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Challenges and Opportunities in Implementing CLIL in Taiwan: Teacher Preparedness, ICT Integration, and Strategies for Low-Proficiency Learners

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Abstract: This study explores the key challenges and development opportunities faced in implementing Content and Language Integrated Learning (CLIL) in Taiwan. Through analyzing the theoretical foundations of CLIL, this paper elucidates the characteristics of soft CLIL and hard CLIL practice models and examines the integration pathways of Information and Communication Technology (ICT) with CLIL teaching. The research identifies three core issues in Taiwan's CLIL implementation: insufficient teacher readiness, manifested in lack of dual professional competencies, weak digital teaching skills, and inadequate support systems; ICT integration brings innovative opportunities, but deep integration of technology and pedagogy still requires exploration; low-proficiency learners face dual pressures of language barriers and cognitive load, necessitating differentiated teaching strategies and personalized support mechanisms. This study proposes recommendations including constructing teacher professional development systems, optimizing ICT integration application models, and improving support mechanisms for low-proficiency learners, providing theoretical foundations and practical guidance for advancing Taiwan's bilingual education policy.

Keywords: Content and Language Integrated Learning (CLIL), Information and Communication Technology (ICT), Bilingual Education, Higher Education, Low-proficiency Learners, Differentiated Teaching

1. Introduction

With the deepening development of globalization, cultivating international talents with cross-cultural communication capabilities has become an important goal of educational reform in various countries. Since Taiwan launched its bilingual nation policy in 2018, it has actively promoted bilingual teaching, with Content and Language Integrated Learning (CLIL) as an innovative teaching method receiving widespread attention. CLIL emphasizes improving language abilities while learning subject content, avoiding the drawbacks of traditional foreign language teaching being detached from practical application contexts, and achieving dual learning objectives within limited teaching time. However, CLIL implementation is not simply a conversion of instructional language, but rather a systematic project involving multiple dimensions, including curriculum design, teacher training, and learner support. In Taiwan's process of advancing CLIL practice, it faces not only traditional challenges such as insufficient dual

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professional competencies of teachers and scarce teaching resources, but also needs to address new requirements for ICT integration applications in the digital age, as well as the practical difficulty of effectively supporting learners with weak language foundations. Particularly in higher education, where students' language proficiency levels vary considerably and subject content complexity is high, how to achieve effective teaching within the CLIL framework has become a key issue.

2. Theoretical Foundations and Practice Models of Content and Language Integrated Learning (CLIL)

2.1 Core Concepts and Teaching Effectiveness of CLIL

Content and Language Integrated Learning (CLIL), as an innovative teaching method, centers on organically combining subject content learning with second language acquisition to achieve simultaneous attainment of dual teaching objectives. The theoretical foundation of CLIL stems from Canadian immersion education models and European multilingual education policies, emphasizing the promotion of natural language development through meaningful content learning contexts. According to the 4C framework proposed by Coyle and colleagues, CLIL teaching encompasses four core dimensions: Content refers to subject knowledge and skills transmission; Communication emphasizes the dual function of language as both learning tool and learning object; Cognition focuses on cultivating higher-order thinking skills; Culture concerns the construction of cross-cultural awareness and global citizenship literacy. Compared to traditional foreign language teaching, CLIL breaks through the limitations of separated language learning and content learning, creating more authentic and meaningful language use contexts. Empirical research shows that CLIL teaching has significant advantages in enhancing learners' language abilities, particularly excelling in developing academic language competence, cross-cultural communicative competence, and critical thinking skills. Through CLIL courses, learners not only master subject professional knowledge but also improve comprehensive language skills including listening, speaking, reading, and writing in natural communication environments[1].

2.2 CLIL Practice Models: Classification and Application of Soft CLIL and Hard CLIL

Based on the relative importance and integration degree of language and content in teaching, CLIL practice is divided into two basic models: soft CLIL and hard CLIL. Soft CLIL primarily aims at language learning, with subject content serving as a vehicle and contextual support for language learning, focusing on improving learners' language skills and communicative competence through meaningful content. In soft CLIL classrooms, teachers adjust content complexity according to learners' language proficiency, provide necessary language scaffolding and strategic guidance, ensuring learners can both understand content and achieve language improvement, particularly suitable for learning groups with relatively weak language foundations. Hard CLIL mode is dominated by subject content learning, with the target language serving as the instructional medium. Learners need sufficient language competence to understand and master subject knowledge, placing higher demands on teachers' dual professional abilities[2]. In Taiwan's educational context, due to significant differences in students' English proficiency, the soft CLIL model is more feasible in initial implementation. The development of Information and Communication Technology (ICT) provides new possibilities for CLIL teaching. Digital teaching platforms, multimedia resources, online collaboration tools and other technological means enrich CLIL teaching presentation methods, providing effective pathways for differentiated teaching and personalized learning. Through reasonable application of ICT technology, teachers can create more vivid and interactive learning environments, and learners can conduct autonomous exploration according to their own learning pace and preferences, improving the overall effectiveness of CLIL teaching.

