

Functional Standards for Foreign Language Digital Textbook Publishing Platforms: Concepts, Framework and Practice

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Abstract: With the rapid advancement of digital textbooks, the functionality of digital textbook publishing platforms has garnered increasing attention. However, significant disparities exist in current platform development, and the absence of standardized specifications has impeded publishing efficiency and user experience of these platforms. It examines the features of foreign language digital textbooks and reviews the current state of publishing platforms. Grounded in disciplinary characteristics and needs, and drawing on existing

domestic and international frameworks, it proposes a functional standard system emphasizing integration, standardization, intelligence, and personalization. The proposed framework aims to provide theoretical insights and practical guidance for developing foreign language digital textbook publishing platforms, while offering reference for the construction of discipline-specific digital textbook platforms in other fields.

Key words: Foreign Language Textbooks; Digital Textbooks; Publishing Platforms; Functional Standards

Innovative Applications of Artificial Intelligence in Foreign Language Teaching and Research—A Multi-Dimensional Exploration Based on Linguistic Data, Large Language Models, and Digital Technologies

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Abstract: This paper explores the innovative applications of AI in foreign language teaching and research, particularly through the examination of specific cases from three aspects, i. e. linguistic data analysis, large language models, and digital technologies. Using Chinese and English film corpora as comparative datasets, the paper illustrates how language data platforms and tools enable granular statistical analysis. Characteristic lexical and syntactic patterns from Chinese films are leveraged to refine English-to-Chinese subtitle translation methods and provide new perspectives for optimizing the Chinese translation of American and British films. Furthermore, this paper presents novel classroom implementations of LLMs for

pedagogical tasks, including short-play generation, translation exercises, and automatic question design, demonstrating enhanced instructional efficacy. Finally, it discusses the application of digital technologies in multi-modal scenarios, including intelligent comic creation and digital human video synthesis, further enriching the pedagogical forms and content in foreign language education. Through these innovative applications, this paper aims to advance AI integration frameworks for transformative development in foreign language teaching and research.

Key words: Artificial Intelligence; Foreign Language Teaching; Linguistic Data; Large Language Models; Digital Technologies

Constructing a New-Format Digital Textbook for College Foreign Languages Based on the iTELL Framework: Philosophy, Logic, and Value Realization

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Abstract: Digital textbooks represent the “new infrastructure” of digital intelligent education. This paper proposes a construction logic for the college foreign language digital textbooks based on the iTELL framework: taking the digital textbook as the “interaction center”, establishing a “four-agent collaborative interaction network”, and employing mechanisms such as dynamic weight adjustment and value-oriented design to enhance human-machine collaboration. These strategies aim to uphold the subjectivity and educational value of both teachers and students, while addressing the “intelligence” challenges posed by GenAI. The core values are reflected in the following aspects: reshaping the pedagogical value of

human-machine collaboration, promoting the learning value of personalized learning and deep learning, realizing the value of dynamic knowledge evolution and value guidance, and fostering system-level value through the integrated development of the “teachers & students—curriculum—textbook—platform” ecosystem. The blended research based on *New Start College English* shows that the iTELL framework can significantly improve students’ academic performance and learning motivation, while facilitating positive transformations in teacher-student roles.

Key words: New-Format Digital Textbooks; iTELL Framework; *New Start College English*; Four-Agent Collaborative Interaction Network

Multimodal Discourse Construction and Translation of the “Digital Library Cave” Project

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Abstract: The “Digital Library Cave” project employs cutting-edge digital technologies—including 3D modeling, global dynamic lighting, and cultural relic restoration algorithms—to construct a multimodal communication system that synergizes visual, auditory, and tactile sensory experiences. This innovative approach establishes a semiotic and multimodal framework for the digital representation of Dunhuang’s cultural heritage. Grounded in theories of Intersemiotic Complementarity, Visual Grammar, Social Semiotics, and Translation Dissemination, this study systematically analyzes the mechanisms of digital semiotic representation and meaning-making processes within the “Digital Library Cave” project. It further investigates the strategies for constructing multimodal discourse and examines the efficacy of cross-cultural translation and dissemination.

