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Constructing and Implementing the SCACP Integrated Framework for Digital Humanities Courses in the Context of the New Liberal Arts

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Abstract: Against the backdrop of the New Liberal Arts initiative, application-oriented universities face growing challenges in cultivating digital literacy among foreign language majors. Taking the course Introduction to Digital Humanities as an example, this study investigates the pedagogical mechanism of the SCACP integrated framework in enhancing students' digital literacy and interdisciplinary competencies. Findings from classroom observations and student feedback indicate that the SCACP framework effectively fosters students' intrinsic learning motivation, bridges the traditional divide between technical skills and humanistic inquiry, and improves students' abilities in information processing, cross-disciplinary application, proficiency with digital tools, and intercultural understanding. Based on these insights, this study proposes a set of feasible strategies: (1) developing discipline-specific curricular content; (2) systematically integrating a hybrid toolkit of traditional and AI-enhanced digital methods; (3) strengthening authentic, project-based learning; and (4) deepening university–community collaboration in talent development. These strategies aim to offer a replicable and scalable model for New Liberal Arts curriculum reform in foreign language programs at application-oriented universities, thereby contributing to the cultivation of interdisciplinary and internationally oriented talents.

Keywords: New Liberal Arts; Digital Humanities; Teaching Method; SCACP Integrated Framework.

1. Introduction

At present, higher education in China is undergoing profound transformation. As an important component of national strategic planning, the New Liberal Arts initiative has been entrusted with the mission of reshaping the landscape of humanities education and supporting high-quality national development and the construction of a culturally strong nation. By emphasizing the principles of integration, contemporaneity, localization, and internationalization, the New Liberal Arts initiative fundamentally seeks to break down traditional disciplinary boundaries, and foster convergence between the humanities and fields such as science, technology, and engineering — particularly in response to the new wave of technological revolution driven by artificial intelligence and big data. In this context, digital technologies are no longer merely auxiliary tools; rather, they have become key driving forces for restructuring knowledge production and innovating talent cultivation models. Consequently, humanities education at universities urgently requires a systematic transformation, from educational philosophy to pedagogical practice, in order to respond to the demands of the times and the needs of national development. [1-2]

Digital Humanities (DH), as an emerging interdisciplinary field characterized by the deep integration of the humanities and digital technologies, naturally aligns with the core principles of the New Liberal Arts initiative, which emphasizes upholding tradition while fostering innovation, promoting interdisciplinary integration, and advancing collaborative education. DH not only broadens the research horizons of humanities by giving rise to new paradigms such as corpus linguistics, Geographic Information Systems (GIS), and social network analysis, but also transforms pedagogical approaches, shifting the focus from knowledge transmission to competence development and from one-way lecturing to collaborative inquiry. In recent years, educators both in China and abroad have explored a variety of pedagogical models for DH education. Early efforts often adopted Project-Based Learning (PBL), which emphasizes guiding students to integrate technological skills with humanistic inquiry through authentic research problems. Subsequently, Outcome-Based Education (OBE) was introduced, focusing on measurable attainment of key competencies such as digital literacy and critical thinking skills. More recently, some scholars have attempted to adapt the CDIO (Conceiving-Designing-Implementing-Operating) engineering education framework, advocating full-cycle participation to reinforce practical learning loops.

However, in the process of promoting DH courses in Chinese universities, these models have yet to be effectively localized and implemented, and several practical challenges remain. On the one hand, such courses lack coherent top-level design, resulting in fragmented and scattered content that fails to form coherent knowledge structures and a clear pathway for competence development. On the other hand, mechanisms for interdisciplinary collaboration remain underdeveloped, often leading to a separation between technical training and humanistic inquiry. In many cases, teaching teams possess relatively homogeneous disciplinary backgrounds, making it difficult to sustain integrated instruction. More notably, classroom practice reveals that many students exhibit considerable anxiety when confronted with technical tools such as programming or data analysis, which makes it difficult to maintain engagement and interest. Coupled with the lack of authentic and coherent project-based learning contexts, this often leads to a disconnect between learning and application, thereby impeding the translation of acquired knowledge into comprehensive problem-solving capabilities. In particular, as Artificial Intelligence (AI) rapidly permeates

academic research, existing teaching models either overemphasize technical operations at the expense of humanistic reflection or focus on individual competence while neglecting collaborative learning ecosystems. There is thus an urgent need for a systematic teaching framework that can integrate structured knowledge delivery, project-based practice, and multidimensional collaboration.

