

Digital Literacy of English Majors in the Era of Large Language Models: Components and Influencing Factors

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ABSTRACT: Against the backdrop of the rapid development of Large Language Models (LLMs) represented by Chat GPT, the importance of digital literacy has become increasingly prominent. Current generative artificial intelligence technologies present new challenges and higher requirements for fields such as English learning, English education, international trade, and translation. However, English majors currently exhibit an insufficient understanding of the underlying mechanisms of LLMs, face vague digital literacy requirements, and are subject to complex influencing factors. Therefore, there is an urgent need to accelerate the deep integration of technology and the English major curriculum. This paper aims to study the structural components and influencing factors of digital literacy for English majors in the era of LLMs. Ultimately, this research seeks to help students smoothly adapt to the future and transform into interdisciplinary professionals equipped with high-level digital literacy.

Keywords: Large Language Models (LLMs); English Majors; Digital Literacy; Influencing Factors

I. BACKGROUND

1.1 Requirements of National Digital Development Strategies

China government made major strategic decisions to build a "Cyberpower" and a "Digital China" as early as 2012. These strategies emphasize the need to accelerate the construction of digital infrastructure, continuously elevate the development level of China's digital society, and comprehensively improve the digital literacy and technical skills of all citizens. In this context, artificial intelligence tools such as ChatGPT, Gemini, and ERNIE Bot have exerted a profound impact on the fundamental listening, speaking, reading, and writing skills of English majors. These tools not only possess massive, multi-lingual databases but can also provide highly personalized and customized learning services based on specific user instructions. They have evolved from mere translation machines into sophisticated "polymaths" and "experts." Consequently, the integration of these technologies inevitably brings both unprecedented opportunities and challenges to English majors. To navigate this landscape, foreign language educators and students must actively cultivate a framework of digital awareness, content creation skills, and other advanced qualities (Wang & Zhou, 2024). This transformation is essential for students to become versatile, interdisciplinary talents capable of surviving and thriving in a digitized world.

1.2 Application Status of "Large Language Models + Foreign Languages"

Although the developmental history of Large Language Models is relatively short—spanning less than five years—the speed of their technological advancement and interactive popularization has been extremely rapid. From foreign models like the GPT series and Gemini to domestic Chinese models such as ERNIE Bot and iFLYTEK Spark, various generative AI tools have begun to deeply penetrate multiple fields, including foreign language education, practical translation, and cross-cultural communication (Zhang, 2024). At present, while this technological progress provides an ocean of knowledge resources, it simultaneously poses an enormous challenge for English majors who must prove their human value in the loop.

The current practical reality is that, despite the increasingly rich array of technical platforms available, English majors often lack systematic, methodological guidance when using these tools. A portion of students merely treats them as simple translators or advanced search engines. For example, in an English translation course, some students might directly feed a specific source text into ChatGPT to obtain a translation without applying their own cognitive reflection. They merely scratch the surface, remaining ignorant of the complex

translation techniques and context-adaptation mechanisms happening behind the scenes. This superficial approach directly leads to the blurring of digital literacy requirements. Therefore, strengthening the cultivation of digital literacy among English majors is not only an urgent necessity for their personal professional development but also a crucial step in adapting to the needs of national modernization.

II. COMPONENTS OF DIGITAL LITERACY

To effectively evaluate and enhance the digital competency of English majors, the cultivation of digital literacy can be subdivided into the following four core dimensions:

2.1 Digital Awareness

Digital awareness refers to the extent to which English majors possess the proactive intention and cognitive readiness to apply generative AI technologies to relevant aspects of foreign language learning and professional practice. This includes fields such as translation, academic writing, international trade, and cross-cultural communication. High-level digital awareness is manifested in the precise grasp of specific contexts and scenarios. For instance, a digitally aware student knows exactly when it is appropriate and highly efficient to use AI to polish the tone of an English business email or provide a baseline translation. Conversely, they also possess the critical awareness to know when not to rely entirely on AI, such as during deep, nuanced cross-cultural interpersonal communication or the independent conceptualization and drafting of academic research papers.

2.2 Digital Value

From the perspective of digital humanities, the digital literacy of language professionals is intrinsically linked to their ability to utilize technology to create tangible value (Wang & Liu, 2023). English majors must not act merely as passive recipients of AI-generated information. Instead, they should utilize large language model tools as powerful cognitive auxiliaries to extract relevant information and subsequently output that content with high human quality, thereby creating distinct professional value. A primary example of this is the mastery of "prompt engineering." By skillfully crafting and iterating text prompts, students can strategically guide the AI tools to accurately output specialized texts tailored for target domains, such as international business contracts or specialized educational materials.

