Embrace technology, escape job anxiety? Profiling technology acceptance and its relationships with job anxiety among English majors

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ABSTRACT: The progressive integration of technology into language-based professions has stoked concerns about job displacement. Nevertheless, empirical research exploring how technology acceptance interacts with job-related anxiety among English major students remains scarce. To bridge this research gap, this mixed-methods study delves into the survey data from 523 Chinese English majors. Utilizing latent profile analysis (LPA), it identifies diverse technology-acceptance profiles and subsequently executes ANOVA and post-hoc analyses to examine how these profiles are linked to job anxiety. Three distinct profiles surfaced: the low-technology-acceptance profile (11.9%), the moderate-acceptance profile (67.5%), and the high-technology-acceptance profile (20.6%). ANOVA results revealed that the profiles varied significantly in terms of job anxiety: the low- acceptance group reported the most intense anxiety, while the high-acceptance group exhibited the least. The moderate-acceptance group displayed unique challenges, including heightened self-doubt despite maintaining a balanced perspective on technology. The qualitative analysis further illuminated these trends within a broader context. It uncovered the coexistence of an optimistic outlook on technology's role in skill augmentation and concerns about job security. These research findings emphasize the need for integrating technology literacy into the curriculum and tailoring customised guidance to mitigate anxiety and boost students' job adaptability. Moreover, this study may equip educators with actionable strategies to prepare English majors for AI-dominated labour market.
Keywords: technology acceptance, job anxiety, latent profile analysis, Chinese English majors, artificial intelligence

Adoptar la tecnología, escapar de la ansiedad laboral? Perfiles de aceptación tecnológica y su relación con la ansiedad laboral entre estudiantes de inglés

RESUMEN: La integración progresiva de la tecnología en las profesiones basadas en el lenguaje ha suscitado preocupaciones sobre el desplazamiento laboral. No obstante, la inves-

tigación empírica que explore cómo la aceptación de la tecnología interactúa con la ansiedad relacionada con el empleo entre los estudiantes de inglés sigue siendo escasa. Para cerrar esta brecha de investigación, este estudio de métodos mixtos analiza los datos de encuestas de 523 estudiantes chinos de inglés. Mediante el análisis de perfiles latentes (LPA), identifica diversos perfiles de aceptación tecnológica y, posteriormente, realiza ANOVA y análisis post-hoc para examinar cómo estos perfiles se relacionan con la ansiedad laboral. Surgieron tres perfiles distintos: el perfil de baja aceptación tecnológica (11.9%), el perfil de aceptación moderada (67.5%) y el perfil de alta aceptación tecnológica (20.6%). Los resultados del ANOVA revelaron diferencias significativas en la ansiedad laboral entre los perfiles: el grupo de baja aceptación presentó la mayor ansiedad, mientras que el grupo de alta aceptación mostró la menor. El grupo de aceptación moderada enfrentó desafíos particulares, como un aumento en la autoinseguridad, a pesar de mantener una perspectiva equilibrada sobre la tecnología. El análisis cualitativo contextualizó aún más estas tendencias dentro de un panorama más amplio, revelando la coexistencia de un enfoque optimista sobre el papel de la tecnología en la mejora de habilidades y preocupaciones sobre la estabilidad laboral. Estos hallazgos enfatizan la necesidad de integrar la alfabetización tecnológica en el currículo y de proporcionar orientación personalizada para mitigar la ansiedad y mejorar la adaptabilidad laboral de los estudiantes. Además, este estudio puede proporcionar estrategias prácticas a los educadores para preparar a los estudiantes de inglés para un mercado laboral dominado por la inteligencia artificial.
Palabras clave: aceptación tecnológica, ansiedad laboral, análisis de perfiles latentes, estudiantes chinos de inglés, inteligencia artificial.

1. Introduction

The rapid development of technology such as large language models and AI tools is reshaping the job market, particularly for English majors pursuing careers in translation, teaching, and editing (Kim & Kim, 2024; Pan et al., 2025). Although some AI technologies such as ChatGPT and Duolingo can improve language tasks and learning experiences, they also raise concerns about job security, as the integration of technology into job market can reduce entry-level positions while increasing skill requirements (Derakhshan & Ghiasvand, 2024; Derakhshan & Zhang, 2024; Moran & Ackerman, 2024; Qi & Derakhshan, 2025). As they position themselves in the evolving job landscape, English majors may experience uncertainty and stress regarding their future employment prospects, and this psychological state is often conceptualized as job anxiety (Cheung et al., 2019).

Additionally, as AI and technological advancements reshape the job market and introduce new uncertainties for English majors, understanding the psychological consequences of these changes becomes crucial (Chen et al., 2025). In particular, investigation into job anxiety is important in that heightened job anxiety has been linked to various negative outcomes, including lower self-efficacy, reduced job-search motivation, and even psychological ill-being (Cheng & McCarthy, 2018; De Clercq et al., 2018; Derakhshan & Xin, 2025). Recognizing the consequences (Derakhshan et al., 2025), research has sought to identify contributing factors of job anxiety, yet the role of technology acceptance within the AI-driven job market remains relatively limited (Kim et al., 2022). Technology acceptance refers to one's willingness to embrace and integrate technologies into their professional and learning experiences (Huang et al., 2024). In the English as a foreign language (EFL) context, technology acceptance has been linked to positive learning outcomes, including reduced public speaking anxiety,

improved achievement emotions, technological self-efficacy, and academic engagement (Wu, Wang, et al., 2024; Zhou & Hou, 2024).

