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The role of GenAI in learning Chinese as a foreign language: perspectives from university students in Ireland

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Abstract: Generative AI (GenAI) is reshaping language education and continues to shape how learners access, produce and evaluate knowledge. Its application in learning Chinese as a Foreign Language (CFL) in Ireland, however, remains limited and underexplored. This study investigates how university students in Ireland engage with GenAI tools to support their CFL learning. As a small-scale exploratory study, an anonymous online questionnaire was distributed across five Irish universities between May and June 2025, yielding 19 valid responses from students across four year groups. Quantitative data show the distribution of GenAI use while thematic analysis of open-ended responses provides insights into learners' experiences, orientations and ethical perspectives. The findings reveal three preliminary learner personas, namely pragmatic users, critical users and principled non-users. Overall, GenAI emerges as a conditional learning partner that offers both pedagogical benefits and challenges. By offering empirical evidence from an underrepresented context, this research helps inform CFL curriculum design, language teacher education and policy development to ensure the responsible use of GenAI in higher education.

Keywords: Chinese as a foreign language; Generative AI (GenAI); student perspectives; language education; Ireland

1 Introduction

Generative Artificial Intelligence (GenAI) represents a major innovation in contemporary education. It is transforming how knowledge is produced, accessed and evaluated. In language education, tools such as, *inter alia*, ChatGPT, Copilot, Gemini

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and DeepSeek offer personalised feedback, adaptive content, grammar correction, translation support, conversational practice and cultural insights, supporting more responsive and individualised learning experiences. Research on GenAI in language learning has expanded rapidly, particularly in English as a Foreign Language (EFL), where its pedagogical potential and challenges have been widely explored. Although much of this research focuses on English, GenAI is increasingly relevant to the teaching and development of other languages, including Chinese as a Foreign Language (CFL). In Ireland, CFL has developed over the past two decades, reflecting the growing recognition of China's global influence. The establishment of Confucius Institutes at University College Dublin, University College Cork and the University of Galway has played an important role in promoting Chinese language and culture. Several Irish universities now incorporate Chinese into degree programmes such as Chinese Studies, Applied Languages, Translation Studies and International Business. Some institutions also offer elective Chinese modules to students from other disciplines, illustrating the increasing cross-disciplinary interest in CFL learning.

National frameworks and institutional initiatives in Irish higher education are beginning to provide guidance on the responsible use of GenAI, emphasising ethical accountability, digital responsibility and evidence-based pedagogical integration across disciplines (NAIN 2023; NFETL 2025; O'Sullivan et al. 2025; Quintanar and Rooney 2025). Yet despite these developments, research connecting GenAI to language education in Ireland remains limited. Studies focusing specifically on CFL are particularly scarce. The Irish context therefore represents an early-stage environment for GenAI adoption. Although policy awareness is increasing, classroom-level evidence within language education remains underdeveloped. Against this backdrop, the current study investigates how university students in Ireland use GenAI to support their CFL learning, the benefits and challenges they perceive and the broader cultural, ethical and pedagogical issues that emerge. By foregrounding student perspectives within a small-scale qualitative design, the study aims to provide contextually grounded insights into how GenAI is reshaping CFL learning in an emerging context. In doing so, it seeks to contribute to international discussions concerning the responsible and effective integration of GenAI in language education.

2 Literature review

GenAI refers to artificial intelligence systems capable of creating text, images and other forms of media through the use of generative models (Sengar et al. 2025). It encompasses technologies that automatically produce content in response to prompts entered via natural-language conversational interfaces (Miao and Holmes 2023). The term *generative* highlights the ability of AI to produce novel outputs rather

than merely reproducing, categorising, processing or analysing inputs (Chan and Colloton 2024). GenAI chatbots are described as dialogue-based systems that process user requests and generate human-like responses, effectively functioning as virtual tutors available at any time (Kukulska-Hulme et al. 2024). GenAI holds promise for enhancing learning experiences by providing scalable personalised support, diversifying learning materials, enabling timely feedback and facilitating innovative assessment methods (Yan et al. 2024). Consequently, a growing body of research has examined students' perspectives on the use of GenAI in higher education (Chan and Hu 2023; Kim et al. 2025).

Building upon this expanding body of literature, the integration of GenAI into language education has been empirically explored in recent years. For example, Lee et al. (2026) identified a range of pedagogical roles that GenAI can serve, including feedback provider, learning tutor, cognitive stimulator, interaction facilitator and conversation partner. Several studies have investigated the effectiveness and potential of GenAI in enhancing different dimensions of language acquisition. For instance, two-thirds of Kohnke et al.'s (2025) participants regularly used GenAI tools, finding them particularly beneficial for grammar, writing, vocabulary and reading. Studies have shown that GenAI can enhance learners' oral proficiency, for example, through structured role-play activities (Chen et al. 2025) or through informal digital learning practices (Guan et al. 2025). Furthermore, research has identified benefits associated with GenAI use beyond linguistic outcomes. For example, Yuan and Liu (2025) linked AI use to increased enjoyment and engagement while Guo and Wang (2025) reported improvements in cognitive, emotional and social engagement. Moreover, Jiang et al. (2025) found that integrating GenAI tools significantly enhanced students' autonomous motivation by supporting their psychological needs for autonomy, competence and relatedness, compared with traditional classroom methods.

However, despite these encouraging developments, a growing number of studies have also highlighted the challenges and risks associated with the use of GenAI. Regarding the GenAI-generated content, specific issues encompass irrelevant feedback (Kohnke et al. 2025) and generate plausible yet inaccurate or outdated information (Kukulska-Hulme et al. 2024), with errors that may remain undetected unless users possess substantial subject knowledge (Miao and Holmes 2023). A particularly persistent concern is the problem of overreliance on GenAI (Kohnke 2024; Kohnke et al. 2025; Lee et al. 2026). Other studies have drawn attention to ethical and accessibility issues, including bias (Kukulska-Hulme et al. 2024), data privacy risks and inequitable access (Kohnke 2024; Kukulska-Hulme et al. 2024) as well as threats to academic integrity (Lee et al. 2026). From a pedagogical perspective, GenAI has also been associated with various limitations, including discouraging of critical thinking, creativity and speaking skills (Liu et al. 2024), and, more broadly, reduced learner

motivation and engagement, fewer opportunities for hands-on practice, diminished creativity and restricted proficiency development (Lee et al. 2026). Furthermore, GenAI has been criticised for its limited ability to generate original ideas or practical real-world solutions (Miao and Holmes 2023).