2.3 Digital Critical Thinking

Definitions of digital literacy, both domestically and internationally, consistently emphasize complex problem-solving abilities and critical thinking. Domestic scholars also assert that digital literacy integrated with critical thinking is a vital source of creativity for contemporary college students. If students blindly cite or accept the outputs generated by large language models without actively evaluating the content's factual quality and logical coherence, their foundational critical thinking skills will be severely impaired. Therefore, students must develop the ability to critically analyze AI outputs—for example, by accurately identifying and correcting cultural mistranslations, mechanical equivalences, or English pragmatic errors produced by AI translation tools.

2.4 Digital Ethics and Norms

As students increasingly utilize AI tools, they are confronted with a new landscape of ethical norms. Strict adherence to academic integrity and standard norms is the absolute foundation of technological application. Students must clearly understand that directly submitting English essays or research papers wholly generated by AI constitutes academic misconduct. Furthermore, in their future professional environments—such as foreign-related legal consulting, international trade, and corporate translation services—students must exercise extreme caution regarding data privacy. They must ensure that confidential client information or trade secrets are never transmitted into open-source large language models to avoid severe legal violations. Ensuring that their digital behavior is both legally compliant and ethically sound is a non-negotiable component of modern digital literacy.

III. INFLUENCING FACTORS OF DIGITAL LITERACY

3.1 Personal Factors

The Constraint and Empowerment of Language Foundation The foundational English language proficiency of individual English majors directly impacts the quality and sophistication of their interactions with large language models. Students with a robust linguistic foundation—characterized by a solid grasp of grammar and a vast vocabulary reserve—are better equipped to construct precise, robust input content and apply advanced input methods (prompt engineering) to effectively guide the models. Consequently, they can extract much higher-quality results. Simultaneously, their strong bilingual foundation makes them more perceptive and sensitive, allowing them to quickly identify and rectify subtle flaws, biases, or unnatural phrasing in the texts generated by the large language models.

3.2 Psychological Factors

Anxiety Regarding Professional Prospects Against the macro-backdrop of the AI boom, the psychological state of English majors is experiencing noticeable shock and fluctuation. Specifically, the fact that

some domestic universities have recently suspended admissions for traditional English-related majors, such as translation, has undoubtedly generated an unprecedented wave of anxiety among students regarding the "uselessness of foreign languages." The adaptability of college students to English learning under the support of artificial intelligence is deeply influenced by their psychological cognition (Li, 2021). Whether these psychological factors act as a positive catalyst—motivating students to urgently upgrade their skills—or as a negative, obstructive barrier that causes learning burnout, remains a critical variable requiring ongoing empirical research.

3.3 External Factors

Differences Across Large Model Platforms The external technological ecosystem also plays a significant role in shaping digital literacy. Different large language models operate on distinct algorithmic mechanisms. For example, foreign models like ChatGPT and Gemini, compared to domestic models like Kimi, Doubao, and DeepSeek, exhibit variances in the sheer volume of their English training corpora and their nuanced understanding of cross-cultural contexts. These underlying differences frequently lead to divergent generative outcomes. Furthermore, the quantity and quality of resources available on different platforms, alongside the overall user interface and interactive experience, positively or negatively influence a student's willingness to adopt and effectively apply these digital tools in their daily academic routines.

IV. THE PRACTICAL TRANSFORMATION OF DIGITAL LITERACY FOR ENGLISH MAJORS IN THE ERA OF LARGE LANGUAGE MODELS

4.1 Skill Transformation

In the era of large language models, generative tools can instantly complete basic translation and article generation. Therefore, the core competitiveness of English majors should be their core digital literacy, which is learning how to "command" AI. Good English proficiency means you can more accurately use English instructions and professional terminology to guide AI. By building a framework in your mind first and then translating your professional knowledge into precise instructions for the AI tool, you force the AI to think according to your logic. In this way, students can no longer just mindlessly copy and paste, but must become logical questioners. Take business English as an example: an ordinary student might simply input "Help me write a collection email" to the AI; whereas an English major with advanced digital literacy would use their professional knowledge to instruct the AI: "Your current role is a foreign trade salesperson. The client has defaulted on the final payment for a week. Please write a collection email in professional English that is amicable but firm in its stance, and provide three alternative installment payment plans."