While existing research highlights the academic and psychological benefits of technology acceptance, its implications for job-related issues, especially job anxiety, remain underexplored. With technologies continuously reshaping the job market, understanding how technology acceptance interacts with job anxiety is crucial, particularly for Chinese English majors, whose career prospects are vulnerable to AI disruptions (Moran & Ackerman, 2024; Pan et al., 2025). While previous studies have explored technology acceptance among learners and teachers in various contexts (Methlagl et al., 2025), to the best of our knowledge, no study has specifically examined technology acceptance profiles among Chinese English majors. Unlike traditional approaches that treat technology acceptance as uniform, LPA can identify distinct profiles among the group (Wang et al., 2024). Additionally, while qualitative studies offer insights into students' perceptions of technology and job anxiety, they lack a systematic link between technology acceptance patterns and job-related psychological states. This limits the depth of understanding regarding how different technology acceptance profiles experience and interpret job anxiety differently.

Taken together, this study aims to fill these gaps by 1) examining the correlation between technology acceptance and job anxiety, 2) identifying distinct technology acceptance profiles using LPA, 3) analysing how job anxiety varies across these profiles, and 4) exploring students' experiences and concerns regarding technology adoption and job anxiety. Through these objectives, the study aims to deepen understanding of how different levels or profiles of technology acceptance relate to job anxiety among English majors in the AI-driven job market.

2. Literature review

2.1. Technology acceptance

Recent studies have incorporated personal and social factors in understanding technology acceptance, with the Unified Theory of Acceptance and Use of Technology (UTAUT) highlighting performance expectancy, effort expectancy, social influence, and facilitating conditions as key determinants of technology adoption (Benjamin & Dangwal, 2024). For this study, technology acceptance is conceptualized within the UTAUT framework, which can offer a holistic approach that accounts for individual, social, and technology-related factors influencing students' technology acceptance and its impact on job-related concerns.

As powerful technologies permeate education, research increasingly focuses on EFL students or English majors, examining how levels of technology acceptance affect learning outcomes and interact with different cognitive, emotional, and psychological factors (Zou et al., 2023). Specifically, studies have shown that active engagement with AI technology can enhance students' intercultural competence, translation skills, and semantic learning (Chen, 2025; Kruk & Kałużna, 2025; Le et al., 2024; Sun, 2024). For example, a meta-analysis of 40 studies involving 3,290 participants across 10 countries found that engaging actively with AI technologies can significantly enhance students' academic performance, highlighting its potential to improve learning achievements (Xu & Wang, 2024). Students who perceive

technology as beneficial report increased motivation (Song & Song, 2023), higher self-efficacy (Huang et al., 2024), greater engagement (Wang et al., 2024), and improved self-regulation (Wei, 2023). Wang et al. (2024) found that students using AI-driven chatbots showed higher levels of engagement compared to those receiving traditional instruction, further highlighting how technologies can be adopted to foster academic engagement.

However, while these studies highlight the educational benefits of technology, few have examined technology acceptance beyond the classroom, particularly its relation to job anxiety in the AI-driven job market. These findings, on the other hand, suggest that technology's benefits or levels of technology acceptance can extend beyond education field, affecting career-related concerns. As students transition to the workforce, they must navigate an AI-driven job market (Kim & Kim, 2024). Therefore, understanding how students' acceptance of technology may relate to their job-related psychological states is essential for preparing them to succeed in this evolving workforce. Notably, no study has yet examined technology acceptance profiles among Chinese English major students, a group facing unique challenges (Pan et al., 2025). Addressing this gap would provide valuable insights into how they engage with AI technologies in the job market.

2.2. Job anxiety

Research in the past decade has identified sorts of anxieties experienced by Chinese EFL or English major students, including language learning anxiety, online learning anxiety, test anxiety, and classroom anxiety (Kim, 2020; Liu & Liu, 2025). While these studies provide valuable insights into the anxieties experienced by the specific group, they have largely focused on academic or learning-related anxieties. Little attention has been given to anxieties students may experience beyond the classroom, especially in relation to job anxiety. Job anxiety refers to the psychological distress or uncertainty experienced by individuals regarding their career future (Cheng & McCarthy, 2018). According to Belle et al. (2022), it encompasses a broad range of concerns, including fear of failure, inability to meet job demands, and uncertainty about career trajectories. While moderate levels of job anxiety can enhance self-efficacy and job performance (Kim et al., 2022; Razak, 2021), heightened levels of job anxiety can have detrimental effects on both individuals' employment outcomes and psychological well-being. For example, anxiety in job-searching interviews have been found negatively related to candidates' interview performance, fairness perceptions, and recommenda-tion intentions (McCarthy et al., 2021). In addition, research has indicated that job insecurity and job anxiety can negatively impact employees' creative performance, informal learning in the field, and psychological health (Wu, Liang, et al., 2024). These studies suggest that the psychological toll of job anxiety can extend beyond immediate work-related consequences, impacting both job-searching and employees' overall well-being.

