional barriers that limit direct experimentation with new technologies, appear to rely more heavily on guidance from their professional networks when learning about GenAI. Indeed, it is well documented in the research literature that technology integration by educators is facilitated by support and guidance from peers (Ertmer and Ottenbreit-Leftwich 2010; Kopcha 2012). Educators build trusted relationships and shared understandings, and professional networks allow teachers to learn from peers who operate within similar contexts such as type of institution, subject area and student population. It is therefore unsurprising that teachers would look to their professional networks for evidence-based recommendations when considering adopting new technologies such as GenAI. This finding suggests an important need to provide teachers with structured professional development opportunities and resources to help them stay current with emerging GenAI tools (Kizilcec 2024) and which take into account the importance of fostering peer support networks through which examples of best practice can be shared.

Our results also indicated that a higher percentage of student respondents had prior experience using GenAI tools compared to teachers. However, among those who had used these tools, the frequency of use was notably similar between both groups. Interestingly, the two groups reported distinctly different primary motivations for using GenAI tools. Students predominantly used the tools for practical purposes such as language assistance and coursework completion, while teachers primarily employed them for exploratory purposes like testing AI capabilities, conducting research, and developing assessment materials. This difference in use patterns appears reasonable given the distinct roles and responsibilities that students and teachers have in academic settings. The disparity may also reflect differences in confidence and competence levels regarding content knowledge and language proficiency. Our findings suggest that as students become more familiar with the technology, they tend to integrate GenAI tools more as supportive resources in their learning process, whereas currently, teachers appear to maintain a more experimental approach in their use.

5.2 Attitudes and concerns toward GenAI

Analysis of the adapted GAAIS results also revealed notable similarities and differences in attitudes between teachers and students. Both groups demonstrated relatively positive attitudes towards the potential benefits of GenAI in education, as evidenced by their high mean scores on the Positive GAAIS subscale. This positive outlook likely stems from both students' and teachers' recognition of the broad applications and benefits of GenAI tools in their daily lives (Bower et al. 2024; Southworth et al. 2023).

Surprisingly, our survey results indicated that students expressed more concerns about GenAI tools than teachers, as shown by the significant difference on the Negative GAAIS subscale. This finding challenges the common assumption that students would be more receptive to educational technology and less apprehensive about GenAI tools (Sprenger and Schwaninger 2021). Several factors may explain this unexpected result.

Firstly, students may be more attuned to potential risks associated with GenAI use, particularly regarding academic integrity or may feel confused as to what constitutes acceptable use of these tools especially in the completion of assessments. The lack of clarity that currently exists regarding the boundary line between appropriate and inappropriate use of these tools means that "confusion reigns about when the use of AI constitutes plagiarism or contravenes ethics" (Kwon 2024, para.17). This may heighten feelings of apprehension as students grapple with how best to utilize these tools in "critical, authentic and ethical ways that would promote rather than harm their learning" (Wang 2024, p. 14). Previous research has also documented broader student concerns about AI accuracy and transparency (Chan and Hu 2023). Second, although teachers likely feel concerned about the ways in which their students will utilize these tools, they may personally experience less pressure when using GenAI. This could result from the fact that they typically possess stronger content knowledge and a better understanding of ethical academic practices which in turn may lead to greater confidence in their ability to use these tools in effective, responsible and ethical ways.

Additionally, instructors typically possess greater autonomy in determining whether and how to integrate GenAI into their teaching. In contrast, students are often required to adhere to teacher-imposed guidelines on GenAI use, which can create uncertainty regarding appropriate implementation as previously mentioned. This confusion may be further exacerbated if different teachers provide varying guidelines on the scope and extent of the use of GenAI that is permitted on a particular piece of work, for example, a summative assessment task. These guidelines may vary in order for effective and responsible use to be aligned with the

learning outcomes of the modules that they are teaching or the nature of the assessment task that has been set. This confusion can be further intensified if the institution does not establish a clear, overarching policy or set of guidelines for GenAI use, which could serve as a consistent reference point for students. Students may also face peer pressure to use GenAI tools to keep pace with their classmates, rather than choosing to use them based on genuine interest or need, especially if they perceive these tools as providing an advantage when completing assignments. When students feel compelled to use GenAI tools despite uncertainties, their sense of autonomy and agency is diminished, potentially heightening their concerns and unease.