Recognising both the benefits and the challenges, scholars have argued that the effective integration of GenAI requires robust pedagogical support to cultivate critical, ethical and digital literacy competencies (Saúde et al. 2024). Since GenAI tools can easily reduce the cognitive load of many tasks, a culture shift in education is needed to promote learning with these tools rather than using them merely to complete assignments and learning activities with minimal effort (Thorne 2024). According to Owoseni et al. (2024), learning should therefore extend beyond knowledge acquisition (know-what) to encompass the development of competencies (know-how) and the demonstration of performance (show-how). They argue that a pedagogical approach which directs learners' attention not only to the inherent value of knowledge but also to its potential application is more likely to foster deep learning. From their perspective, GenAI can be adopted by learners not as a shortcut but as an assistive tool. It can help learners create personalised exercises, receive instant feedback and simulate conversations tailored to their individual needs and pace during self-directed language learning (Moorhouse and Wong 2025). However, the effectiveness of this adoption largely depends on learners' trust in GenAI, which has been identified as a key factor shaping students' engagement with the technology and influencing their behavioural intentions through both reliance and resistance (Wang et al. 2025). For instance, perceived trust significantly moderates the relationship between ChatGPT awareness and perceived ease of use, usefulness and intelligence (Shahzad et al. 2024). Nevertheless, learners' engagement with GenAI is far from uniform. Examining language learners' GenAI-assisted writing self-efficacy profiles and their relationship with self-regulated learning strategies, Liu and Zhang (2025) suggested that students can be classified into four profiles. "Highly confident all-rounders" felt competent in taking advantage of GenAI tools, fully engaged in anthropomorphic interactions with the technology, used the tools confidently and calmly and demonstrated mastery of the technological skills required for GenAI-assisted writing tasks. "Practical assistance seekers" viewed GenAI as a useful aid for specific writing tasks and relied on it primarily for linguistic or structural support, such as checking vocabulary, grammar and sentence coherence. "Interaction-oriented communicators" valued the interactive features of GenAI for communication and language practice while remaining sceptical about its practical utility in improving writing quality. "Unconfident less-adaptable users", by contrast, reported low confidence across all dimensions related to using GenAI to enhance their writing and showed limited adaptability to GenAI-assisted learning environments.

While the broader application of GenAI in language education has received considerable scholarly attention, prominently within EFL contexts, research exploring its use in CFL is also emerging. Among various GenAI tools, ChatGPT has attracted particular attention for its potential to transform multiple aspects of teaching and learning. Recent studies have explored its role in Chinese L2 writing (Song and Tang 2025; Yang and Chen 2026), Chinese L2 academic writing (Chen and Gong 2025; Sun et al. 2026) and the development of critical thinking skills (Jiang et al. 2024). Moreover, Zhang (2025) suggested that ChatGPT functions more as an interactive, adaptable and comprehensive real-time dictionary for Mandarin Chinese than as a simple content facilitator. Beyond examining its linguistic features, recent scholarship has also begun to investigate learners' perceptions and affective responses to ChatGPT use in CFL contexts. Sun et al. (2025) found that individual cultural values shape learners' acceptance of ChatGPT. Direct interaction with the tool was shown to build confidence, lessen apprehension and promote deeper engagement with Chinese language and culture. Familiarity with its functions fostered positive attitudes and greater willingness to pursue self-directed learning. Learners often viewed ChatGPT as a fast and convenient aid, sharing favourable experiences with peers that further encouraged participation. Yet, in contexts characterised by high power distance, limited teacher endorsement or institutional support reduced motivation to use it. Although enthusiasm was widespread, students still called for teacher guidance, self-regulation and emotional support. In a related study, Sun and Wang (2024) examined CFL learners' perceptions of ChatGPT through the lens of technology acceptance. They found that perceived usefulness, facilitating conditions and growth mindset significantly predicted behavioural intention to use ChatGPT, whereas perceived ease of use had no direct effect. Positive perceptions clustered around three main themes: appreciation and optimism, user-friendliness and efficiency and personalised learning with access to diverse resources. Conversely, negative perceptions centred on ChatGPT's limited intelligence and lack of precision, naturalness and specificity. According to them, some students cautioned against overreliance, suggesting that its use should remain measured and reflective, while others expressed concerns that the tool might foster passivity or laziness.

These studies demonstrate that CFL learners' engagement with ChatGPT encompasses both pedagogical opportunities and challenges, highlighting the complex interplay between technological potential and contextual limitations. Building on this scholarship, the present study investigates these dynamics within the Irish higher education context, using CFL as a representative case. By foregrounding the perspectives of university students of Chinese in Ireland, the research examines how these learners engage with GenAI to support their CFL learning, how they perceive its educational benefits and limitations, and the implications that emerge. Specifically, the study is guided by the following research questions (RQs):

- RQ1:** How do university students in Ireland engage with GenAI tools to support their learning of CFL?
- RQ2:** What benefits and challenges do students perceive in using GenAI for CFL learning?
- RQ3:** What pedagogical implications arise from students' engagement with GenAI in language education?

3 Methodology

The aim of this study was to explore university students' perceptions, experiences and self-reported practices regarding the use of GenAI tools in learning CFL within Irish higher education. Given the exploratory nature of the research and the focus on students' perceptions and practices, a primarily qualitative, descriptive research design was adopted, complemented by some quantitative data to contextualise participants' backgrounds and usage patterns. The target participants were university students in Ireland who were studying CFL. All eight universities within the Irish Universities Association (IUA 2025) were approached. In accordance with institutional ethical requirements, the researchers did not have direct access to students' contact details. Instead, relevant school offices acted as gatekeepers and distributed the survey link to their CFL students. Five institutions confirmed that they forwarded the invitation to participate. Official figures regarding the total number of students enrolled in CFL programmes across Irish universities are not centrally published. As a result, it was not possible to determine the overall sampling frame or calculate a response rate. At the design stage, approximately 30 responses were considered feasible, given the size of the Irish higher education sector and the relatively limited number of CFL programmes nationally. In total, 19 valid responses were received. Although the final number was slightly lower than anticipated, it provides sufficient depth for thematic analysis of open-ended responses, as the study sought to offer interpretive insight into learners' orientations and experiences within a specific emerging context. The distribution across academic years was as follows: eight first-year students, seven second-year students, two third-year students and two fourth-year students. This provides a relatively balanced representation, with slightly higher input from earlier years.

Data were collected via an anonymous online questionnaire hosted on Qualtrics. The survey was open between May and June 2025 (see Appendix A). Participation was entirely voluntary and no financial or academic incentives were offered. The questionnaire included both closed-ended items and open-ended questions. The closed-ended items included demographic information, confirmation of GenAI use and preferred GenAI tools while the open-ended questions focused on perceived benefits

and challenges, reasons for using GenAI, engagement and motivation, impact on learning outcomes and areas for improvement in GenAI-assisted learning. The questionnaire was developed based on a review of prior research on GenAI in language learning and was reviewed by two colleagues for clarity and relevance. The use of an online questionnaire was chosen for its accessibility and convenience, allowing students from geographically dispersed institutions to participate without requiring synchronous meetings or travel.