Recognizing the dark sides of job anxiety, an increasing number of research have sought to unpack the underlying mechanisms influencing job anxiety among college students. Belle et al. (2022) examined the protective role of positive psychological capital in reducing job-related anxiety among 546 graduating students in China and found that positive psychological capital can help mitigate job anxiety suffered by students. More recently, with the rapid development of educational technology, research has shifted from focusing on individual

factors to exploring how technology-related factors influence the workforce. The automation and efficiency associated with AI technologies are causing many to fear job displacement, contributing to heightened job anxiety in the workplace (Hopcan et al., 2024). Contrary to this, Vicsek et al. (2024) conducted a qualitative study by interviewing 62 Hungarian students from non-technical majors. They found that rapid advancements in technology had little impact on participants' career expectations, and the respondents were also found holding an optimistic outlook for their future prospects. These studies highlight the inconsistent effects of technology on students' career expectations, with some indicating minimal impact and others suggesting increased anxiety. However, a thorough review of literature reveals a notable gap, as few studies have specifically examined how technology-related factors, especially technology acceptance, interact with job anxiety among Chinese English majors.

2.3. The present study

This study unveils the relationship between technology acceptance and job anxiety using career construction theory (CCT), which highlights adaptivity—proactivity, openness, and conscientiousness—as crucial for career development in an uncertain job market (Tokar et al., 2020). Technology acceptance can be linked to career adaptivity, as individuals who are more open and tolerant to technology may feel a great sense of adaptability in the AI-driven job market, reinforcing confidence while reducing their anxiety about job displacement or evolving skill demands. Guided by CCT, the study uses LPA to identify technology acceptance profiles among Chinese English majors and examines how job anxiety varies across these profiles. This mixed-methods design sought to address the four research questions:

RQ1: Is there a correlation between technology acceptance and job anxiety among Chinese English major students?
RQ2: What are the distinct latent profiles o f technology acceptance among Chinese English major students?
RQ3: Do technology acceptance profiles exhibit differentiated characteristics in terms of job anxiety levels?
RQ4: How do Chinese English major students perceive technology's influence on their future job prospects?

3. METHODOLOGY

3.1. Participants

This quantitative phase of the study involved 523 Chinese English majors from 17 universities across various provinces, including Henan, Jiangsu, Anhui, Zhejiang, Hunan, Shanxi, Hubei, Liaoning, Hong Kong, and Chongqing. The sample included 215 males and 308 females, aged 20 to 25 years (M = 23.24, SD = 1.03). Participants majored in English Literature (N = 226), English Translation (N = 172), English Education (N =106), English Linguistics (N=97), and Business English (N = 65). Of the sample, 145 were undergraduates, 231 were master's students, 120 were doctoral students, and 27 were enrolled in other

programs (see Table 1). The qualitative phase involved 12 participants, including 2 undergraduates, 4 master's, and 3 doctoral students, with data presented using participant numbers for privacy. All qualitative data are presented using participant numbers (e.g., Participant 1, Participant 2, etc.) to ensure participant privacy.

Table 1. *Demographic information of the participants*

Variable	Frequency
Gender	Male=215 Female=308
Female	English Literature= 226 Translation=172 English Education=106 Business English=65
Academic Degree	Bachelor=145 Master=231 Ph.D.=120 others=27

3.2. Instruments

3.2.1. Technology acceptance scale

To measure technology acceptance among Chinese English majors, this study revised the scale developed by Yilmaz et al. (2024). The adapted scale retains the four core dimensions of the technology acceptance model but broadens the scope from AI-specific tools to general technology integration in academic contexts. It includes four dimensions: Performance Expectancy (PE), which assesses beliefs about how technology impact on academic performance; Effort Expectancy (EE), which measures the ease of use and accessibility of technology tools; Facilitating Conditions (FC), evaluating external support such as institutional resources and technical assistance; and Social Influence (SI), reflecting the impact of peers, instructors, and societal views on technology adoption. Participants rated items on a five-point Likert scale, with a sample item being: "My interaction with technology tools in class is clear and understandable." The scale showed a reliability coefficient of 0.875, indicating good internal consistency.

3.2.2. Job anxiety scale

To assess job anxiety among Chinese English majors, we used the Job Anxiety Scale developed by Zhang and Chen (2006), which includes four dimensions: Concerns about Job Prospects (CJP), Lack of Employment Support (LES), Lack of Self-Confidence (LSC), and Employment Competition Pressure (ECP). Four items (item 11, 15, 16, and 24) were modified to better reflect the career challenges of Chinese English majors. An example item is: "I feel anxious because I do not understand job application procedures" (LES). The scale demonstrated high validity and reliability, with a Cronbach's alpha of 0.926 in this study, confirming its internal consistency.