Findings indicate that the integration of multimodal technologies significantly enhances the dissemination depth of the Mogao Grottoes’ cultural information and audience comprehension. Consequently, this research advocates for the exploration of innovative pathways to revitalize and disseminate traditional Chinese cultural symbols in the digital age. By optimizing multimodal narrative systems to strengthen cultural identity and refining translation and communication strategies to boost international outreach, the study aims to provide robust theoretical and practical support for effectively conveying China’s narratives and amplifying its voice on the global stage.

Key words: Dunhuang Culture; Digital Library Cave; Multimodality; Intersemiotic Complementarity; Translation Dissemination

Translation of Female-Related Metaphors in *Love in a Fallen City*: A Corpus-Based Cognitive Approach to Their English Renderings

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Abstract: In recent years, cognitive linguistics and corpus linguistics have introduced novel perspectives to metaphor translation studies. Adopting a corpus-based cognitive approach, this paper explores female-related metaphors and their English renderings in *Love in a Fallen City*, a novel with considerable recognition overseas. The research employs a mixed-method design, using online corpus analysis tool Wmatrix 5.0 developed by Lancaster University in the UK for systematic identification and quantitative analysis, followed by close reading for qualitative analysis of typical metaphorical instances and in-depth discussions. Findings reveal that translator Karen

Kingsbury successfully preserved approximately 70% of female-related metaphors (particularly orientational and ontological metaphors), effectively conveying cultural imagery through idiomatic English expressions. However, simplification of certain culture-specific metaphors resulted in loss of underlying connotations, indicating that literary translation must reconcile linguistic conversion with cognitive schema differences. These insights may shed some light on amplifying China's cultural presence globally through literary translation.

Key words: Cognitive Linguistics; Metaphor Identification; Female Images; Cross-Cultural Communication

Translation Poetics in Ku Hungming's English Translation of *Dream of the Red Chamber*

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Abstract: This study investigates the origin, translation strategies, and aesthetic effects of Ku Hungming's tentative translation of *Dream of the Red Chamber*. Grounded in new findings from knowledge archaeology and employing modern technological approaches, the analysis integrates Ku Hungming's perspective on translation poetics. Via comparative

analysis across synchronic and diachronic contexts, the research examines the rationale behind this translation endeavor, the strategies adopted, and the resultant artistic impact.

Key words: Ku Hungming; English Translation of *Dream of the Red Chamber*; Translation Poetics; Aesthetic Effects

From Yan Fu, Ma Junwu to Zhou Jianren: Translation and Dissemination of the Theory of Evolution in China

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Abstract: In the late Qing Dynasty and early Republic of China, the Theory of Evolution, spearheaded by Charles Darwin's *On the Origin of Species* embarked on its journey in China, injecting strong intellectual impetus to the country's social change, national progress and scientific innovation. This article examines the translation and introduction of the Theory of Evolution in the social and historical context of Modern China by delving into a large number of newspapers, books, and historical materials and investigates its onset in China by the westerners in China, followed by Yan Fu and Ma Junwu as pioneers who "alienated" it into Herbert Spencer's evolutionary theory and culminated with the translation and introduction of *On the Origin of Species* by biologist Zhou Jianren to restore its nature of natural science to promote the dissemination of modern scientific concept and methodology. The translation and dissemination of the Theory of Evolution in China exhibit three distinct characteristics: the socio-cultural dissemination in the late Qing Dynasty represents the enlightenment phase, the reversion to biological evolutionism in the early Republic of China constitutes the inception phase, and its

transformation into modern scientific paradigms during the mid-to-late Republican China period marks the consolidation phase. The relay translation efforts by Yan Fu, Ma Junwu, and Zhou Jianren reveal the progressive trajectory and substantive nature of the theory's impact on Chinese scientific cognition, simultaneously illuminating the emergence and development of scientific modernity in China.