Qualitative data was analysed using thematic analysis, following the framework proposed by Clarke and Braun (2017). This approach involves identifying, analysing and interpreting patterns of meaning (“themes”) within qualitative data and enables the exploration of patterns across participants’ experiences, perspectives and behaviours regarding the use of GenAI in CFL learning. Initial codes were generated manually by the first author to capture recurring ideas across the open-ended responses. These codes were subsequently organised, reviewed and grouped into broader categories and preliminary themes. The themes were discussed iteratively and in depth between the two authors to enhance analytical consistency and credibility. A fuller description of the themes, categories, representative codes and examples is provided in Appendix B. Through this collaborative process, four overarching themes were finalised: (a) non-users’ perceptions of GenAI, (b) experiences of GenAI use (including perceived benefits and challenges), (c) learner orientations towards GenAI in CFL, and (d) future pedagogical integration of GenAI. The theme of learner orientations towards GenAI in CFL emerged as an interpretive synthesis of patterns identified across both non-users’ perceptions and users’ experiences. Quantitative data from the closed-ended questionnaire items provided descriptive context, including participant demographics and patterns of tool usage, complementing the qualitative findings and contributing to a more comprehensive understanding of the dataset.

Ethical approval was obtained from the researchers’ faculty ethics committee prior to data collection. Participants provided informed consent before completing the survey. To ensure confidentiality, all responses were anonymised and participants were assigned codes that identified their year of study and individual response. The first part of the code (S1, S2, S3 or S4) denotes the student’s academic year, with S1 representing first-year students, S2 second-year students and so on. The second part of the code (e.g., 0.1, 0.2, 0.3) identifies the specific participant within that year group. For example, S1.1 refers to the first respondent from the first-year group while S3.2 refers to the second respondent from the third-year group. This system protects participants’ identities while allowing the researchers to examine patterns and differences in experiences across academic years. This coding system allowed the researchers to analyse patterns and trends across different academic years,

providing insights into how experiences with GenAI tools may vary depending on students' progression through their CFL programmes.

4 Findings

Based on data collected from 19 university students studying CFL in Irish universities, the findings are organised around key themes that emerged from both the quantitative and qualitative responses to the questionnaire. These themes include the distribution of GenAI tool use, reasons for adoption or avoidance, perceived benefits and challenges of using GenAI, and students' general concerns and visions for the future of GenAI in CFL learning.

4.1 Distribution of GenAI use

Among the 19 valid respondents surveyed, 11 indicated that they used GenAI tools to support their learning of Chinese while the remaining eight students reported that they did not engage with such technologies for this purpose (see Table 1). This suggests that a modest majority (58 %) of participants have incorporated GenAI tools into their language learning strategies. Although this proportion points to a growing presence of GenAI in educational practices, the relatively narrow margin also indicates that such tools have yet to achieve widespread adoption among the participants. Further analysis of the data reveals variation in GenAI use across year groups. Of the 11 students who reported using GenAI to aid their Chinese learning, four were in their first year, four in their second year, one in their third year and two in their fourth year of study. This distribution suggests that engagement with GenAI tools is relatively even among first-year and second-year students, but less common in the third year, with a slight resurgence in the final year. In contrast, of the eight students who reported not using GenAI tools, four were in their first year, three in their second year and one in the third year and no fourth-year students reported abstaining from GenAI use.

Table 1: Distribution of students' use and non-use of GenAI tools for learning Chinese.

Category	Year 1	Year 2	Year 3	Year 4	Total	Percentage
Use of GenAI tools	4	4	1	2	11	58 %
Non-use of GenAI tools	4	3	1	0	8	42 %
Total respondents	8	7	2	2	19	100 %

Regarding the specific GenAI tools students used to support their Chinese learning, several categories have emerged, highlighting both the diversity of the tools and the varying purposes for which they were employed (see Table 2). The most frequently referenced tool was ChatGPT, mentioned by a substantial portion of respondents ($n = 8$) across different student levels. Students described using ChatGPT for a variety of tasks, such as grammar explanations, vocabulary building, sentence composition and simulated conversation practice. Its interactive and responsive nature appeared to make it particularly attractive for language learners seeking immediate feedback and contextualised examples. Other GenAI tools were mentioned less frequently but demonstrated targeted and purposeful use. DeepSeek ($n = 2$) and Copilot ($n = 1$) were primarily employed for translation assistance or coding-related support. The single Copilot user also reported using DeepSeek. Although these GenAI tools are not designed specifically for language learning, their integration into students' study routines reflects experimentation and adaptability in applying emerging technologies to linguistic contexts. It is worth noting that students also identified Google Translate (S2.5) and Baidu Search (S2.6) as GenAI tools when using them in combination with ChatGPT. This may suggest a possible lack of conceptual clarity among certain learners, perhaps due to the increasingly blurred boundary between AI-enhanced tools and genuinely generative platforms.

4.2 Non-users' perceptions of GenAI

Several key themes emerged regarding why students chose not to use GenAI tools for learning Chinese. The first theme concerned a perceived lack of usefulness ($n = 4$).

Table 2: Types of GenAI tools used.

Students	ChatGPT	DeepSeek	Copilot
S1.1	✓		
S1.5	✓		
S1.6		✓	
S1.8 ^a			
S2.3	✓		
S2.4	✓		
S2.5	✓		
S2.6	✓		
S3.1	✓		
S4.1	✓		
S4.2		✓	✓

✓ = tool used; blank = not used; ^aThe participant S1.8 did not indicate which GenAI tool was used.

S1.7 stated, “I don’t see a use for it”, while S2.1 remarked, “Dictionaries are what I need”. S1.4 reported a preference for learning through books rather than GenAI tools. S1.2 described negative past experiences that discouraged continued use, stating, “I did not find it to be worth my time”. These early encounters appeared to shape enduring attitudes towards the role of GenAI in language learning. A second theme related to doubts about reliability and accuracy ($n = 4$). Students pointed out that GenAI tools did not always produce dependable output. S1.2 remarked, “Accuracy was already one of my grievances”, while S2.1 explained, “Exactly as an online translator they tend to be unreliable, so there’s the risk of learning incorrect foundations of the language”. This view was reinforced by S1.7 who described the tools as “not reliable”. S1.3 further questioned the dependability of GenAI-generated content, expressing, “I don’t trust the accuracy of certain AI chatbots and trust myself to learn at my own level”. For this learner, confidence in their own linguistic competence outweighed any perceived benefits of using GenAI.