3.2.3. Semi-structured interviews

To gain qualitative insights of how student technology acceptance might interrelate with job anxiety, we conducted interviews with 11 participants, guided by three open-ended questions (see appendix I). These questions were first reviewed by three researchers who have rich experience in qualitative studies to ensure they were clear, relevant, and effectively capture key aspects of technology acceptance and job anxiety. A pilot study was also conducted with one master's student and one fourth-year undergraduate student, both of whom had prior exposure to technology tools in academic settings but expressed varying levels of acceptance toward technologies. Their feedback allowed us to refine the wording and structure, ensuring the questions were easy to understand and encouraged in-depth responses.

3.3. Data collection

This study used convenience sampling to recruit Chinese English majors, with data collected via the *Wenjuanxing* platform from December 2024 to January 2025. The questionnaire was translated into Chinese, back translated for accuracy, and refined by a doctoral student for readability. It was presented in both English and Chinese for easy reference. For the qualitative phase, 16 participants initially agreed to interviews, but 5 withdrew, leaving 11 interviewees. Interviews, conducted online via Tencent Meeting, lasted 20-26 minutes, were audio-recorded, and transcribed manually and automatically. Ethical approval was obtained, and participants provided informed consent before participating.

3.4. Data analysis

3.4.1. Quantitative analysis

We conducted descriptive statistical analyses using SPSS 27.0 to examine the data distribution and the relationship between technology acceptance and job anxiety. Means, standard deviations, and the minimum and maximum values for each dimension were computed, and Pearson correlation analysis was performed to assess their associations.

To identify distinct technology acceptance profiles, we used LPA in Mplus 8.0, a clustering approach that groups individuals based on shared response patterns. The optimal number of profiles was determined through an iterative process using fit indices such as AIC, BIC, aBIC, LMR, BLRT, and entropy values. The best model was selected based on lower AIC, BIC, and aBIC values, a significant LMR test ($p < 0.05$), and an entropy score above 0.70. Profiles accounting for less than 5% of the sample were reviewed for interpretability. After identifying the best model, one-way ANOVA and post hoc tests were conducted using Mplus 8.0 to examine job anxiety differences across technology acceptance profiles, shedding light on how varying technology acceptance levels influence students' career-related concerns.

3.4.2. Qualitative analysis

Following Braun and Clarke's (2006) six-step framework, the qualitative data were analysed using thematic analysis with MAXQDA 2022. All interview transcripts were first

reviewed to ensure familiarization with the data, after which an initial coding process was conducted inductively, allowing for identifying recurring patterns. The generated codes were then categorized into broader themes, focusing on students' perceptions of technology and its influence on their job anxiety. To ensure analytical rigor, the three researchers independently coded a subset of transcripts, and inter-coder reliability was checked through discussions until a consensus was reached. Member checking was also conducted by soliciting feedback from participants to validate the interpretations.

4. Results

4.1. Quantitative results

4.1.1. Descriptive statistics and correlation analysis

Table 2 presents the descriptive statistics, including means, standard deviations, Cronbach's α, and zero-order correlations, for all constructs and subscales in this study. Apparently, the overall technology acceptance scores for Chinese English majors are moderate, while their job anxiety scores are relatively high. The consistency of the scales is strong, with all dimensions showing a Cronbach's α value higher than 0.76. Additionally, the correlation results reveal that, except for "LES" and "PE," all other dimensions of technology acceptance—both overall and individually—show significant correlations with dimensions of job anxiety.

Table 2. *Descriptive statistics and correlations among the variables*

	PE	EE	FC	SI	CJP	LES	LSC	ECP
PE	1							
EE	.836**	1						
FC	.545**	.432**	1					
SI	.855**	.816**	.664**	1				
CJP	-.412**	-.407**	-.201**	-.413**	1			
LES	-.198	-.182**	-.092*	-.170**	.665**	1		
LSC	-.402**	-.462**	.091*	-.344**	.310**	.149**	1	
ECP	-.434**	-.405**	-.166**	-.399**	.551**	.464**	.348**	1

Note. *p<0.05, **p<0.01

4.1.2. Technology acceptance profiles among Chinese English majors

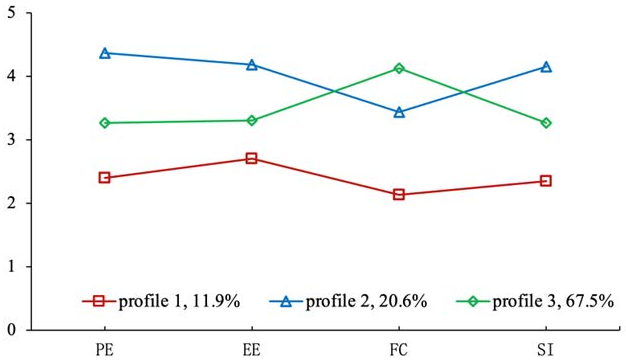
According to Table 3, although AIC, BIC, and aBIC decrease as the number of profiles increases, which suggests improved model fit, other indices should also be considered to avoid overfitting. Entropy remains consistently high (≥ 0.825) across all models, indicating strong classification accuracy. However, model comparison tests show that while BLRT remains significant (p < 0.001) across all solutions, LMR becomes non-significant at the 5-profile model (p = 0.6684), suggesting that the addition of a fifth profile does not meaningfully improve model fit. Moreover, a closer look at the class probability distributions raises interpretability concerns, as the 4-profile model includes a small subgroup (2.1%), and the 5-profile model

further fragments the sample, with one class representing only 0.6% of participants, indicating potential overclassification. The three-profile model, on the other hand, provides a meaningful classification (0.119/0.206/0.675) without generating overly small or unstable subgroups, and both LMR and BLRT confirm its statistical validity ($p < 0.001$). Considering these factors, the three-profile model is the most theoretically and empirically appropriate solution.