Further qualitative research would be valuable to explore these differential concerns and better understand the specific reasons underlying the disparities in negative attitudes towards GenAI tools between teachers and students.

5.3 Implications and recommendations for higher education

Our study represents one of the first comparative analyses of language teachers' and non-language teachers' attitudes towards GenAI. Despite potential concerns about job displacement, language teachers exhibited similar levels of both positive and negative attitudes towards GenAI as non-language teachers. This unexpected finding may potentially stem from language teachers' greater familiarity with GenAI tools, which could contribute to increased confidence in utilizing them effectively.

However, it is important to note that language teachers' attitudes towards GenAI may evolve as the technology's impact on language teaching and learning becomes more apparent over time. While existing literature often considers GenAI's impact on Higher Education more broadly, different academic fields may be affected in varying ways due to their distinct pedagogical approaches, content types, and technological integration possibilities. For instance, academic fields involving text-based learning tasks (such as language teaching) may experience more significant effects from GenAI compared to those centered on non-textual learning tasks (like engineering). This variation could lead to discipline-specific differences in how teachers approach GenAI integration – some may actively encourage its use while others may see less relevance for their field. These varying attitudes could further amplify the divergence in GenAI adoption across disciplines. Therefore, understanding these disciplinary differences becomes crucial for institutions to effectively address diverse departmental needs and promote balanced GenAI adoption across the curriculum.

Furthermore, our study has important implications for the integration of GenAI tools in higher education settings, particularly in EMI universities. All student

participants in our study were from a large EMI university in China. Our findings show that students frequently rely on GenAI tools for language assistance and coursework completion, suggesting that EMI universities need to proactively address the appropriate use of these tools. This includes developing clear guidelines on how students can effectively leverage GenAI tools to enhance their learning while maintaining academic integrity.

Lastly, the higher level of concern expressed by students compared to teachers underscores the need for institutions to develop tailored AI literacy programs that specifically address students' apprehensions. AI literacy, as defined by Long and Magerko (2020), comprises "a set of competencies that enable 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" (p. 2). This concept has gained significant attention recently, with growing recognition of the need for targeted training programs. Through carefully designed interventions focused on AI literacy, institutions can help equip students with the necessary skills to critically evaluate and responsibly utilize GenAI tools in their academic pursuits. This extends beyond preparing students merely for successful graduation in their chosen academic disciplines and moves towards cultivating broader, transferable employability skills among which AI literacy is likely to become a key component. However, that is not to say that AI literacy for educators should be overlooked due to the integral role that teachers play in guiding students in the acquisition of both knowledge and skills as educators are well positioned to model effective and responsible use of AI tools. Moving forward, AI literacy is therefore likely to form a key component of teaching qualifications and become a more formalized component of professional development initiatives in schools and universities globally.

In short, the observed differences in use patterns and attitudes towards GenAI tools between teachers and students highlight the need for a coordinated institutional approach to ensure all stakeholders develop up-to-date knowledge of GenAI developments. To achieve this goal, institutions should implement carefully designed AI literacy training programs tailored for both teachers and students. These programs, combined with clear institutional policies and adequate resources, will play an essential role in fostering the responsible adoption of GenAI across all educational contexts.