3. Analysis of Teacher Readiness in Taiwan's CLIL Implementation

3.1 Professional Competency Requirements and Current Status Assessment of CLIL Teachers

CLIL teachers need to possess composite professional competencies far exceeding traditional single-subject teachers,

constituting the primary challenge in Taiwan's CLIL promotion. From the perspective of professional knowledge structure, CLIL teachers must simultaneously master subject content knowledge and second language teaching methodology knowledge, and effectively integrate them in actual teaching. Subject content knowledge requires teachers to master core concepts, theoretical frameworks, and latest developments in their disciplines, and be able to accurately and fluently express complex subject ideas in a second language. Second language teaching methodology knowledge involves language acquisition theories, classroom management techniques, assessment strategies, and cross-cultural communicative competence. More critically, CLIL teachers need to possess meta-teaching abilities to integrate both types of knowledge, flexibly adjusting content difficulty and language support during teaching, and modifying teaching strategies based on learners' immediate responses[3]. However, Taiwan's existing teacher training system mainly adopts a disciplinary training model, lacking specialized training programs for CLIL teachers. Surveys show that over 70% of Taiwan's university teachers consider themselves inadequately prepared for CLIL teaching, with insufficient language expression abilities, lack of appropriate teaching methods, and assessment skills being major concerns. Additionally, CLIL teaching involves knowledge systems and thinking patterns from different cultural backgrounds, requiring teachers to possess strong cross-cultural sensitivity. To enhance teachers' CLIL teaching capabilities, Taiwan's education departments have begun exploring systematic training mechanisms, including pre-service teacher education curriculum reform, in-service teacher professional development program establishment, and teacher certification system improvement[4].

3.2 ICT Skills Integration and Digital Teaching Capability Enhancement

The digital age brings both opportunities and challenges to CLIL teaching, with teachers' ICT literacy becoming an important factor affecting teaching quality. Modern CLIL teachers need to skillfully use various digital teaching tools, including learning management systems, multimedia production software, online collaboration platforms, virtual reality technology, and mobile learning applications. Through these technological means, teachers can create rich and diverse learning resources, design interactive teaching activities, and provide personalized learning support. For example, using video production software to create multi-stimulating teaching content, promoting deep communication through online discussion platforms, and employing learning analytics tools to monitor learning progress and provide timely feedback. However, the key to effective technology use lies in combining technology with CLIL teaching core concepts, achieving deep integration of technology, content, and pedagogy. The TPACK framework proposed by Mishra and Koehler emphasizes that teachers need to reach certain levels in three dimensions: technological knowledge, pedagogical knowledge, and content knowledge, and flexibly apply the intersection of the three to solve specific teaching problems. In Taiwan's actual situation, although most teachers possess basic ICT operational abilities, they still face difficulties in organically combining technology with CLIL teaching. Most teachers tend to use technology as simple supplements to traditional teaching, finding it difficult to realize ICT's true potential in CLIL instruction.

3.3 Construction and Optimization of Teacher Support Systems

Establishing a comprehensive teacher support system is a key guarantee for ensuring CLIL teaching quality and teacher professional development, requiring systematic planning from institutional design, resource allocation, and collaboration mechanism perspectives. At the institutional level, clear CLIL teacher career development pathways and incentive mechanisms need to be established, including reasonable recognition of teaching workload, adjustment of performance evaluation standards, smooth promotion channels, and appropriate salary compensation. Due to CLIL teaching complexity far exceeding traditional single-subject teaching, teachers need to invest more time and effort in curriculum design, material development, and teaching implementation, necessitating institutional arrangements to protect teachers' reasonable rights. Simultaneously, scientific CLIL teacher evaluation systems need to be established, considering both subject content teaching effectiveness and language ability improvement outcomes. In terms of resource

allocation, schools and education departments should provide sufficient professional development resources, including opportunities to participate in training programs, channels to access teaching resources and research outcomes, and necessary technical equipment support[5]. Particular emphasis should be placed on strengthening exchange and cooperation with internationally advanced CLIL practice regions to enhance local teachers' professional standards and international perspectives. Regarding collaboration mechanisms, establishing teacher learning communities is an effective pathway for promoting professional development through teaching observations, case analyses, experience sharing, and other activities for mutual learning and reference.

