

Research on the Application of System Functional Linguistics in Intelligent English Classroom in Colleges and Universities

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ABSTRACT

With the deep integration of information technology and education, the development of intelligent English classrooms in higher education has become a key direction for educational reform. This paper, grounded in systematic functional linguistics and the core principles of intelligent English classrooms in higher education, outlines the application principles of systematic functional linguistics in these classrooms. It then proposes specific pathways for applying systematic functional linguistics in intelligent English classrooms, aiming to construct an application framework to enhance the effectiveness of intelligent English classroom teaching and promote the development of students' language skills and overall competence.

KEYWORDS

System functional linguistics; College English; Smart classroom; Application principle

1 Introduction

In the context of the information age, English teaching in higher education institutions is transitioning from traditional classrooms to smart classrooms. Smart classrooms leverage technologies such as artificial intelligence, big data, and cloud computing to achieve intelligent, personalized, and interactive teaching processes. System functional linguistics, which emphasizes the social functions and meaning construction of language, aligns closely with the educational philosophy of smart classrooms. This article focuses on the application of system functional linguistics in the development of smart English classrooms in higher education institutions.

2 Basic connotation

2.1 Systematic functional linguistics

Systemic Functional Linguistics (SFL) emphasizes that language serves as a tool for social interaction and has three core functions: conceptual function (expressing experiences and logical relationships), interpersonal function (constructing social interactions and role relationships), and discourse function (organizing information and linking contexts). This theory suggests that language choices are influenced by the social context, with different linguistic domains (such as academic, everyday, and professional settings) requiring distinct ways of expression. Because China is not a native English-speaking country, the environment for teaching English often lacks quality. Therefore, SFL should be integrated into teaching to enhance its effectiveness. SFL focuses on the practical use of language, advocating for the analysis of discourse structure, pragmatic strategies, and the synergy of multimodal resources through real-world context analysis. This approach provides a functional and social framework for language teaching, particularly suitable for interactive and situational language learning in smart classrooms, where technology enhances the learning experience.

2.2 Smart English classrooms in colleges and universities

The intelligent English classroom in universities is a new teaching model supported by modern information technology, aiming to achieve the intelligence, personalization, and efficiency of English instruction. Its core features include intelligent teaching tools, data-driven decision-making, multi-modal resource integration, and interactive collaborative learning. The intelligent classroom not only overcomes the time and space constraints of traditional classrooms but also meets students' personalized needs through an adaptive learning system, enhancing the immersion and practicality of language learning. Ultimately, it aims to develop learners' comprehensive language application skills and digital literacy.

3 Principles of application of system functional linguistics in intelligent English classrooms in colleges and universities

To sum up, the application principles of systematic functional linguistics in intelligent English classroom in colleges and universities are mainly reflected in three important aspects: the technical adaptability principle, the student

subjectivity principle, and the practice orientation principle.

3.1 Principle of technical adaptability

The principle of technology adaptability emphasizes that the application of technology in smart classrooms must align with the teaching objectives, content, and characteristics of systematic functional linguistics, ensuring that technological means effectively support the realization of language functions. Firstly, technology selection should serve three core functions: in terms of conceptual function, intelligent corpus analysis tools can help students grasp the vocabulary and grammatical features of specialized fields; in terms of interpersonal function, AI dialogue robots or online collaboration platforms can simulate real communication scenarios; and in terms of discourse function, multimodal text analysis software can enhance students' discourse organization skills. Secondly, technology application should adhere to the cognitive principles of language learning, such as providing real-time pronunciation feedback through speech recognition technology or using big data to analyze learners' language error patterns for precise teaching interventions. Lastly, technology adaptability should also focus on practicality and operability, avoiding the overemphasis on technological advancement at the expense of teaching effectiveness. Only by organically integrating the theoretical needs of systematic functional linguistics with the technological advantages of smart classrooms can the teaching value of technology be maximized, promoting a shift in English teaching from 'technology-driven' to 'function-oriented'.

3.2 Principle of student subjectivity

The principle of student subjectivity in smart classrooms emphasizes that students should be the core participants in learning activities, while teachers serve as guides and supporters. This principle is grounded in constructivist learning theory, which posits that knowledge is actively constructed by learners in specific contexts rather than passively received. In smart classrooms, student subjectivity is reflected in three key aspects. First, autonomy allows students to set their own learning goals, choose their learning strategies, and manage their learning pace using intelligent platforms such as online learning systems. Second, interactivity, where students engage in deep language practice through activities such as group discussions and role-playing, leveraging multi-modal technologies like AI dialogue tools and collaborative platforms. Third, creativity, where smart classrooms stimulate critical thinking and innovative language application through contextual tasks such as virtual simulations and project-based learning. This principle also requires teachers to shift their roles from 'knowledge authorities' to 'learning facilitators,' using data-driven analysis to understand student needs and provide personalized guidance.