In light of the orientation of Hebei Finance University (HFU) as an application-oriented undergraduate institution, as well as the distinctive strengths of the School of Foreign Languages for International Business in language, culture and area studies, the author has come to recognize the need to develop a digital humanities course that not only embodies the ethos of New Liberal Arts but also aligns with students' cognitive abilities and disciplinary needs. Accordingly, drawing on insights from existing educational practices and pedagogical models, this study proposes and implements the SCACP integrated framework. This framework consists of five interrelated dimensions: student-centered orientation, collaboration-based engagement, AI empowerment, curriculum instruction, and project-based practice. By integrating these components, this framework aims to establish a dynamic, closed-loop pedagogical model for digital humanities education. [3]

The structure of this paper is organized as follows. First, it will elaborate on the core dimensions of the SCACP integrated framework and the logic behind the top-level design of the course contents. Second, drawing on the instructional materials of the course Introduction to Digital Humanities as a case exemplar, this paper will present in detail the implementation of this framework in teaching practice. Particular attention is given to how its core components jointly facilitate the realization of the educational principles advocated by the New Liberal Arts. Third, through teaching reflections and classroom observations, this paper will provide an objective evaluation of the outcomes and proposes directions for further improvement. Finally, the paper will summarize the main research findings and offer prospects for the future application of the SCACP integrated framework.

2. Construction of the SCACP Integrated Framework

In response to the systematic demands for curriculum reconstruction under the New Liberal Arts initiative, as well as the fragmentation and disconnection observed in current digital humanities teaching practices, there is an urgent need for a pedagogical framework that not only embodies the core principles of the New Liberal Arts but also offers high applicability in real-world classrooms. To this end, through a comprehensive analysis of both international and domestic developments in digital humanities education, as well as the talent cultivation objectives of the foreign language programs at HFU, this study proposes the SCACP integrated framework. The framework comprises five core dimensions: student-centered orientation (S), collaboration-based engagement (C), AI empowerment (A), curriculum instruction (C), and project-based practice (P). These dimensions together form a coherent and comprehensive instructional model characterized by clear objectives and an internally consistent structure. The framework aims to facilitate a fundamental shift in teaching from knowledge transmission toward the cultivation and generation of competencies. [4]

First, the student-centered orientation (S) establishes the foundational value and pedagogical logic of the entire framework. It emphasizes that the design and implementation of teaching activities should be consistently guided by students' cognitive development patterns, the stimulation of learning motivation, and the needs of competence development, rather than relying solely on knowledge transmission or the accumulation of technical skills. Under this principle, students are regarded as active participants in knowledge construction and creators of meaning, with their subjectivity and creativity placed at the center of the teaching-learning process. By strengthening the relevance of learning content, increasing the level of challenge in task design, and enhancing the visibility of learning outcomes, the framework encourages students to move from passive reception to active inquiry. Through these mechanisms, it supports a progressive transition from "learning to know," to "learning to learn," and ultimately to applying knowledge effectively in practice.

Second, collaboration-based engagement (C) serves as the structural backbone of the framework. The essence of the New Liberal Arts lies in interdisciplinary integration, and a single disciplinary perspective is insufficient to capture the complex nature of digital humanities. Accordingly, the SCACP framework challenges the traditional constraints of individualized teaching practices and disciplinary isolation. Instead, it advocates the establishment of multi-layered and cross-disciplinary collaboration mechanisms. Such collaboration encompasses knowledge sharing and joint teaching among instructors from different disciplinary backgrounds within the university, as well as interactive dialogue and teamwork between teachers and students and among students themselves. Furthermore, it extends to resource integration and collaborative education between universities and external cultural institutions, technological platforms, and other social organizations. By fostering an open, interconnected, and collaborative network, the framework seeks to provide both institutional support and an enabling ecosystem for nurturing interdisciplinary talents.