A further theme concerned over-reliance on GenAI ($n = 3$). As S1.3 warned, “An over-reliance on AI can lead to students getting lazy by having work done for them”. S2.7 expanded on this point and argued that dependency on GenAI “is a very bad thing and many people already rely on it for simple tasks such as sending emails” because “it allows students to become lazy and stupid, not learning anything in the process. Education should be completed through manual research and understanding”. A broader cultural critique emerged in S1.2’s response, which framed over-reliance on GenAI as indicative of a wider educational issue:

I feel over-reliance has already become a major issue not so much as a root cause but a consequence in Ireland in particular of the lack of identity in writing for education. The over-reliance on GenAI thinking for you is no different to me than relying on other people explaining or doing the work for you. (S1.2-questionnaire-20250508-Q9)

GenAI’s limited cultural and emotional depth was also highlighted ($n = 1$). S1.2 reflected that GenAI tools are “limited in their nuanced understanding of language in a similar way to a translator. The processes behind them are ones of logic rather than inherent understanding”. This perspective positions language learning as a profoundly humanistic process that extends beyond grammatical accuracy and lexical knowledge. The student framed language as rooted in cultural, historical and emotional contexts that require real-world engagement:

From my understanding of Chinese there are a great number of historical nuances and contextual information that I feel would be lost through generative AI regardless of how accurate the literal translation may be. Language is ... a genuine expression of the soul so again I feel it would be impossible to truly replicate that for at least the near future. (S1.2-questionnaire-20250508-Q4)

Accordingly, the student expressed a preference for immersive and self-directed learning and stated, “I feel personally the best method is [to] jump in at the deep end with language learning and communicate with fluent speakers as often as possible”. Students also raised ethical or ideological objections to the use of GenAI in education ($n = 2$). These concerns extended beyond personal preference towards environmental and moral considerations. For example, S1.2 expressed reservations about energy use, stating, “I generally dislike the use of GenAI due to ethical concerns such as energy consumption”, while S2.7 argued that “It is unethical and bad for the environment”.

4.3 Users’ experiences of GenAI

Having examined the perspectives of students who chose not to engage with GenAI tools, this section turns to the experiences of those who did incorporate such technologies into their Chinese learning. Their accounts reveal a multifaceted pattern of engagement in which GenAI serves both as a practical linguistic resource and as a broader support for independent study. Students highlighted a range of benefits that GenAI provided, yet they also articulated limitations and concerns that shaped how and when they used these tools.

4.3.1 Perceived benefits of GenAI use

Students who used GenAI tools reported a nuanced range of positive experiences and perceptions regarding the use of GenAI in learning Chinese. GenAI was valued particularly for supporting core language development, including vocabulary expansion, writing improvement and grammar practice ($n = 5$). As S4.1 commented, “It helps with introducing new vocab on the specific topics I give it”. Students described using tools such as ChatGPT to check the accuracy of their writing and to draw on it as a reference source. S1.1 explained, “I mainly use it to see if my sentences make sense after writing them”, while S4.1 used ChatGPT “for writing sample compositions which I can take sentences or vocabulary from”. Grammar practice was also a frequent use. Examples included S4.2, who used Copilot to study the 把 structure in more detail independently, and S2.4, who described “forming [their] own sentences and trying to have a conversation out of it, asking questions related to grammar, e.g., how do you use ‘就’?”. S1.5 completed their own writing first and then asked GenAI tools to check whether “this sounds like a native speaker wrote it”. This approach illustrates how GenAI was used to refine rather than replace learners’ own efforts. As S1.5 reflected, “It’s my main tool for bettering and practising my Chinese, building upon knowledge rather than learning new words”.

In addition to supporting writing and grammar development, GenAI was valued as a translation tool that helped them understand both literal and idiomatic meanings ($n = 5$). For example, S2.5 used ChatGPT for translation while S2.6 reported using both ChatGPT and Baidu for similar purposes. GenAI's ability to identify and clarify specific linguistic forms was also highlighted. S1.5 described asking ChatGPT to identify a word they had heard, "If I heard a word in context but didn't know what word was actually said or its meaning... including a word ending in the '-iang' sound, what [is it]?". Similarly, S1.6 reported, "I use DeepSeek mostly to explain the differences between similar words... On rare occasions I would use it to correct and explain mistakes I have made in my written Chinese". Speaking and pronunciation were mentioned less frequently, though they remained relevant. S2.6 used GenAI for "speaking practice" and S3.1 listed "pronunciation" as a focus.

Beyond linguistic development, GenAI tools were appreciated for their broader learning support ($n = 5$). Students highlighted their usefulness in clarifying cultural aspects and in offering fast and accessible information. S2.3 described using ChatGPT "to help understand the cultural aspects, such as traditions" and valued its "fast and straightforward information". Students also perceived GenAI tools as tutor-like, capable of explaining concepts in ways similar to a teacher. As S2.5 pointed out, "They are able to explain things like teachers". GenAI provided personalised feedback that better suited students' individual learning needs and habits, at times even being perceived as surpassing the functions of learning materials and teachers. S1.1 shared, "It shows me where I was wrong or how I can improve my sentences", while S2.4 stated, "It gave me a clearer answer, compared to what I was taught either from the textbook or from my professor". S2.3 summarised this advantage succinctly, "It provides fast and straightforward information that can help me learn better". Students also praised the flexibility and integration of GenAI platforms, which helped them manage multiple learning needs within a single platform. As S2.6 commented, they are "helpful as you can ask anything at one place, memory allows [it] to connect ideas said before".

4.3.2 Challenges in using GenAI

When asked whether they had encountered any challenges in using GenAI tools for learning Chinese, two of the eleven GenAI users did not provide responses to this question. Six users reported that they had not experienced any difficulties. One of these students, however, pointed out an unexpected behaviour which they did not consider a genuine issue, remarking that "sometimes ChatGPT might reply in Chinese if you type a Chinese word" (S2.3). Among the remaining five GenAI users,

accuracy emerged as a notable concern ($n = 2$). S4.1 noticed “accuracy issues, similar to using any other AI translation tools like Google Translate”. Reflecting a more cautious stance, S1.1 acknowledged occasional doubts but adopted a verification strategy and explained, “I do [have concerns] sometimes. But most of the time, I will also search online after [using ChatGPT] to make sure it is accurate”. Related to the issue of accuracy, one GenAI user pointed to a mismatch between GenAI’s language style and the type of Chinese they wished to learn. As S4.2 stated, “Repetition as well as sometimes teaching more textbook Chinese than everyday speech”. Participants also drew attention to inconsistencies between GenAI tools and familiar translation platforms ($n = 2$). As S2.5 pointed out, “When comparing both Google Translate and ChatGPT the translations are sometimes different”. Concerns were also raised about the overall cultural appropriateness of GenAI outputs, particularly in more complex or communicative tasks ($n = 2$). As S4.2 reflected, “I find them helpful at times but not always as I feel like AI, especially in the west, doesn’t have as much cultural context to make it more natural”. Similarly, S1.6 pointed out the limitations of DeepSeek, explaining, “[When] I ask a native Chinese speaker the same question often they will mention some point that DeepSeek omitted in its explanation. So, it is helpful but not comprehensive in its ability”. Students also highlighted functional limitations of current GenAI technologies ($n = 1$). S2.6 expressed frustration with the lack of user control over speech speed, stating: “Speaking too fast even though I ask the assistant to slow down. I know it’s [an] unavailable function yet, but I tried still”.