3.3 Practice-oriented principle

The principle of practice orientation emphasizes that the application of systemic functional linguistics in smart classrooms for college English should focus on the social and practical functions of language rather than just formal rules. This means that linguistic theories should be problem-solving oriented, emphasizing the practical use of language in real-world contexts. In smart classrooms, this principle is reflected in three aspects: First, simulating real-life situations through virtual simulations and situational tasks allows students to use language in close-to-real communication environments, such as business negotiations and academic presentations, to enhance their understanding of language's conceptual and interpersonal functions. Second, adopting task-based teaching methods to enhance learning allows students to understand the selection of meanings in language structures while they complete specific tasks, instead of learning grammar rules in isolation. Finally, by integrating interdisciplinary approaches and designing language practice tasks that relate to students' future careers based on their professional backgrounds, we can make language learning more targeted and practical.

4 Application path of functional linguistics in intelligent English classrooms in colleges and universities

The application path of system functional linguistics in intelligent English classrooms in colleges and universities can be explored and practiced from three aspects: setting teaching objectives, designing teaching activities, and implementing teaching evaluation.

4.1 Setting the teaching objectives: precise positioning based on meta-function orientation

System functional linguistics emphasizes the three core functions of language: conceptual function, interpersonal function, and discourse function. This framework provides a theoretical basis for setting teaching objectives in smart classrooms for college English. Based on the theory of core functions, teaching objectives should be precisely defined to enhance students' language application skills, communication skills, and discourse analysis abilities. The conceptual

function focuses on how language expresses real-world experiences and logical relationships, aiming to develop students' language cognition and logical expression skills. In smart classrooms, teaching objectives can be set in two areas: knowledge construction, which involves analyzing the lexical and grammatical features of academic English through intelligent corpora to help students master professional language expression; and logical thinking training, which uses deep learning algorithms to analyze the transitivity system of texts, enhancing students' ability to recognize different semantic structures. The interpersonal function aims to strengthen students' social interaction and intercultural communication skills, focusing on how language establishes and maintains social relationships. Teaching objectives in smart classrooms can include two aspects: communication strategy training, which uses AI dialogue robots and virtual simulation scenarios to simulate real interactions, improving students' pragmatic skills; and emotional attitude guidance, which uses multimodal data analysis (such as speech emotion recognition) to evaluate students' language attitudes and communication effects, optimizing feedback mechanisms. The discourse function focuses on how language organizes information to achieve coherent expression, optimizing students' information organization and discourse analysis skills. Intelligent text analysis tools (such as the BERT model) can be used to identify the main position promotion mode of discourse so as to improve the logical writing of students. In teaching, multimodal discourse integration can also be introduced, combined with videos, charts, and other resources, so as to train students' ability to construct coherent discourse in different media.

4.2 Teaching activity design: multi-dimensional interaction driven by context

System functional linguistics emphasizes the social functions and context-dependent nature of language, asserting that the construction of language meaning is inseparable from specific communicative contexts. The design of teaching activities in smart classrooms for college English should focus on context-driven approaches to achieve effective language function training through multidimensional interactions. This means that language use is influenced by the topic, participant relationships, and communication methods. To design teaching activities based on context-driven approaches, four aspects need to be considered. The first aspect involves designing communicative tasks based on real-world contexts. Smart classrooms excel in simulating or recreating real-life communication scenarios, making language learning more practical. Such success can be achieved through two methods: one is virtual simulation of real-world contexts, using VR/AR technology to create scenarios such as business negotiations and academic conferences, allowing students to practice English roles in a simulated environment, thereby enhancing the interpersonal aspects of language. The second method is case-based learning, which involves designing industry-related language tasks based on students' professional backgrounds, such as writing English case reports or technical documents, to develop conceptual functions. The second aspect involves the application of multimodal interaction technology. The multimodal nature of smart classrooms (text, voice, images, videos) can enhance the diversity of language input and output. In teaching, a dialogue robot system can be introduced, allowing students to practice spoken English in real-time through an intelligent voice interaction system, receiving immediate feedback on grammar, pronunciation, and pragmatic strategies. For self-study sessions, a collaborative digital whiteboard can be used, enabling students to collaboratively edit multimodal documents (such as presentations with charts and videos) during group discussions, thus train discourse functions. The third aspect involves a dynamically adjusted interactive teaching model. Systemic Functional Linguistics suggests that language selection should adapt to various communication needs, thus making teaching activities flexible. Teachers need to design tiered tasks for different students, and the intelligent system can push differentiated interactive tasks based on students' language levels (for example, beginners focus on basic conversations, while advanced learners engage in debates or academic writing). Teachers should also use learning behavior data (such as the frequency of online discussions and task completion quality) to dynamically adjust interactive strategies, such as increasing training in high-frequency vocabulary or reinforcing specific grammatical structures. The fourth aspect is the integration of sociocultural context. Language communication is fundamentally a cultural practice, and smart classrooms should facilitate cross-cultural interaction. In teaching, comparing native cultures can enhance students' understanding; for example, online collaboration platforms allow students to work on joint projects with overseas learners to examine the differences in discourse structure between Chinese and Western texts, such as the logical coherence found in argumentative essays. Regions lacking relevant teaching environments can promote multimodal cultural experiences by integrating real materials from films, news, etc., guiding students to analyze linguistic features under different cultural backgrounds (such as euphemisms and humorous expressions), thereby enhancing their contextual adaptability.