Third, AI empowerment (A) reflects the framework's forward-looking response to ongoing technological transformations. As a pivotal outcome of the latest wave of the technological revolution, Artificial Intelligence Generated Content (AIGC) is profoundly reshaping the ways in which knowledge is produced and disseminated. Within the SCACP framework, AI is regarded not merely as an auxiliary tool but as a key infrastructural resource for empowering humanities education. This dimension emphasizes leveraging AIGC technologies to reshape the form of teaching resources, enhance interactive learning experiences, and expand the methodological frontiers of humanities research. This approach will enable students to efficiently access information, process data, and generate insights within intelligent learning environments. More importantly, this dimension also foregrounds the cultivation of critical and ethical engagement with AIGC: students are guided to interrogate its limitations, biases, and epistemological implications, thereby developing not only technical proficiency but also a strong sense of digital ethics and humanistic responsibility in the age of AI.

Finally, curriculum instruction (C), and project-based practice (P) jointly constitute the dual driving mechanisms of the framework. Curriculum instruction focuses on systematically delivering the foundational theories, core concepts, methodological frameworks, and academic

conventions of digital humanities, thereby equipping students with a coherent knowledge map and analytical scaffolding. In contrast, project-based practice emphasizes engaging learners in authentic or simulated complex scenarios where they synthesize and apply their knowledge to address interdisciplinary challenges, thereby cultivating integrative capacity, innovative thinking, and practical competence. These two components are not arranged in a linear sequence but are instead deeply interwoven and dynamically reciprocal. Curriculum instruction provides the theoretical foundation and methodological guidance for practical projects, while project-based practice in turn feeds back into the curriculum by testing the effectiveness of acquired knowledge and generating new learning demands. This closed-loop design, integrating knowledge acquisition with practical application, ensures that talent cultivation achieves both theoretical depth and practical relevance.

In summary, the SCACP framework establishes a holistic pedagogical model that places student development at its center, relies on collaborative networks as its structural foundation, employs intelligent technologies as its driving engine, and advances through the dual mechanisms of curriculum instruction and project-based practice. As such, it provides both theoretical guidance and a structural blueprint for the high-quality development of digital humanities courses within the context of the New Liberal Arts.

3. Teaching Practice of the SCACP Framework in the Course Introduction to Digital Humanities

To translate the SCACP integrated framework from a theoretical blueprint into an operational and assessable teaching model, this study implemented systematic teaching practice through the course Introduction to Digital Humanities offered by the School of Foreign Languages for International Business at HFU. The course, designed for undergraduate students majoring in English and Business English, aims to cultivate their humanistic data literacy and interdisciplinary application competencies required in the digital age. The entire teaching process was structured in strict accordance with the internal logic of the five core dimensions of the SCACP framework, and a carefully crafted syllabus served as the primary vehicle for achieving deep integration between pedagogical theory and classroom practice.

(1) Student-centered orientation: stimulating their learning motivation

At the outset of the course, instruction centers on two fundamental questions: “Why should we learn this?” and “How can it be applied?” To address these questions, the course introduces a range of representative digital humanities projects that combine academic depth with strong visual impact, such as corpus-based analyses of changes in diplomatic discourse, social network visualizations of character relationships in literary works, and GIS-based mapping of Song dynasty poetry. These examples vividly demonstrate the new possibilities that digital technologies bring to humanities research, thereby effectively stimulating students’ interest and curiosity. At the same time, the course explicitly illustrates the concrete applications of digital humanities skills in areas such as foreign language learning and teaching, translation studies, text mining, intercultural communication, and area studies. By highlighting these connections, the course helps students establish a strong link between the learning content and their future professional development, encouraging them to shift from passive reception to active exploration.

(2) Collaboration-based engagement: Building an open and cooperative learning community

The course moves beyond the traditional single-instructor teaching model and establishes an initial interdisciplinary collaboration mechanism within the school. The teaching team consists of faculty members with diverse academic backgrounds, including linguistics, translation studies, computer science, and literature, who jointly deliver instruction in key modules such as corpus processing, data cleaning, and data visualization. Within the class, group-based collaborative learning is widely adopted. Students work together on tasks such as corpus design, project topic selection, and digital tool operation, which encourages division of labor, peer learning, and mutual support. In addition, the course actively integrates external resources by guiding students to engage with local cultural topics, such as the regional culture of Baoding, thereby connecting subsequent project work with authentic social needs. This approach has gradually fostered a multi-dimensional teaching ecosystem characterized by dynamic interactions among instructors, students, and the broader community.