Another frequently mentioned challenge concerned over-reliance on GenAI ($n = 2$). S1.5 commented, “Over reliance on AI maybe, like it gave me wrong info”, which reflects a broader apprehension that habitual dependence may undermine independent judgement. Students recognised that the convenience of these systems could reduce active engagement in the learning process. S4.2 added that “over-reliance on AI for learning languages can limit the usage of the language in everyday life as AI doesn’t offer that natural conversation practice”. Concerns about privacy ($n = 1$) and pedagogical limitations ($n = 2$) were mentioned less frequently, but still contributed to the overall picture of caution. S2.6 flagged “privacy and data storage” as an issue. S2.4 regarded GenAI as “a temporary fix”, suggesting that learners should still “consult native speakers and teachers of the language for more information”. Echoing this view, S1.6 advised that GenAI “should be generally avoided in teaching, or at least treated as something auxiliary”. This student also warned that GenAI risks eroding the productive struggle that supports meaningful learning. S1.6 explained, “It is incredibly convenient to the point that the friction of learning disappears”, emphasising that “it rests entirely on the willpower of the student to avoid taking the easy path”. To illustrate this point, the student offered a personal example of productive difficulty:

The most rewarding exercises in language learning for me have without fail been the most difficult and tiring. I remember doing homework where I had to interview some Chinese friends and then transcribe the recordings. The transcription process would have taken a suitable AI tool a minute if not less. It took me over eight hours, but it improved my listening ability significantly. (S1.6-questionnaire-20250514-Q9)

4.4 Students' orientations towards GenAI in CFL

The analysis of non-users' perceptions of GenAI and users' experiences of GenAI reveals three overarching orientations towards GenAI in CFL, which define three distinct personas, principled non-users, pragmatic users and critical users, as summarised in Table 3. *Pragmatic users* have clear goals when using GenAI, but they do not engage in critical reflection or seek to critically evaluate the outputs produced in response to their queries. *Critical users* approach GenAI with well-defined goals and critically evaluate its outputs. *Principled non-users* can articulate why they choose not to use GenAI. These orientations reflect not only different levels of adoption but also contrasting beliefs about the nature of language learning, the role of digital tools and the extent to which GenAI can be trusted as a source of linguistic and cultural knowledge.

Principled non-users ($n = 6$) choose not to use GenAI on educational, ethical or epistemic grounds. Their stance is shaped by concerns about accuracy, reliability and over-reliance, as well as by beliefs about the value of human interaction and the authenticity of language learning experiences. They view GenAI as insufficiently attuned to cultural nuance, historical depth and the emotional dimensions of language. CFL development is associated with engaged effort, interpersonal communication and immersion in real linguistic contexts. GenAI tools are seen as encouraging passivity and potentially undermining the long-term development of linguistic competence. Students also express moral or environmental objections, framing GenAI as misaligned with their values of learning.

In contrast to this stance of deliberate avoidance, **pragmatic users** ($n = 6$) approach GenAI as a practical resource embedded within their established study habits. Their orientation emphasises functionality. They use GenAI to support core linguistic skills, including vocabulary development, grammar consolidation and the refinement of short written outputs. Their interactions tend to be task-driven and focused on immediate problem-solving, for instance clarifying uncertainties, confirming acceptability of phrasing or resolving small linguistic gaps. For these learners, GenAI serves as a convenient extension of independent study, valued for its responsiveness and ability to provide accessible explanations.

Table 3: Learner profiles.

Group	Descriptor	Participants ^a	Examples
Pragmatic users (n = 6)	Learners who used GenAI instrumentally for specific, task-oriented language support.	S2.3, S2.4, S2.5, S2.6, S3.1, S4.1	– S2.3 used GenAI for fast explanations and cultural information, valuing its straightforward support. – S2.4 employed GenAI to test grammar structures by forming sentences and asking follow-up questions. – S2.5 used GenAI for translation. – S2.6 used GenAI for translation and speaking practice. – S3.1 focused on pronunciation practice. – S4.1 used GenAI to introduce new vocabulary on specific topics and to generate sample compositions for reference.
Critical users (n = 4)	Learners who engaged with GenAI selectively and critically, emphasising verification, evaluation and cautious use.	S1.1, S1.5, S1.6, S4.2	– S1.1 verified accuracy by checking ChatGPT output with other sources. – S1.5 adopted a cautious and evaluative approach, using GenAI only after drafting independently and then checking whether the phrasing aligns with native speaker usage, emphasising improvement of existing knowledge rather than relying on GenAI to generate new content. – S1.6 compared GenAI answers with native speakers, notes omissions, advises caution. – S4.2 stated that GenAI often produces overly textbook language, lacks cultural depth and may encourage dependence that reduces opportunities for authentic everyday practice.
Principled non-users (n = 6)	Learners who deliberately choose not to use GenAI on ethical, pedagogical or epistemic grounds.	S1.2, S1.3, S1.4, S1.7, S2.1, S2.7	– S1.2 rejected GenAI because of negative past experiences, concerns about accuracy, lack of cultural and emotional depth and ethical objections regarding energy consumption.

Table 3: (continued)

Group	Descriptor	Participants ^a	Examples
			– S1.3 avoided GenAI due to distrust of its accuracy and the belief that over-reliance encourages learners to become lazy by allowing the tool to complete work for them. – S1.4 relied on books, as they did not perceive GenAI to be effective for their learning needs. – S1.7 saw no clear benefit and considered the tools unreliable. – S2.1 relied on dictionaries instead of GenAI and avoided the technology because of concerns about inaccuracy and the risk of learning incorrect foundations. – S2.7 argued that GenAI promotes laziness, undermines meaningful learning and is unethical and bad for the environment.

^aThree students (S1.8, S2.2 and S3.2) did not respond to open-ended questions, so 16 students were included in the table.

Critical users ($n = 4$) adopt a more evaluative and metacognitive stance. They integrate GenAI into a wider ecology of learning resources and cross-check its output against alternative sources such as dictionaries, textbooks or insights from teachers and native speakers. Their orientation reflects conditional trust. They recognise areas where GenAI can scaffold understanding and provide clarification, yet they also demonstrate an awareness of its stylistic, grammatical and cultural limitations. Verification, comparison and interpretation are integral to their use. These students position GenAI as a supplementary tool that, however, requires active monitoring to avoid misleading or overly formulaic output. The four critical users also demonstrate practices associated with pragmatic users, although these occur at different learning moments and for different purposes. They alternate between functional use of GenAI for routine tasks and more sceptical, evaluative strategies that involve verification and cross-comparison. This fluidity suggests a flexible orientation shaped by changing needs, levels of confidence and the cognitive demands of specific tasks. Rather than occupying a fixed position, these students negotiate the benefits and

limitations of GenAI dynamically, indicating that learner orientations may shift as experience with the technology develops.