4.3 Implementation of teaching evaluation: dynamic feedback of multi-mode intelligence

In the intelligent English classroom of higher education, teaching evaluation is a critical component for assessing teaching effectiveness and optimizing teaching strategies. By integrating the three meta-functional theories of systemic functional linguistics with artificial intelligence and multimodal data analysis technologies, a dynamic feedback evaluation system that combines multiple intelligences can be constructed. This system enables precise assessments of

students' language skills, communication strategies, and discourse organization abilities. The evaluation model emphasizes real-time, personalized, and data-driven approaches, effectively enhancing the scientific rigor and relevance of teaching evaluations. Firstly, it involves the collection and analysis of multimodal data. Intelligent technologies in smart classrooms can gather various types of multimodal data, including voice, text, video, and behavioral logs, to comprehensively document students' learning performance. For example, voice analysis uses intelligent speech evaluation systems to automatically assess students' pronunciation accuracy, fluency, and intonation changes, evaluating the degree of interpersonal function realization. Text mining employs deep learning algorithms to analyze students' writing samples, identifying the application of conceptual and discourse functions. Behavioral data is recorded through smart teaching platforms, reflecting students' interaction frequency and task completion times, which indicate their learning attitudes and participation levels. Secondly, a dynamic feedback mechanism is established based on teaching practices. Systemic functional linguistics emphasizes the social interactivity of language, so the evaluation feedback must be timely, interactive, and adaptable. A comprehensive feedback mechanism should encompass several key aspects, such as real-time diagnosis and recommendations (the system can automatically generate personalized learning reports and provide targeted exercises), multi-dimensional evaluation criteria (using SFL's meta-functional theory to design hierarchical evaluation indicators, including conceptual function: assessing students' mastery of professional terms and logical relationships; interpersonal function: analyzing the appropriateness of communicative strategies like tone and modality; discourse function: evaluating the use of information organization and cohesion techniques), and adaptive learning paths (based on learning data analysis, the system can dynamically adjust task difficulty). Multi-modal intelligent evaluation focuses on outcomes and emphasizes process assessment, forming a closed loop of 'evaluation-feedback-improvement.' This type of evaluation should include formative assessment and teacher-student collaborative assessment. Formative assessment involves recording students' progress through portfolios (such as electronic learning logs). Teacher-student collaborative assessment encourages self-assessment and peer review by students.

Systemic Functional Linguistics (SFL) provides a systematic theoretical framework and practical approach for intelligent English classrooms in higher education. In setting teaching objectives, it achieves precise positioning based on the three core functions: concept, interpersonal, and discourse. By using intelligent technology to analyze language features, it aims to develop students' professional expression, communication skills, and discourse organization abilities. In designing teaching activities, a context-driven, multi-dimensional interaction model is adopted, utilizing VR and AI dialogue tools to simulate real-life scenarios, thereby enhancing the social function and practicality of language. In the implementation of teaching evaluation, a dynamic feedback mechanism is established through the collection and intelligent analysis of multimodal data, enabling personalized and process-oriented assessments. This application path deeply integrates SFL theory with smart classroom technology, not only improving the precision and efficiency of language teaching but also promoting students' autonomous learning and comprehensive language development.

5 Conclusion

In summary, system functional linguistics provides theoretical guidance for the development of intelligent English classrooms in universities, while the technological advantages of these classrooms further expand the possibilities of language teaching. This research indicates that intelligent classrooms can significantly enhance teaching effectiveness. Future studies could involve the deep integration of artificial intelligence and system functional linguistics to promote innovative developments in intelligent English teaching.

References

- [1] Bingjun Yang. (2024). International Frontiers in Systematic Functional Linguistics Research. *Modern Foreign Languages*, 47(6),838-848.
- [2] Yijia Li. (2024). Research on the Construction of the Effectiveness of Smart English Classrooms in Colleges and Universities in the New Era. *Journal of Hubei Open Vocational College*, 37(4),154-156.
- [3] Xiaohong Ji, Yan Kai CAI. (2019). Implications of Systemic Functional Linguistics for Foreign Language Teaching in Colleges and Universities. *Campus English*, 33,24.
- [4] Can Cui. (2017). A Study on College English Teaching from the Perspective of Systematic Functional Linguistics. *Journal of Jilin Agricultural Science and Technology College*, 26(1),122-124.
- [5] Min Zhang. (2024). Strategies for Integrating Systematic Functional Linguistics into Smart University English Classrooms. *Journal of Jilin Institute of Engineering and Technology*, 40(2),70-75.
- [6] Junjun Ju. (2024). An Innovative Study on College English Teaching Based on Systemic Functional Linguistics Theory. *Knowledge Library*, 40 (14),115-118.