(3) AI empowerment: integrating advanced tool chains to strengthen technical foundations

The AI empowerment does not aim to replace traditional methods with artificial intelligence tools. Instead, it seeks to establish a collaborative workflow where traditional tools lay the foundation and intelligent technologies enhance efficiency. In practice, the course places significant emphasis on the proper use of classic digital humanities tools, such as employing ABBYY FineReader for high-precision OCR recognition, using PowerGREP to perform structured text cleaning through regular expressions, and applying AntConc to conduct word frequency and collocation analyses. These practices ensure that students acquire foundational skills that are verifiable and reproducible. Building upon this foundation, the course further integrates advanced applications that demonstrate the value of artificial intelligence. For instance, during the text preprocessing stage, students combine regular expression rules with prompt engineering to guide large language models (LLMs) in performing semantic-level cleaning and standardization of unstructured texts. In the semantic annotation phase, traditional part-of-speech taggers such as TreeTagger can be used as baseline tools, while AI agents based on contextual understanding are employed to automatically identify and annotate features such as sentiment orientation, discourse stance, or rhetorical strategies. In terms of visual representation, students can have access to established platforms, such as weiciyun.com and dycharts.com, to generate static visualizations, while also use natural-language instructions to prompt AI systems to create interactive and dynamic visual outputs, including knowledge graphs and spatiotemporal narrative maps. This dual-track design, combining traditional methods with intelligent technologies, not only ensures the rigor and transparency of the research process, but also fully leverages the advantages of AI in handling complex semantics, improving analytical efficiency, and stimulating creative expression. As such, students develop both a solid methodological foundation and the capacity to engage with emerging AI-driven research in the humanities.

(4) Curriculum instruction and project-based practice: a

dual-driven approach integrating knowledge and practice

To ensure that the Curriculum instruction (C) component of the SCACP framework remains forward-looking, systematic, and contextually appropriate, this study adopts a dual approach that integrates an international perspective with local adaptation in selecting and organizing the course contents. On one hand, in order to capture the global evolving trajectory and key themes of digital humanities education worldwide, the research team conducted an extensive review of relevant materials and collected and compiled syllabi from representative digital humanities courses offered by leading universities across the globe. On this basis, computational social science methods, particularly Structural Topic Model (STM), were employed to conduct quantitative analysis of the collected corpus, thereby identifying the application domains that are consistently emphasized in the international scholarly community.

However, the scholarly rigor of course content is not only reflected in its alignment with international developments, but more importantly, it depends on whether the content corresponds to the cognitive foundations and developmental needs of students in specific institutional and disciplinary contexts. Given that the course is designed for foreign language majors, whose knowledge structures are primarily centered on language, literature, and culture, and who generally lack formal training in programming or statistics, it would be inappropriate to directly replicate digital humanities curricula designed for comprehensive research universities or institutions with strong STEM orientations. Moreover, these students' career trajectories tend to center on language services, cross-cultural communication, international business, and education. In light of these considerations, the initially identified themes were subjected to further screening, integration, and reorganization in order to develop a more targeted and pedagogically appropriate course content framework.

Following multiple rounds of review and pedagogical deliberation, a set of seven core instructional domains was ultimately selected to serve as the principal framework of the course content. These domains not only reflect the mainstream methodologies in digital humanities but also align closely with the talent cultivation objectives of foreign language programs. They constitute the backbone of the course content framework and include:

1) corpus construction and management,
2) data visualization,
3) social network analysis,
4) knowledge graph construction,
5) geospatial data analysis (GIS),
6) applications of corpus in foreign language teaching and research, and
7) bibliometric analysis.

This curriculum framework integrates advanced experiences from international digital humanities education while also takes into full consideration the actual learning conditions and development needs of foreign language majors at application-oriented universities. Therefore, it achieves a balance between advanced academic orientation and pedagogical accessibility, providing a solid and precisely targeted content foundation for the effective implementation of the SCACP framework.

The instructional process follows a competency progression logic characterized by the stages of cognition, experience, operation, and creation. During week 1–7, instruction focuses on theoretical introduction and foundational skill training, systematically covering topics such as the procedures for corpus construction, the principles of data visualization, and the fundamentals of social network analysis. During week 8–12, the course shifts toward intensive hands-on training with digital tools and methodological application, during which students work in groups to complete small-scale tasks involving corpus collection, data cleaning, and preliminary analysis. During week 13–16, the course transitions fully to comprehensive project-based practice. For the final project, students are required to work in teams to select a specific topic under the general theme of "applications of corpus in foreign language teaching and research." Representative topics include, for example, an analysis of the difficulty level of CET-4 reading texts, a study of discourse features in the English translations of government work reports, and sentiment analysis of beauty-related promotional texts on Xiaohongshu. Students complete the entire research process, from topic justification and corpus construction to data analysis, visualization, and report writing. Throughout this process, curriculum instruction provides essential scaffolding for project implementation, while project-based practice serves as the primary vehicle for evaluating and deepening learning outcomes. They form a virtuous cycle in which learning supports application, and application further promotes learning.