Table 3. *Model fit indices*

TM	AIC	BIC	aBIC	Entropy	LMR (p)	BLRT (p)	Profile assignment probability
1	3909.549	3743.626	3918.232	—	—	—	1.000
2	3583.817	3639.191	3597.926	0.890	<0.001	<0.001	0.122/0.878
3	**2458.745**	**2535.417**	**2478.281**	**0.895**	**<0.001**	**<0.001**	**0.119/0.206/0.675**
4	2284.016	2381.987	2308.979	0.825	0.0062	<0.001	0.111/0.021/0.208/0.660
5	2210.393	2329.662	2240.783	0.898	0.6684	<0.001	0.107/0.021/0.006/0.206/0.660

According to Figure 1, profile 1 demonstrates consistently low mean scores across all dimensions (PE: $M = 2.401$, $SD = 0.556$; EE: $M = 2.702$, $SD = 0.339$; FC: $M = 2.132$, $SD = 0.624$; SI: $M = 2.346$, $SD = 0.383$), indicating that Chinese English major students in this group perceive technology as less useful, more difficult to use, and lacking necessary support. Given these characteristics, this group is labelled as low-technology-acceptance profile, comprising 11.9% of the participants ($N = 62$). Profile 2 reports the highest scores in PE, EE, and SI dimensions (PE: $M = 4.368$, $SD = 0.641$; EE: $M = 4.183$, $SD = 0.286$; FC: $M = 3.433$, $SD = 0.372$; SI: $M = 4.149$, $SD = 0.760$), reflecting strong confidence in technology's usefulness, ease of use, and the availability of social support. As a result, this group is labelled as high-technology-acceptance, accounting for 20.6% of the participants ($N = 108$). In contrast, profile 3 shows moderate scores (PE: $M = 3.266$, $SD = 0.371$; EE: $M = 3.301$, $SD = 0.699$; FC: $M = 4.127$, $SD = 0.328$; SI: $M = 3.265$, $SD = 0.580$), suggesting a more balanced perspective—students in this group recognize some benefits of technology tools but still acknowledge potential challenges. Therefore, this group is identified as moderate- technology-acceptance, comprising 67.5% of the participants ($N = 353$).



Note: PE = Performance Expectancy; EE = Effort Expectancy; FC = Facilitating Conditions; SI = Social Influence

Figure 1. *The three technology acceptance profiles with raw means identified by latent profile analysis*

4.1.3. Differences in job anxiety across technology profiles

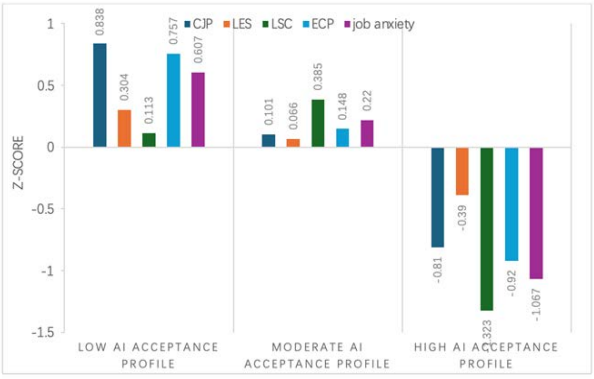
Table 4 presents the results of a one-way analysis of variance (ANOVA) examining differences in job anxiety across Chinese English major students with varying levels of technology acceptance. Regarding overall job anxiety, students in the low technology acceptance group (M = 3.900, SD = 0.312) reported the highest job anxiety levels, followed by those in the moderate technology acceptance group (M = 3.699, SD = 0.406), while students in the high technology acceptance group (M = 3.030, SD = 0.557) exhibited the lowest levels (Profile 1 > Profile 3 > Profile 2). This finding suggests that students with higher technology acceptance experience lower job anxiety.