4.2 Career Attitude Transformation

Faced with the powerful English capabilities of AI, the vast majority of English majors have fallen into the panic of "graduation means unemployment." In reality, however, digital literacy is the strongest weapon for English majors to turn the tide in the workplace. Only by undergoing this transformation in career cognition can students more actively cultivate and utilize digital literacy to pave the way for their careers, rather than blindly trapping themselves in despair under the impact of AI. Shattering the "uselessness of foreign languages" theory requires truly making good use of these tools. AI will only eliminate those students who mechanically check dictionaries and copy-paste translations. Conversely, students with true digital literacy can proficiently use AI to exponentially improve their production efficiency and quality. Regarding career paths, English majors with a high level of digital literacy will actively use the "English + large model tools" combination to broaden their employment boundaries, no longer confining themselves to traditional pure translation or language teaching. For example, by engaging in "cross-border e-commerce content operations," they can use AI to generate multi-lingual product copywriting to attract target audiences and achieve promotional goals.

V. PRACTICAL SIGNIFICANCE

The practical significance of this study operates on multiple interconnected levels, individual, institutional, and societal, each reinforcing the others in a mutually constitutive relationship. At the most immediate level, clarifying the constituent elements of digital literacy provides English majors with a coherent, actionable framework for self-assessment and self-directed growth. Rather than approaching AI tools with either uncritical enthusiasm or paralyzing anxiety, students who possess a clear understanding of the four core dimensions, digital awareness, digital value, digital critical thinking, and digital ethics, are far better positioned to engage with large language models in a purposeful, reflective manner. This conceptual clarity transforms what might otherwise be a disorienting technological encounter into a structured developmental opportunity, enabling students to continuously enrich their learning repertoire and progressively advance toward more sophisticated and specialized domains of professional practice.

Beyond individual empowerment, this framework carries significant implications for curriculum design and pedagogical reform within foreign language education. By systematically identifying the influencing factors of digital literacy, including personal linguistic foundations, psychological orientations toward career prospects,

and the differential affordances of various large model platforms, educators and curriculum designers are equipped with a nuanced empirical basis upon which to build targeted instructional interventions. For instance, understanding that a student's underlying language proficiency directly mediates the quality of their human-AI interaction suggests that foundational linguistic training must not be sacrificed in the rush to integrate technology; rather, robust language competence and digital skill cultivation must be pursued as complementary, mutually reinforcing objectives. Similarly, acknowledging the psychological dimension of anxiety and professional uncertainty calls for the deliberate incorporation of career-oriented guidance and affective support mechanisms into language curricula, ensuring that students develop not only technical competence but also the professional confidence and cognitive resilience necessary to navigate a rapidly shifting employment landscape.

Furthermore, the analysis of practical transformations in skill sets and career attitudes carries profound implications for the broader relationship between higher education and the demands of a digitized economy. As large language models continue to permeate industries ranging from international trade and legal consulting to cross-border e-commerce and cross-cultural communication, employers increasingly require professionals who can function not merely as linguistic intermediaries but as intelligent orchestrators of human-AI collaborative workflows. By prompting students to treat professional domain knowledge and digital literacy as jointly developmental rather than competing priorities, this study advocates for a fundamentally reconceived vision of what it means to be an English major in the twenty-first century. The ideal graduate is no longer defined solely by receptive and productive language skills, but by the capacity to synthesize disciplinary expertise, critical judgment, and technological fluency into outcomes of demonstrable professional value.

At the broadest level, this research aligns directly with China's national strategic imperatives surrounding the construction of a "Digital China" and the cultivation of high-caliber interdisciplinary talent capable of competing and contributing on the global stage. The cultivation of English majors who possess comprehensive digital literacy, strong adaptability to evolving global trends, and the innovative capacity to leverage vast informational resources serves not only individual career trajectories but also the collective goal of national modernization. In this sense, the practical significance of clarifying and systematically analyzing digital literacy extends well beyond the boundaries of the foreign language classroom, ultimately contributing to the formation of a digitally empowered citizenry capable of driving sustainable, innovation-led development in an increasingly interconnected world.

VI. CONCLUSION

In conclusion, the widespread popularization of large language models does not diminish the intrinsic importance of the English major; rather, it establishes significantly higher standards for students' comprehensive qualities and interdisciplinary skills. Faced with this inevitable technological trend, clarifying the specific requirements of digital literacy and systematically analyzing its multifactorial influences can provide a robust empirical basis for subsequent teaching practice reforms. By addressing these components and factors, educators can successfully help students transition smoothly from being pure language learners into becoming new, highly capable professional talents who can masterfully navigate and leverage digital tools.

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