4.5 Broader visions for future GenAI integration

Students, including both users and non-users, offered a range of perspectives on how GenAI might be integrated more effectively into CFL ($n = 4$). Their ideas spanned pedagogical application, linguistic precision and cultural relevance. They also reflected a forward-looking view of GenAI's potential role in CFL. One notable theme concerned the pedagogical integration of GenAI tools. Students suggested that GenAI would be more beneficial if its use were guided rather than left to individual discretion. As S4.1 suggested, “maybe introducing it into the classroom so students know that it can be helpful such as for practicing oral skills”. Students also highlighted the value of aligning GenAI tools more closely with established curricula and teaching approaches. S1.2 recommended the development of “specific language learning GenAI basing it on the learning models of current teaching methods or particular textbooks and then feed it with cultural context as frequently as possible”. In a similar vein, a more proactive role was envisioned for teachers in shaping the use of GenAI ($n = 1$). S1.6 suggested that “teachers could find a suitable place for AI in teaching by designing classes and assignments creatively so that they cannot directly be solved by AI”. This perspective highlights the importance of thoughtful task design to help ensure that GenAI supports meaningful learning. The importance of cultural and contextual authenticity also emerged as a key consideration. Students expressed a desire for GenAI to better capture the nuances of contemporary language use, particularly informal or evolving expressions. For instance, S1.5 remarked that GenAI should do more to reflect “current slang”, describing existing outputs as “a tiny bit outdated or cringy sometimes”.

5 Discussion

Drawing on the findings, this section interprets students' varied experiences of using GenAI in CFL within the Irish higher education context. First, it further examines the preliminary learner personas that emerged from the qualitative exploration, illustrating how participants positioned themselves in relation to the cognitive, ethical and humanistic dimensions of their learning. It then analyses the pedagogical benefits and limitations identified in students' experiences of GenAI use.

5.1 Learner personas

Grounded in Sections 4.2, 4.3 and especially 4.4, the preliminary learner personas identified in this study highlight how GenAI adoption in CFL is shaped by intertwined pedagogical, epistemic and ethical considerations. The personas resonate with Liu and Zhang's (2025) framework of GenAI-assisted writing self-efficacy, particularly in their identification of practical assistance seekers, interaction-oriented communicators and unconfident less-adaptable users. Pragmatic users, broadly comparable to Liu and Zhang's (2025) practical assistance seekers, regard GenAI as a functional extension of their learning environment. This pattern of pragmatic engagement aligns with Kohnke et al.'s (2025) findings that learners use GenAI mainly for linguistic support, suggesting that Irish CFL students view it as a support tool for accuracy and comprehension. Their practices also resonate with Kukulska-Hulme et al. (2024) who conceptualise GenAI as a dialogue-based tutor co-evolving with human engagement. However, this form of interaction largely remains at the know-what level, or the stage of knowledge acquisition (Owoseni et al. 2024) where engagement centres at the level of retrieving and applying discrete linguistic information.

Extending the approach of pragmatic users, critical users occupy a reflective middle ground between pragmatism and resistance. They demonstrate a deliberative stance, engaging with GenAI selectively and strategically. Their use of triangulation indicates a metacognitive orientation that positions them as reflective learners rather than passive recipients of GenAI-generated information. This finding supports Wang et al. (2025), who frame meaningful engagement as a balance between trust and resistance, and accords with Shahzad et al. (2024), who demonstrated that perceived trust significantly moderates the relationship between ChatGPT awareness and perceived ease of use, usefulness and intelligence. For critical users, value lies in the process of questioning, revising and recontextualising GenAI suggestions. Their practice helps transform GenAI from a corrective device into a partner in enquiry that supports the development of analytical reasoning and digital literacy, which are central to the critical-ethical literacy emphasised by Saúde et al. (2024). At this stage of learning, which Owoseni et al. (2024) describe as the know-how level, engagement extends beyond knowledge acquisition towards the development of competencies in applying, evaluating and adapting language knowledge in context. This pattern aligns with Liu and Zhang's (2025) interaction-oriented communicators. However, Irish CFL learners displayed a more explicitly evaluative stance, using complementary tools as means of verification and critical reflection.

Principled non-users occupied a distinct position rooted in epistemic caution, ethical reasoning and a humanistic view of language learning. Their decision of not

to engage with GenAI reflected concerns about technological mediation, including fears of reduced cognitive effort, diminished motivation and decontextualised language use. These views echo issues raised by Kohnke et al. (2025) and Kukulska-Hulme et al. (2024), who highlight risks associated with accuracy, transparency and overreliance on GenAI. Rather than aligning with Wang et al.'s (2025) emphasis on trust as a key determinant of GenAI engagement, principled non-users questioned the pedagogical validity of AI-mediated learning itself. They also expressed apprehension that GenAI could encourage intellectual passivity, a concern consistent with Lee et al. (2026) and Liu et al. (2024), who point to reduced learner autonomy and weakened critical engagement in over-automated learning environments. Non-use was also motivated by moral or environmental concerns, including criticism of GenAI's energy use. Such concerns are not yet widely addressed in the language education literature but resonate with emerging debates on digital sustainability. In this sense, refraining from GenAI use is not a rejection of technology per se but an ethical and humanistic stance. In contrast with Liu and Zhang's (2025) less-adaptable users, Irish CFL principled non-users resisted GenAI not due to low confidence but because its use conflicted with their educational values. A further distinction in the Irish context is the absence of highly confident all-rounders, which likely reflects the early and uneven integration of GenAI within CFL provision in Ireland, where exposure to AI-supported language learning remains limited.

5.2 GenAI as a conditional learning partner

The findings suggest that students engaged with GenAI in ways that positioned it as a conditional learning partner. Learners recognised its value when specific conditions were met, including appropriate prompting, complementary reference to other resources and awareness of its limitations. Their practice demonstrates that GenAI's use depended on active negotiation and ongoing judgement. A primary characteristic of GenAI is its capacity to provide adaptive and personalised feedback. Students reported using GenAI for grammar checking, sentence refinement and vocabulary exploration, which aligns with Kohnke et al.'s (2025) emphasis on its linguistic support functions. These experiences also resonate with Lee et al. (2026) and Yan et al. (2024), who highlight GenAI's ability to deliver personalised support that can be accessed beyond classroom settings. Learners valued the immediacy of feedback, which helped clarify usage and to sustain practice in a low-immersion environment, where access to authentic linguistic input can be limited.

A second characteristic of GenAI is that it enables learners to engage in active verification and critical evaluation of its outputs. This capacity allows students to check accuracy, compare alternative sources and reflect on the reliability of

information. Students' reflections, including the view that GenAI "rests on the student's willpower to avoid the easy path", highlight the importance of agency in managing GenAI use responsibly. These verification practices mirror Thorne's (2024) distinction between learning with rather than through technology, prompting learners to remain critically aware of how and when GenAI supports their goals. Such metacognitive engagement also reflects the motivational benefits identified by Jiang et al. (2025) and aligns with the development of analytical reasoning and reflective awareness described by Yuan and Liu (2025) and Guo and Wang (2025). The emerging ability to calibrate trust in GenAI, rather than accept its output uncritically, reinforces Wang et al.'s (2025) argument that meaningful engagement requires a balance between reliance and resistance.