A closer look at the subdimensions of job anxiety in Table 3 and Figure 2 reveals similar patterns. In terms of concerns about job prospects, students with low technology acceptance (M = 4.159, SD = 0.298) reported significantly higher anxiety than those with moderate (M = 3.694, SD = 0.512) or high technology acceptance (M = 3.120, SD = 0.766), with post-hoc tests confirming Profile 1 > Profile 3 > Profile 2. A similar trend was observed in the perceived lack of employment support, where students with low technology acceptance (M = 3.685, SD = 0.665) reported the highest concerns, followed by those with moderate technology acceptance (M = 3.492, SD = 0.708), while the high technology acceptance group (M = 3.122, SD = 1.084) exhibited the lowest levels. These findings suggest that students with lower technology acceptance may feel more disadvantaged in terms of employment support. Regarding employment competition pressure, students in the low technology acceptance group (M = 3.977, SD = 0.450) perceived the highest level of competition, followed by those with moderate technology acceptance (M = 3.565, SD = 0.548), while students in the high technology acceptance group (M = 2.841, SD = 0.748) experienced the least pressure. This indicates that students with lower technology acceptance may feel more vulnerable to job market competition, whereas those with higher technology acceptance exhibit lower anxiety, potentially due to their positive outlook on their career development.

Table 4. *One-way ANOVA results for job anxiety across technology acceptance profiles*

	Low AI acceptance profile	Moderate AI acceptance profile	High AI acceptance profile	F (2,520)	Post Hoc
CJP	4.159±0.298	3.694±0.512	3.120±0.766	17.810***	1>3,2; 3>2
LES	3.685±0.665	3.492±0.708	3.122±1.084	12.347***	1>3,2; 3>2
LSC	3.869±0.342	4.036±0.481	2.983±0.408	19.788***	3>1,2; 1>2
ECP	3.977±0.450	3.565±0.548	2.841±0.748	21.462***	1>3,2; 3>2
Job Anxiety	3.900±0.312	3.699±0.406	3.030±0.557	26.954***	1>3,2; 3>2

Note: **p<0.01 ***p<0.001; CJP = Concerns about Job Prospects; LES = Lack of Employment Support; LSC = Lack of Self-Confidence; ECP = Employment Competition Pressure, 1= low AI acceptance profile, 2= high AI acceptance profile, 3= moderate AI acceptance profile



Note: CJP = Concerns about Job Prospects; LES = Lack of Employment Support; LSC = Lack of Self-Confidence; ECP = Employment Competition Pressure

Figure 2. *Standardized Z-scores of job anxiety across technology acceptance profiles*

However, a different trend emerged in the self-confidence dimension. Students in the moderate technology acceptance group (M = 4.036, SD = 0.481) exhibited the highest levels of lack of self-confidence, surpassing both the low technology acceptance group (M = 3.869, SD = 0.342) and the high technology acceptance group (M = 2.983, SD = 0.408). Post-hoc tests confirmed Profile 3 > Profile 1 > Profile 2. This suggests that while students with low technology acceptance do experience self-doubt, those in the moderate technology acceptance group may still be in the process of adapting to technologies and have yet to fully establish confidence in its role in their careers, leading to greater uncertainty. This finding has unique significance, highlighting the need for targeted interventions for the English major students in the moderate profile.

4.2. Qualitative results

Based on the fourth research question, the thematic analysis identified three major themes: positive attitudes (N = 42), neutral attitudes (N = 78), and negative attitudes (N = 39), along with 10 sub-themes. As shown in Table 5, most respondents hold a neutral view regarding technology's impact on their future careers.

The positive-attitude theme includes four sub-themes: bringing new opportunities (N = 10), language skill enhancer (N = 20), work-efficiency booster (N = 8), and interdisciplinary integration and learning (N = 4). "Bringing new opportunities" reflects the belief that technology can create new job roles and expand employment prospects. "Language skill enhancer" highlights technology's potential to improve language-related skills, boosting competence for future work. "Work-efficiency booster" refers to technology's ability to streamline tasks like information retrieval and reducing repetitive workloads. Lastly, "interdisciplinary integration and learning" suggests technology encourages skill acquisition and exploration of cross-disciplinary careers. For example, a 27-year-old female Ph.D. student in the high technology acceptance profile noted that technology tools helped her learn statistical tools, enhancing her job market competitiveness:

P7: *I'm currently using large language models such as ChatGPT to learn R, and when I come across codes I don't understand, I'll ask it, 'Explain this to me like I'm a five-year-old.' I feel like I've made significant progress in my statistical skills.*

The neutral-attitude theme, which received the highest number of references, indicates that the majority of respondents remain uncertain or ambiguous about technology's impact on future employment, as its influence mechanism is not yet clear. This theme consists of three sub-themes: technology tools requiring human involvement (N = 42); reshaping job responsibilities (N = 20); uncertainty about the stability of technology-influenced jobs (N = 16). The following excerpts can support these sub-themes:

P2: *When it comes to writing that requires a human touch or creativity, you still need real people to bring that 'warmth' to it. So, while technology is powerful, I don't think it's as game-changing for employment as some might think.* (technology tools requiring human involvement; a 24-year-old female second-year graduate student, categorized under the moderate-technology-acceptance profile)

P5: *I think technology should be seen as something that refines and expands our responsibilities rather than taking them away—for example, by reshaping specific tasks in translation or editing.* (reshaping job responsibilities; A 21-year-old male fourth-year undergraduate student, categorized under the moderate-technology-acceptance profile)

Table 5. *The results of content analysis (CA)*

Themes	Sub-themes	Frequency	Percentage
Positive attitudes	bringing new opportunities; language skill enhancer; work-efficiency booster; interdisciplinary integration and learning	42	26.4%
Neutral attitudes	technology tools requiring human involvement; reshaping job responsibilities; uncertainty about the stability of technology -influenced jobs	78	49.1%
Negative attitudes	threat of job displacement; diminishing value of traditional language skills; raising the employment threshold	39	24.5%
Total		159	100%

The negative-attitude theme reflects the concerns of those who perceive technology as a threat to their future employment, potentially limiting career prospects or intensifying competition. This theme consists of three sub-themes: threat of job displacement (N = 20); diminishing value of traditional language skills (N = 10); raising the employment threshold (N = 9). The following examples provide evidence supporting these sub-themes.