4. CLIL Learning Strategies and Support Mechanisms for Low-Proficiency Learners

4.1 Identification and Diagnosis of Learning Difficulties for Low-Proficiency Learners

The learning difficulties faced by low-proficiency learners in CLIL environments are characterized by multiplicity and complexity, requiring systematic identification from linguistic, cognitive, and psychological dimensions. At the linguistic level, major obstacles include insufficient vocabulary reserves, particularly the lack of academic vocabulary and specialized terminology, which directly affects the depth of understanding of subject content. Weak mastery of grammatical structures leads to difficulties in understanding complex texts and accurately grasping logical relationships. Limited listening comprehension abilities make it difficult for learners to keep up with classroom pace and participate in interactive discussions. More critically, there is a significant gap between academic language and everyday language—even learners who can communicate effectively in daily situations still encounter comprehension barriers when facing abstract academic concepts. Cognitive difficulties are primarily manifested in processing dual cognitive loads, where learners must simultaneously handle the dual tasks of content learning and language learning, often resulting in a situation where they cannot attend to both aspects adequately—either focusing excessively on language forms while neglecting content comprehension, or concentrating on content while overlooking language accuracy. Psychological factors are equally significant, as language anxiety and lack of confidence create a vicious cycle, with persistent feelings of frustration further undermining learning motivation and classroom participation. These compound difficulties are intertwined, presenting higher demands for instructional design and support strategies[6].

4.2 Differentiated Teaching Strategies and Individualized Support Programs

In response to the special needs of low-proficiency learners, CLIL instruction should adopt differentiated strategies and individualized support programs, using diverse approaches to help overcome learning obstacles. In terms of instructional content design, clear hierarchical structures need to be established, breaking down complex concepts into core elements and extended content to ensure learners first master the basic framework before deepening their understanding. The use of multimodal teaching resources is crucial, reducing the comprehension difficulty of pure linguistic input through diverse presentation methods such as visual charts, animated demonstrations, and physical models, providing learners with multiple channels of understanding. Appropriate native language support strategies play an important role in explaining key concepts and conveying complex instructions, but the timing and extent of use must be carefully managed to avoid over-dependence. Peer collaborative learning through scientific grouping appropriately matches learners of different proficiency levels, providing peer support while creating authentic communication contexts. The application of ICT technology opens new avenues for individualized support, with adaptive learning systems providing materials and tasks of appropriate difficulty according to each learner's ability level. Learning progress tracking and instant feedback systems help learners timely understand their learning status and receive improvement suggestions. Personalized configuration of multimedia assistance tools allows learners to choose suitable learning methods according to their preferences, such as adjusting playback speed, repeating playback, and adding subtitles[7]. Virtual reality technology provides low-proficiency learners with immersive learning experiences, enhancing the authenticity of language use while reducing real-world communication pressure through practical operations in virtual environments.

4.3 Assessment System Reform and Learning Effectiveness Monitoring

Traditional summative assessment inadequately serves low-proficiency CLIL learners, necessitating reform through: diversified formative assessment for continuous feedback; balanced process and outcome evaluation; separate assessment of language and content mastery using specialized tools; learning portfolios to showcase progress and boost motivation; combined self and peer assessment to develop autonomy; technology-enhanced assessment via online platforms, learning analytics, and AI-supported diagnosis; and assessment-driven instructional improvement based on results analysis.

Conclusion

This study reveals the complexity of CLIL localization in Taiwan, identifying key implementation challenges and opportunities. Successful CLIL requires comprehensive capacity building in teacher readiness, technology integration, and learner support. Teacher preparedness remains the primary bottleneck, demanding transformation from traditional education models to interdisciplinary training systems. While ICT-CLIL integration shows enormous potential, effectiveness depends on teachers' digital literacy and instructional design capabilities. Support mechanisms for low-proficiency learners reflect CLIL's educational equity principles, requiring differentiated strategies that leverage modern technology. Assessment reform is crucial for quality improvement, with diversified evaluation approaches needing continuous optimization. Future CLIL development in Taiwan requires coordinated policy support, resource investment, and quality monitoring that balances international best practices with local needs. Post-pandemic blended online-offline models present new opportunities for addressing traditional challenges and expanding quality education access. Success demands collaborative efforts from multiple stakeholders to achieve integrated content learning and language development goals.

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