A third characteristic relates to accessibility and inclusivity. Students valued GenAI for its immediacy, efficiency and ability to sustain personalised engagement beyond formal instruction. The convenience of receiving "fast and straightforward information" within a single platform helped learners integrate vocabulary exploration, cultural clarification and grammar consultation. This accessibility is especially salient in Ireland's low-immersion environment, where opportunities for authentic Chinese interaction remain limited. These findings support Kukulska-Hulme et al.'s (2024) argument that AI can function as a readily accessible virtual tutor and echo the emphasis on scalability and timely feedback, pointed out by Yan et al. (2024) and Moorhouse and Wong (2025). Yet, as Sun and Wang (2024) argue in similar contexts, students remained cautious about issues of precision and authenticity.

Despite these positive characteristics, the findings reveal significant limitations in GenAI's potential for language learning. Foremost among these are concerns about linguistic reliability and stylistic authenticity. Students described output that resembled "textbook Chinese", lacked emotional resonance or reproduced inaccuracies. Such concerns are consistent with Kohnke et al.'s (2025) identification of irrelevant feedback and with Kukulska-Hulme et al.'s (2024) assertion that GenAI can generate plausible yet inaccurate information. These patterns highlight a tendency for GenAI to prioritise structural logic over nuanced communicative appropriateness. Additionally, some students' responses suggest that they primarily viewed ChatGPT as a linguistic aid rather than a resource for exploratory or creative language use. Their task-oriented focus on vocabulary clarification and phrase checking mirrors Zhang's (2025) finding that ChatGPT functions as an adaptive dictionary for Mandarin Chinese rather than supporting original idea generation. In a context of limited authentic interaction opportunities, such pragmatic use may be understandable. However, it also indicates a constrained view of GenAI's potential for

generating original ideas or providing practical solutions drawn from real-world experience, echoing concerns raised by Miao and Holmes (2023).

A further limitation suggested by students' responses involves the risk of reduced cognitive challenge. Some students acknowledged that reliance on GenAI tempted them to bypass interpretive work. They warned that convenience can weaken productive struggle, a process central to deep learning. This supports Thorne's (2024) call for a cultural shift that encourages engagement with GenAI. It also aligns with Owoseni et al. (2024) who emphasise that GenAI should be viewed as an assistive tool rather than a shortcut. Students' concerns about laziness and reduced motivation reinforce the wider literature on reduced motivation and engagement when opportunities for hands-on practice are limited (Lee et al. 2026), diminished higher-order thinking and creativity (Liu et al. 2024) and learner passivity (Sun and Wang 2024).

Ethical and ecological aspects present additional concerns. Students raised privacy worries, uncertainty about data retention and cultural bias, stating that GenAI tools "in the West" lack sensitivity to Chinese cultural norms. These concerns echo the arguments of Kohnke (2024) and Kukulska-Hulme et al. (2024). Environmental sustainability emerged as a notable theme, with students expressing discomfort about energy consumption and environmental impact. Although seldom foregrounded in research on GenAI in language education, such concerns suggest growing ecological awareness among CFL learners and reinforce the need to cultivate ethical literacy competencies as part of effective GenAI integration in CFL programmes (Saúde et al. 2024). Functional limitations also restrict learning. The frustration expressed over uncontrollable speech speed illustrates the text-dominant orientation of current systems and the limitations of multimodal functionality. Although some studies highlight GenAI's potential to support oral proficiency (Chen et al. 2025; Guan et al. 2025), the students' experiences suggest that such capabilities remain incomplete until more robust auditory and interactive capacities are integrated.

6 Implications

This section presents the implications of GenAI use for language learning and teaching. It highlights the role of learners in developing informed, reflective and ethical GenAI practices, and the role of teachers in designing pedagogical approaches that guide, mediate and sustain meaningful engagement with GenAI in language education.

6.1 Implications for language learners

The findings underline that learners engage with GenAI in varied and evolving ways shaped by their needs, beliefs, prior experiences and levels of digital literacy. The emergence of pragmatic users, critical users and those who shift between these orientations reflects the diverse and situated ways in which students draw on GenAI. These orientations suggest that learners might find it valuable to follow a more deliberate process when using GenAI and benefit from a more structured approach to incorporating it into their language learning. For example, a reflective cycle comprising intention, exploration and refinement may be considered to help guide this process. At the intention stage, learners are asked to clarify their purposes for using GenAI and to consider how it may support their linguistic or cultural development. During exploration, learners can experiment with prompts that elicit explanation, comparison or contextualisation rather than simple correction. This form of enquiry helps strengthen interpretive engagement and curiosity. As learners progress to the refinement stage, they verify GenAI outputs by triangulating them with textbooks, teachers or native speakers and reflect on how the interaction advances their understanding.

The principled non-users who remained hesitant or chose not to engage directly with GenAI are nonetheless situated within learning environments shaped by GenAI-mediated communication. As GenAI continues to evolve and assumes an increasingly significant role in language education, its impact and connection with learning are becoming ever more closely intertwined. Learners therefore should be provided with opportunities to develop at least a foundational awareness of the principles, strengths and limitations of GenAI. Such awareness can also offer principled non-users a balanced reference point when they wish to understand the pedagogical benefits and implications of GenAI without compromising their ethical stance. This applies equally to those users who equated GenAI with translation tools or search engines. Their responses suggest that they possess only a partial understanding of how generative technologies function. This reinforces the need to help learners build stronger foundations in GenAI literacy, drawing on Miao and Shiohira's (2024) AI competency framework.

6.2 Implications for teachers

For teachers, the findings call for a reconceptualisation of pedagogy that positions GenAI as a collaborator in enquiry. Learners' varied patterns of engagement highlight the need for teachers to guide students to better perceive and use GenAI within their educational, ethical and cultural frameworks. Differentiated pedagogies will be required to accommodate varying degrees of GenAI involvement. Teacher preparation

should also foster sensitivity to cultural values and affective factors that shape GenAI adoption. Learners' confidence and trust are closely tied to perceptions of cultural relevance and supportive classroom climates. Teachers also need to remain inclusive of those who prefer limited or no GenAI support. These students may prioritise language enquiry grounded in human-driven processes, so hybrid pedagogies should ensure that all learners experience equitable and academically meaningful forms of engagement. A further challenge concerns the preservation of productive struggle, which is central to deep learning. Students' concern about losing the friction of learning suggests that reduced effort may weaken enquiry. Teachers can help counter this by designing tasks that require students to question, test and refine GenAI outputs or to compare AI-generated responses with human-produced alternatives. Such enquiry-based activities help maintain cognitive challenge and encourage students to treat GenAI as a catalyst for reasoning rather than a shortcut to correctness. This aligns with Owoseni et al. (2024), who emphasise the shift from acquiring knowledge towards developing competencies and performance. In this way, GenAI can function as an assistive tool that strengthens rather than substitutes learning. These pedagogical shifts depend on teachers' own GenAI literacy and professional capacity. Miao and Cukurova's (2024) AI Competency Framework identifies four interrelated dimensions essential for educators. These include a human-centred mindset, ethical awareness, pedagogical innovation and system-level understanding. Sustained professional development and cross-institutional collaboration will be important to strengthen teacher literacy and to help ensure that pedagogy remains reflective, inclusive and ethically grounded in increasingly hybrid learning environments.