P1: *I think AI-powered translation and intelligent writing technologies may reduce the demand for human translators and editors, gradually replacing some entry-level jobs.* (threat of job displacement; 20-year-old male, third-year undergraduate, moderate-technology-acceptance profile)

P6: *Technological advancement is a symbol of increasing competition. With this trend, I believe future employers will raise their expectations for us.* (Raising the employment threshold; 26-year-old female, third-year Ph.D. student, moderate technology acceptance profile.)

5. Discussions

This study is the first attempt to identify technology acceptance profiles among Chinese English majors, revealing three distinct groups: the low-technology-acceptance profile (11.9%), the high-technology-acceptance profile (20.6%), and the moderate-technology-acceptance profile (67.5%). We also conducted analyses and found distinct characteristics of each profile in job anxiety. Both quantitative and qualitative findings are discussed below.

Students in low-technology-acceptance profile exhibited consistently low scores across all UTAUT dimensions. Their scepticism mirrors findings from qualitative studies on technology resistance among undergraduate students in Barcelona, Spain, where participants expressed persistent concerns about technology's practical application and were reluctant to use it (Sánchez-Reina et al., 2024). One possible factor for low technology acceptance is the perceived ease of using technologies, as some students may find them challenging to use and therefore be less inclined to adopt them. Besides, some students may worry that overreliance on text generated by AI technologies could hinder their development in core language skills such as listening, speaking, reading, and writing. Consequently, they deliberately prioritize traditional training methods to mitigate the risks associated with technology overuse, and this prediction has also been supported by our qualitative findings (Al-Sofi, 2024). Additionally, the lack of perceived institutional support (FC: *M*= 2.132) within the profile can serve as both a cause and a consequence of low technology acceptance. It suggests that inadequate training and resources exacerbate their reluctance to adopt technology tools, highlighting the need for targeted interventions to address their concerns and to position technology as a complementary tool rather than a threat.

Participants in high technology acceptance group demonstrated strong confidence in technology's utility (PE: *M*= 4.368) and ease of use (EE: M= 4.183), as well as high social influence (*M*= 4.149). However, their score for FC (*M*= 3.433) was lower than that of the moderate acceptance group (*M*= 4.127), indicating that they may not perceive existing institutional resources and support as fully adequate. This implies that, rather than being primarily driven by institutional backing, their optimism toward technology may stem more from personal attitudes or peer influence (Park & Woo, 2022). While no specific research has focused on the factors influencing students' technology acceptance, this finding aligns with research on technology acceptance among teachers, which highlights attitudes toward technology, self-perceived effectiveness and efficiency as key factors in encouraging technology integration in the classroom (Du & Gao, 2022; Kaya et al., 2024). However, although the facilitating conditions score for this profile is lower than that of the moderate acceptance group, this does not suggest that external support is irrelevant. On the contrary, the relatively high score for facilitating conditions indicates that external support still plays a role in influencing individuals' technology acceptance (Fousiani et al., 2024; Ofosu-Ampong, 2024).

The majority of Chinese English major students (67.5%) falls into the moderate- technology-acceptance profile. Specifically, the average scores for PE and EE suggest that they likely exhibit a balanced perception of technology, recognizing its potential benefits but maintaining caution due to concerns about its practical application and limitations. This is also substantiated by our qualitative findings that while students may acknowledge technology tools' utility in language learning, they are also aware of its limitations in more

complex tasks such as critical thinking and creativity. Furthermore, the average mean score of SI indicates that these students may not be strongly influenced by external factors such as social or institutional support for AI adoption. This indicates that while some level of external influence is likely present, it may not be robust enough to drive full acceptance (Hornberger et al., 2025), leading to a moderate stance. The broader educational context in China can also help explain this moderate acceptance. While there is increasing awareness and integration of technology in education, its use in China's higher education system is still in the developing stages (Hu et al., 2023). The burgeoning adoption of technology tools and resources in educational institutions may contribute to students' moderate acceptance.