In the history of science translation, Zhou Jianren stands as a pivotal figure in the introduction and dissemination of the Theory of Evolution in China. A comprehensive examination of his translational career and contributions serves not only to affirm his identity as a master translator, but also holds significance at this critical juncture of China's establishment of the Doctor of Translation and Interpreting (DTI) program—a program designed to integrate translational expertise with domain knowledge—in promoting the principled innovation and transformative development of China's translation education and disciplinary construction.

Key words: Theory of Evolution; Charles Darwin; *On the Origin of Species*; Translation and Dissemination; Zhou Jianren

AI-Empowered Translation Knowledge Network Construction and a New Paradigm of Human-Machine Collaborative Teaching

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Abstract: With the rapid development of AI and large language models (LLMs), translation education has undergone innovative paradigm shifts. Data-mining driven mode of constructing AI-empowered translation knowledge networks leads to quantifiable knowledge correlation analysis for translation learning, and therefore generates knowledge graphs to enable the integration of knowledge points in teaching management, student behavior tracking, and pedagogical evaluation. Rooted in cognitive translology, this study proposes a four-dimensional “Language-Culture-Function-Cognitive Intelligence” Translation Knowledge Network Model by synthesizing technological applications of knowledge networks in computer science and AI fields. The research team has developed a translation knowledge

base platform to demonstrate the construction of an interactive translation knowledge network by elaborating on the definition of knowledge nodes, corpus annotation, data mining, and AI-empowered knowledge graph generation. This model can be applied to translation education for teaching management via knowledge integration, alongside human-calibrated intelligent LLMs translation assessment, thereby establishing a novel human-machine collaborative pedagogical paradigm featuring tripartite interaction among “translation knowledge networks + LLMs + human instructors”.

Key words: Artificial Intelligence; Translation Knowledge Network; Human-Machine Collaboration; Translation Education

Automatic Evaluation of Translation Quality Based on Syntactic Quantitative Features

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Abstract: This study aims to explore the role and impact of syntax-related quantitative features on the evaluation of translation quality. A total of 47 variables is selected from three aspects: macro syntactic complexity, micro syntactic complexity, and syntactic semantics, to examine their effectiveness in evaluating the quality of translation in expository, narrative, and argumentative texts. The results indicate that: firstly, the relevant variables of both macro and micro syntactic complexity are significantly correlated with the translation scores of the three text types to some extent. However, influenced by the characteristics of the source text, the number of significantly correlated variables and the degree of

correlation vary across different text types. Secondly, two variables related to syntactic semantics performed unsatisfactorily in the evaluation of translation scores across the three text types. Such variables are more suitable for making overall comparison of quality among translation collections in terms of syntactic form. Thirdly, the translation quality evaluation models demonstrate a high level of compatibility across the three genres, with the most significant impact observed in the case of expository texts, followed by argumentative texts, and narrative texts.

Key words: Translation Quality; Syntactic Features; Quantitative Evaluation

Towards a Parallel-Text-Based Translation Skill Teaching Model from the Perspective of Hypertext Theory—A Study Grounded in Screen Recordings of Translation Processes and Teaching Reform Experiments

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Abstract: Using hypertext and its three key components—“anchors”, “links” and “nodes”—as the framework, this research reconceptualizes the hypertext-based translation process as the dynamic weaving and navigation of the source text across multiple textual universes, thereby exploring the integration of translation practice, technology and postmodern theory at the textual level. Building upon this, the study expands the notion of parallel texts, and develops a “text-level” translation

skills teaching model. The effectiveness of this model is evaluated through controlled experiments involving BTIs, non-English-related majors, and professional translators. The results reveal that the model significantly enhances the translation performance of various groups, with particularly pronounced improvements observed in those with a weaker knowledge foundation.