7 Conclusions

This study has examined the emerging intersections between GenAI and CFL within Irish higher education from the perspective of language learners. The findings reveal cautious yet growing engagement with GenAI tools, characterised by three learner personas, namely pragmatic users, critical users and principled non-users. Across these orientations, GenAI serves as a conditional learning partner. While valued for its flexibility and responsiveness, it is approached with discernment and restraint. The study contributes to the field by foregrounding student experiences and demonstrating both the opportunities and the challenges that GenAI presents for language learning. However, several limitations should be acknowledged. Although the sample included students from multiple academic years and universities, offering a range of perspectives, it remained relatively small, which may limit the generalisability of the findings. In addition, the study relied on a single questionnaire as the primary data collection instrument. While this method was effective in

identifying overall patterns and trends, it may have restricted the depth of insight achievable through complementary qualitative methods such as interviews or focus groups. Furthermore, as the findings are based on students' self-reported perceptions and practices, the study captures learners' interpretations of GenAI use rather than changes in learning behaviour over time. Future research could therefore extend this work by examining how learners' GenAI use and preferences evolve following pedagogical guidance. For example, studies may investigate their engagement with GenAI before and after training on how to use these tools to support CFL learning. Despite these limitations, the study foregrounds the importance of learners' perspectives in shaping the pedagogical role of GenAI. It is hoped that the findings will contribute to ongoing discussions and provide a useful reference point for teachers, researchers and policymakers engaged in language education in Ireland and beyond.

Research ethics: Ethical approval for the study was obtained from the researchers' faculty ethics committee.

Informed consent: Participants gave consent before participating in the research project.

Author contributions: Weiming Liu: Conceptualisation, methodology, data collection, data analysis and manuscript writing. Françoise Blin: Conceptualisation, methodology, data analysis and manuscript writing. Both authors approved the final manuscript.

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Appendix A: The Full List of Questionnaire Items

1. Are you currently a student of Chinese at an Irish university?
☐ Yes
☐ No
2. Which year of study are you currently in?
☐ 1st year
☐ 2nd year
☐ 3rd year
☐ 4th year
3. Do you use Generative Artificial Intelligence (GenAI) tools to assist with your learning of Chinese as a foreign language (CFL)?
☐ Yes
☐ No

4. If you answered “No” to question 3, could you explain why you do not use GenAI tools for learning Chinese?
5. If you answered “Yes” to question 3, which GenAI tools do you use to help with learning Chinese? (For example: ChatGPT, Copilot, Grok, DeepSeek, or any other specific tools.)
6. When using GenAI tools to learn Chinese, which aspects of the language do you primarily focus on? (For example: listening, speaking, reading, writing, translation or etc.). Please provide specific examples of how you use these tools.
7. When using GenAI tools for learning Chinese, do you find them helpful? Please explain.
8. Have you encountered any challenges when using GenAI tools for learning Chinese? If so, please provide specific examples.
9. Do you have any concerns about using GenAI tools in language learning, for example regarding privacy, accuracy, over-reliance on GenAI or other issues? If so, please describe them.
10. Do you have any suggestions or ideas for improving the use of GenAI tools in learning Chinese as a foreign language?

Appendix B: Coding Structure for Themes, Categories, Representative Codes and Examples

Theme	Category	Representative codes	Representative examples
Non-users’ perceptions of GenAI	Lack of usefulness	No need for GenAI Preference for traditional resources	“I don’t see a use for it” (S1.7) “Dictionaries are what I need” (S2.1)
	Concerns about reliability and accuracy	Inaccuracy of outputs	“Accuracy was already one of my grievances” (S1.2)
		Distrust of generated information	“I don’t trust the accuracy of certain AI chatbots” (S1.3)
	Concerns about over-reliance	Reduced learner effort Dependence on technology	“Having work done for them” (S1.3) “It allows students to become lazy and stupid...” (S2.7)
	Cultural and emotional limitations	Limited understanding of linguistic nuances Lack of cultural depth	“Limited in their nuanced understanding of language” (S1.2) “A great number of historical nuances and contextual information ... would be lost through generative AI” (S1.2)

(continued)

Theme	Category	Representative codes	Representative examples
Users' experiences of GenAI	Ethical or ideological concerns	Environmental concerns	"Energy consumption" (S1.2)
	Language learning support	Ethical objections to GenAI use	"It is unethical and bad for the environment" (S2.7)
		Vocabulary expansion	"It helps with introducing new vocab on the specific topics I give it" (S4.1)
		Grammar and writing support	"I mainly use it to see if my sentences make sense after writing them" (S1.1)
	Translation and linguistic clarification	Translation assistance	"[ChatGPT for] translation" (S2.5)
	Personalised learning support	Explanation of lexical distinctions	"I use DeepSeek mostly to explain the differences between similar words" (S1.6)
		Tutor-like explanations	"They are able to explain things like teachers" (S2.5)
	Convenience and accessibility	Helpful feedback	"It shows me where I was wrong or how I can improve my sentences" (S1.1)
		Fast access to information	"Fast and straightforward information" (S2.3)
	Accuracy and consistency concerns	Integrated learning platform	"You can ask anything at one place" (S2.6)
		Incorrect outputs	"Accuracy issues, similar to using any other AI translation tools" (S4.1)
		Conflicting translations	"When comparing both Google Translate and ChatGPT the translations are sometimes different" (S2.5)
Broader visions for future GenAI integration	Cultural and contextual limitations	Lack of cultural context	"AI ... doesn't have as much cultural context" (S4.2)
		Textbook-like language	"Teaching more textbook Chinese than everyday speech" (S4.2)
	Over-reliance and reduced engagement	Dependence on GenAI	"Over reliance on AI maybe" (S1.5)
	Privacy and pedagogical concerns	Reduced authentic language use	"Can limit the usage of the language in everyday life" (S4.2)
		Data privacy concerns	"Privacy and data storage" (S2.6)
		Reduced productive struggle	"The friction of learning disappears" (S1.6)
	Pedagogical integration	Guided use of GenAI	"Introducing it into the classroom" (S4.1)
		Teacher-mediated design	"Teachers could find a suitable place for AI in teaching" (S1.6)

(continued)

Theme	Category	Representative codes	Representative examples
	Specialised GenAI	Language learning-specific GenAI	“Use specific language learning GenAI” (S1.2)
	Authenticity	Textbook-informed systems	“Basing it on the learning models of ... particular textbooks” (S1.2)
		Authentic language use	“Current slang” (S1.5)
		Up-to-date content	“A tiny bit outdated or cringy sometimes” (S1.5)

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