Our findings also suggest a significant association between technology acceptance and job anxiety. Specifically, students in the low-technology-acceptance profile exhibited the highest levels of job anxiety, whereas those in the high-technology-acceptance profile demonstrated the lowest levels of job anxiety. This result aligns with Yang's (2024) study, which highlighted that individuals who adopt technology tools as a means of enhancing their skills experience lower levels of job replacement anxiety and higher employment security. Moreover, our findings resonate with the research conducted by Liu and Liu (2025), who developed a rigorous AI anxiety questionnaire and identified job displacement as a key factor influencing AI-related anxiety, further highlighting the association between the investigated two variables. The relationship between technology acceptance profiles and job anxiety can be explained by the fact that students who accept AI technologies are more likely to improve their digital literacy by using these tools, which in turn enhances their ability to build self-competence and reduce job insecurity (Akash et al., 2024). Similarly, Chinese English major students in the low-technology-acceptance profile may have concerns about technology's impact on their future careers. Their scepticism can lead to a reluctance to embrace new technologies, which can hinder their ability to adapt to the evolving job market, increasing their fears of job displacement and skill obsolescence (Pan et al., 2025). Unlike the general pattern, an interesting finding is that the moderate-technology-acceptance profile group reported a higher lack of self-confidence compared to the low-technology-acceptance profile group. This suggests that while students in the moderate acceptance group are more open to technology, they may still feel uncertain and less confident about their ability to effectively use technologies, leading to a greater sense of self-doubt.

In terms of the qualitative results, the "positive attitudes" theme aligns with studies emphasizing technology's role in augmenting human capabilities and creating new job opportunities (Moran & Ackerman, 2024). However, the relatively small number of references to positive attitudes suggests that such optimistic views are not yet widespread among English majors, possibly due to limited exposure to technology's practical applications or a lack of institutional support in integrating technology into language education (Pan et al., 2025). The "neutral attitudes" theme, which received the highest number of references, reflects the dominant sentiment among respondents: uncertainty about technology's long-term impact on employment. This finding aligns with our quantitative results, which indicate that the majority of English majors fall into the moderate-technology-acceptance profile, recognizing both the potential benefits and risks of technology but remain hesitant about its long-term impact on employment. The "negative attitudes" theme highlights fears about technology's potential to replace human roles, devalue language skills, and intensify competition. For example, P1's concern about AI-powered translation technologies reducing demand for human translators resonates with Vicsek et

al. (2024) study, highlighting how technologies such as AI automation can shape non-technical undergraduates' perceptions of artificial intelligence and transform their job landscape.

6. Implications and limitations

This study holds both theoretical and practical implications. Theoretically, both the quantitative and qualitative results reflect varying degrees of optimism, ambivalence, and skepticism toward technology, underscoring the nuanced psychological and contextual dynamics shaping students' technology acceptance, aligning with the theoretical underpinning of the present study-CCT (Tokar et al., 2020). Our findings further proved the explanatory power of the theory in different contexts among diverse groups. Practically, based on the findings of this study, targeted interventions are essential to address the varying levels of technology acceptance and their impact on job anxiety among English majors. Given that students with low technology acceptance experience the highest job anxiety, educators or universities should prioritize structured training programs that enhance digital literacy and foster a more positive outlook on technology's role in language professions. For the moderate acceptance group, which exhibits heightened self-doubt, hands-on experiences such as AI-assisted translation workshops, technology-integrated internships, and mentorship programs can help build confidence and practical competence. Meanwhile, the high technology acceptance group, despite demonstrating the lowest job anxiety, may still benefit from career guidance on leveraging their technological proficiency for competitive advantage in an AI-driven job market. Additionally, institutions should strengthen institutional support by improving access to digital tools and fostering a balanced perspective on technology—emphasizing its role as an enhancement rather than a replacement for language professionals. These proposed initiatives highlight the role of technology and have the potential to empower English majors to navigate the evolving job landscape with confidence and adaptability.

Despite its contributions, this study has several limitations. First, this study used a cross-sectional approach, which limits causal inferences. Future research should adopt longitudinal designs to track how technology acceptance and job anxiety evolve over time, especially in response to technology training interventions. Second, the study focuses on Chinese English majors, which may limit generalizability. Future studies should examine technology acceptance and job anxiety in other disciplines, such as STEM, business, or social sciences, to determine whether similar patterns exist. Additionally, cross-cultural comparisons can explore how different educational systems influence technology perceptions. Lastly, while this study focuses on students, future research should include employer perspectives to assess whether students' technology anxieties align with actual industry demands. Investigating how employers view technology-related competencies in hiring and career advancement could bridge the gap between academic preparation and workplace expectations.

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8. Appendix

Semi-Structured Interview Framework

Topic of interview: Examining the interplay between student technology acceptance and job anxiety

Introduction Phase

1. Researcher presents their credentials and outlines the study's purpose.
2. Researcher presents a thorough explanation of the consent process emphasizing confidentiality protections.

Basic Information Questions

1. Do you consent to having this interview audio-recorded for research purposes? You may request to pause or stop recording at any time.

2. Could you please share your name for our records? All demographic information will be anonymized in research reports.
3. How old are you?
4. What is the highest level of education you have completed?
5. Are you currently a student? If so, what stage are you in?

Open-ended Questions

1. How would you describe your acceptance and willingness to use technology? What factors influence your decision to adopt or avoid technology?
3. Do you experience job anxiety? Please describe your level of anxiety in detail and explain the main factors contributing to it.
3. Do you think your acceptance of technology affects your career anxiety? Please provide specific experiences or thoughts to illustrate your perspective.