Key words: Hypertext; Textual Universes; Parallel Texts; Cyber Translation; Translation Skills

Design and Empirical Study of a GenAI Triadic Collaborative Interaction L2 Writing Model Based on Ecological Systems Theory

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Abstract: Grounded in Bronfenbrenner's Ecological Systems Theory, this study constructed a triadic collaborative interaction model ("student-teacher-GenAI") for second language (L2) writing. It explored how generative artificial intelligence (GenAI), as an intelligent environmental factor, optimized L2 writing processes through dynamic collaborative mechanisms and fostered students' reflective and critical thinking abilities. Through a single-group intervention experiment design, a 6-week empirical study on Japanese writing instruction was conducted in a naturalistic teaching context. Integrating multidimensional data including writing scores, in-depth interviews, and teacher journals, the study employed triangulation to analyze the model's

effectiveness. Findings revealed that GenAI significantly enhanced writing proficiency through hierarchical feedback mechanisms, while its dynamic feedback loops promoted the synergistic development of reflective abilities and critical thinking as students filtered and integrated multi-source feedback. The study demonstrated that GenAI's hierarchical feedback, data-driven collaborative support, and learner autonomy cultivation is identified as the core mechanisms for optimizing L2 writing ecosystems, offering theoretical and practical insights for AI-enhanced writing pedagogy.

Key words: Ecological Systems Theory; GenAI; Triadic Collaborative Interaction; Second Language Writing; Collaborative Interaction Model

An Ecological Study of Metaphors in the Discourse of *The New York Times* on Electric Vehicles

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Abstract: Grounded in the theoretical frameworks of metaphor analysis and ecological discourse analysis, and incorporating corpus tools, large language models, and machine learning techniques, this study analyzes the metaphorical system in the discourse of *The New York Times* on electric vehicles (EVs) and the ecological orientation of that system. It further reveals the ecological perspectives embedded in the metaphors and examines their underlying motivations and implications. Findings indicate that the metaphorical system exhibits a predominantly confrontational tendency, characterized by four major metaphor types: war, violence, human activity, and competition. This tendency evolves along two primary dimensions: from domestic to international contexts, and from economic to political domains. Approximately half of the identified metaphors are ecologically destructive, one-third are ecologically beneficial, and one-sixth are ecologically ambiguous.

These metaphors reflect three distinct ecological views: a destructive view opposing China's development, a beneficial one advocating U.S. domestic growth, and an ambiguous one emphasizing the economic feasibility of EVs. The underlying motivations can be attributed to *The New York Times*' politicized protection of economic interests and its adherence to the Cold War mentality. This metaphorical system distorts public perceptions of EVs' ecological value, impedes their adoption in the U.S., and contributes to the setbacks in the Biden administration's EVs policy implementation. By integrating linguistic and computational approaches, this study offers a novel framework for media discourse analysis and provides critical insights into public opinion formation and ecological communication.

Key words: *The New York Times* Discourse on Electric Vehicles; Corpus-Assisted Metaphor Analysis; Ecological Discourse Analysis

A Diachronic Evolution Model of Financial Discourse Based on Topic Vectors: A Case Study of the Federal Reserve's Monetary Policy Reports

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Abstract: This study examines the evolution and continuity of the U. S. federal reserve's monetary policy discourse across four presidential administrations (Bush, Obama, Trump, and Biden). By combining topic modeling with word embedding methods, it builds a diachronic topic-vector model to identify and quantify core policy themes within presidential terms and forecast Trump's policy directions in his new term. Results show notable different policy focus: Bush emphasized technology and war, Obama highlighted financial regulation and debt issues, Trump prioritized market frameworks and social concerns, and Biden concentrated on post-pandemic economic recovery. Discourse within

presidential terms is highly consistent, whereas continuity across administrations is affected by changing economic and political factors. Trump's new term is projected to intensify the "America First" stance, emphasizing trade tariffs, regulatory simplification, and domestic economic support. This research pioneers a novel methodological framework for policy discourse analysis, enabling the tracking and quantification of global policy discourse evolution. It offers practical value for relevant authorities to precisely identify international policy trends and risk directions.

Key words: Financial Discourse; LDA-Word2Vec; Diachronic Evolution; Monetary Policy