6 Conclusions

Several limitations of this study should be acknowledged. First, there is a notable disparity between the sample sizes of students and teachers, with student participants significantly outnumbering teacher participants. This imbalance may

introduce potential bias into the results. Additionally, the student participants were recruited from a single institution type, which limits the generalizability of our findings. It is also important to note that the institution from which the student participants were recruited is very proactive in terms of encouraging and promoting the use of GenAI by both staff and students, which also limits the generalizability of the findings to other student populations. Future research would benefit from including student participants from a broader range of institutional settings to develop a more comprehensive understanding of GenAI adoption across different educational contexts. The student sample also included a higher proportion of first year undergraduate students compared with other years, which may also limit the generalizability of the findings to other student populations. Furthermore, we employed both convenience and snowball sampling methods to recruit teacher participants, starting with a known group of colleagues and subsequently asking them to share the survey link within their professional networks. We acknowledge that these methods may introduce selection bias, as individuals who are more engaged in professional networks or have a particular interest in GenAI may have been more likely to respond. Consequently, the sample may not be fully representative of the broader teacher population.

The three-month gap between conducting the student and teacher surveys represents another methodological limitation. Finally, since this study was conducted during the early stages of GenAI development, the findings may not fully reflect current attitudes and use patterns, given the rapid evolution of these technologies. To address these temporal limitations, we recommend future studies employ longitudinal research designs to track how teachers' and students' attitudes towards GenAI change over time as the technology matures and becomes more integrated into educational practices.

However, this study represents one of the first attempts to examine the attitudes of both teachers and students towards GenAI, while also exploring differences between language teachers and those from other disciplines. Our results provide valuable insights into the current landscape of GenAI use patterns and attitudes among teachers and students in China. The findings suggest that while both teachers and students generally hold positive views towards GenAI, students express more specific concerns about its potential negative impacts. These results highlight the importance of developing targeted training programs to help both teachers and students develop critical evaluation skills and learn to use GenAI responsibly. Looking ahead, we recommend conducting longitudinal studies to track how attitudes towards GenAI evolve over time among both groups. Furthermore, additional research is needed to better understand the nuanced perspectives of teachers across different subject areas. Such insights would be invaluable for developing evidence-

based policies that effectively prepare students for an educational landscape increasingly shaped by GenAI technologies.

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Appendix A: Survey questions

Part 1: Use patterns of GenAI applications.

1. Have you heard of any GenAI applications (such as ChatGPT) prior to this survey? (Yes/No)
2. How did you first learn about GenAI applications? (Through media or online advertisement/Through recommendation from friends or family (Student Version) or Through professional development events/workshops (Teacher Version/Others)
3. Have you ever used GenAI applications before?(Yes, frequently/Yes, occasionally/No, but I'm interested in trying it/No, I'm interested in trying it but I don't have access to/No I'm not interested in using it)
4. How often do you use GenAI applications? (Daily/A few times a week/Once a week/Rarely)
5. What have you used GenAI applications for? (Student version: Language assistance/Coursework assistance/Generation of copy-right free texts, images or videos/General curiosity) (Teacher version: Providing feedback to students/Generating assessment prompts and topics/Assisting my own research/General curisosity/Others)
6. How satisfied are you with the responses provided by GenAI applications? (Five-point Likert Scale, with "1" meaning "Very Dissatisfied" and "5" meaning "Very Satisfied")
7. Would you recommend GenAI applications to other colleagues (Teacher version)/other students (Student version)? (Yes, definitely/Yes, maybe/Neutral/No, probably not/No, definitely not)

Part 2: General attitudes towards GenAI questions (Five-point Likert Scale, with "1" meaning "Strongly Disagree" and "5" meaning "Strongly Agree").

1. I'm impressed by what GenAI applications can do.
2. I'm interested in using GenAI applications in my daily life.

3. There are many beneficial ways in which GenAI applications can help me with my work (Teacher version)/my studies (Student version).
4. GenAI applications can provide new work opportunities (Teacher version)/ learning opportunities (Student version) for people.
5. Much of society will benefit from a future full of Gen AI applications.
6. GenAI applications can perform better than humans.
7. I think GenAI applications are dangerous.
8. GenAI applications may take control of people.
9. I think GenAI applications make many errors.
10. People like me will suffer in the future if GenAI applications are used more and more.

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