4. Evaluation of Teaching Effectiveness

The value of any pedagogical reform lies not only in the sophistication of its design but also in the continuous reflection on and iterative refinement of its implementation. After completing a full cycle of instruction under the guidance of the SCACP framework, the teaching team conducted an objective evaluation of the course's effectiveness by systematically analyzing end-of-lesson teaching reflections, classroom observation records, and student feedback. Based on this multi-source evidence, key insights were identified to inform concrete directions for improvement.

(1) Teaching reflection

The teaching reflections documented in the lesson plans provide a candid account of the challenges and limitations encountered during the course implementation. First, technical barriers remain a major obstacle. Despite deliberate efforts to lower the level of difficulty, some students still exhibited noticeable anxiety when learning regular expressions, which are used for text cleaning. This resulted in a relatively high error rate in practical operations, reflecting a generally weak foundation in computational thinking. Second, the integration of humanistic theories and technical applications remains superficial. When analyzing corpus results, many students were able to proficiently generate word frequency lists or collocation tables from corpus outputs, yet struggled to accurately interpret linguistic concepts such as semantic prosody. As a result, their analyses often remained at the level of surface description, lacking deeper exploration of underlying cultural or discursive motivations. Third, research design competence requires further strengthening. Some student groups encountered difficulties in the stage of corpus representativeness analysis, failing to adequately justify whether the selected corpus could effectively support their research questions. This issue reveals a need for more systematic training in research logic and reasoning.

(2) Preliminary outcomes

Despite challenges related to technical barriers and the integration of theory and practice, the implementation of the SCACP framework has yielded several preliminary outcomes. First, students have generally mastered the complete workflow of corpus-based research, from data acquisition, cleaning, and annotation to analysis and visualization, resulting in significant improvements in their information literacy and data processing capabilities. Second, through project-based practice, students have increasingly adopted a dual perspective that integrates data-driven analysis with humanistic inquiry. For instance, some projects combined corpus analysis tools with international relations contexts to interpret diplomatic discourse, demonstrating the initial formation of interdisciplinary thinking. Third, the majority of students have become proficient in operating key tools, such as AntConc and COCA, and have begun experimenting with prompt engineering to employ AI-assisted approaches in their research, thereby enhancing their confidence in applying digital technologies. Most importantly, in projects focusing on topics, such as the international dissemination of vocabulary with Chinese characteristic and discourse features in the English translations of government work reports, students demonstrated a stronger sense of cultural awareness and a growing commitment to effectively presenting Chinese narratives to international audiences. In this process, their cultural understanding and sense of social responsibility were further cultivated.

5. Conclusion

Through the course Introduction to Digital Humanities, this study demonstrates the feasibility and advantages of the SCACP integrated framework in the context of the New Liberal Arts. The framework effectively integrates technology-enabled learning with humanistic inquiry, connects curriculum instruction with project-based practice, and fosters students' motivation and interdisciplinary competencies. It thus offers a replicable and scalable pathway for application-oriented universities to cultivate foreign language majors who possess strong digital literacy, critical thinking skills and a sense of cultural responsibility. In the future, the teaching team will continue to refine the framework. First, the team will aim to enhance the scaffolding of tool-based instruction by developing tiered tasks and micro-lecture resources to further lower technical barriers. Second, collaboration with local museums, cultural and tourism institutions, and cultural enterprises will be deepened to expand authentic project resources, such as the Baoding Memory initiative, thereby strengthening the integration of education with industry and society. Third, formative and multi-dimensional assessment mechanisms will be proposed in order to better capture the complexity of project-based learning outcomes. Finally, the SCACP framework will be progressively extended to related courses, such as Corpus Linguistics, Intercultural Communication, and Area Studies, to meet the demands of talent cultivation in the context of the New Liberal Arts.

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