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The Impact of Content and Language Integrated Learning on Motivation and Anxiety Levels of Chinese Primary School Students

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Abstract

This quantitative study investigates the effects of Content and Language Integrated Learning (CLIL) on the motivation and anxiety levels of primary school students. A quasi-experimental design with pretest and posttest measurements was employed, with an experimental group receiving CLIL instruction and a control group receiving traditional instruction. Questionnaires were administered to assess changes in motivation and anxiety levels. Results indicate significant improvements in motivation among the experimental group, particularly in motivational intensity and desire to learn English. However, attitudes towards learning English remained unchanged. Additionally, the experimental group experienced significant reductions in anxiety, specifically in communication apprehension and fear of negative evaluation, while test anxiety showed no significant change. Importantly, these effects were not observed in the control group, highlighting the unique impact of CLIL on student affective variables. These findings underscore the potential of CLIL to enhance motivation and alleviate anxiety among primary school students, emphasizing the importance of innovative instructional approaches in fostering positive language learning experiences.

Keywords: CLIL, English Learning, Motivation, Anxiety, Primary Schooling

Introduction

In recent years, the realm of language education has witnessed a paradigm shift towards innovative methodologies aimed at enhancing language proficiency while fostering broader cognitive and affective outcomes. One such methodology, Content and Language Integrated Learning (CLIL), has gained substantial attention for its potential to concurrently promote language acquisition and subject knowledge within educational settings (Said et al., 2023). Originating in bilingual education models in Europe, CLIL has gradually extended its reach to various educational contexts worldwide, including China (Hu, 2023a).

The implementation of CLIL in Chinese primary schools marks a significant departure from traditional language teaching approaches, emphasizing the integration of language instruction with subject matter content (Gao & Tan, 2023). In this context, subject areas such

as science, mathematics, and social studies are taught through the medium of a target language, often English, providing students with authentic opportunities to engage with language in meaningful contexts beyond rote memorization or mechanical language drills (Kewara & Prabjandee, 2018).

According to Đorđević (2023), while the efficacy of CLIL in enhancing linguistic competence has been widely documented, its influence on affective variables, particularly motivation and anxiety levels among young learners, remains a topic of ongoing investigation. Motivation and anxiety play pivotal roles in shaping language learning outcomes, influencing learners' engagement, persistence, and ultimately, proficiency attainment (Nikula, 2017). Understanding the interplay between CLIL pedagogy and these affective dimensions is crucial for optimizing instructional practices and fostering positive learning experiences among Chinese primary school students.

This quantitative study seeks to address this gap in the literature by examining the impact of CLIL implementation on the motivation and anxiety levels of Chinese primary school students. By employing robust research methodologies and statistical analyses, this research aims to elucidate the nuanced relationships between CLIL practices and students' affective responses, offering valuable insights for educators, policymakers, and stakeholders invested in the advancement of language education in China.

Through an exploration of relevant theoretical frameworks, empirical studies, and practical implications, this article aims to contribute to the growing body of research on CLIL and its potential to cultivate not only linguistic proficiency but also positive affective dispositions towards language learning among Chinese primary school students. Ultimately, this research endeavors to inform evidence-based instructional practices that promote holistic development and empower learners to navigate an increasingly interconnected and multilingual world.

Literature Review

Content and Language Integrated Learning

CLIL has emerged as a prominent approach in language education, characterized by the integration of language instruction with subject matter content (Spratt, 2017). CLIL draws upon theoretical foundations from bilingual education, cognitive psychology, and language acquisition theories. Cummins (1981) introduced the distinction between basic interpersonal communication skills and cognitive academic language proficiency, highlighting the importance of developing academic language proficiency in addition to conversational language skills. This distinction underscores the rationale behind CLIL, which aims to facilitate the acquisition of both language and content knowledge simultaneously (Yegizbayeva, 2024). Additionally, the sociocultural theory emphasizes the role of social interaction and meaningful communication in cognitive development. Within a CLIL classroom, language learning occurs through authentic interactions with subject matter content, promoting cognitive engagement and linguistic development (Vygotsky, 1978).

A growing body of empirical research has examined the effectiveness of CLIL across diverse educational settings. Studies have consistently reported positive outcomes in terms of language proficiency, subject knowledge acquisition, and cognitive skills development

(Ercolino et al., 2018; Lo, 2020; Nikula, 2017). For example, Hu et al (2022) conducted a longitudinal study examining the impact of CLIL on students' language proficiency and academic achievement in various European countries. The findings revealed significant improvements in both linguistic and academic outcomes among CLIL participants compared to traditional language instruction counterparts. Moreover, research indicates that CLIL fosters positive attitudes towards language learning and enhances learners' motivation and engagement (Charunsri & Sripicharn, 2023; Gao & Cao, 2015; Liao & Yun, 2024). By providing meaningful contexts for language use and promoting authentic communication, CLIL classrooms create conducive environments for language learning and academic success.

CLIL pedagogy encompasses a range of instructional strategies and practices aimed at optimizing language and content integration. Coyle et al (2010) proposed the 4Cs framework, which emphasizes content, communication, cognition, and culture as key dimensions of CLIL practice. This framework underscores the importance of aligning language and content objectives, promoting interactive communication, scaffolding cognitive development, and fostering intercultural awareness. Furthermore, teacher training and professional development play crucial roles in successful CLIL implementation (Hu, 2022, 2023b). Educators need support and resources to develop their linguistic and pedagogical competencies, design appropriate instructional materials, and create supportive learning environments conducive to CLIL principles.

Content and Language Integrated Learning in China

In recent years, Chinese educators have embraced CLIL as a promising strategy to promote English language learning while addressing the broader educational goals of promoting critical thinking, creativity, and cross-cultural understanding. Several studies have examined the implementation of CLIL in Chinese educational contexts, highlighting both opportunities and challenges associated with its adoption (Hu, 2024; Hu et al., 2024). One key advantage of CLIL in China lies in its potential to provide students with authentic language use opportunities, allowing them to develop language skills in real-world contexts rather than through isolated language exercises (Sun, 2023). This authentic language exposure is particularly valuable in a country like China, where English is often taught as a foreign language with limited opportunities for meaningful communication outside the classroom.

Moreover, CLIL has been shown to facilitate the acquisition of disciplinary knowledge in addition to language skills (Tanaka, 2019). By embedding language instruction within subject-specific content areas such as science, mathematics, or social studies, CLIL enables students to engage deeply with academic content while simultaneously developing their language proficiency. This interdisciplinary approach not only enhances students' understanding of subject matter concepts but also strengthens their language skills through repeated exposure to discipline-specific vocabulary and language structures (Yegizbayeva, 2024).

However, the successful implementation of CLIL in China is not without its challenges. One notable concern is the need for adequately trained teachers who possess both subject expertise and proficiency in the target language. Many Chinese educators face significant challenges in adapting to the demands of CLIL instruction, requiring ongoing professional development and support to effectively implement this pedagogical approach (Gao & Tan, 2023; Hu et al., 2024). Additionally, the availability of appropriate instructional materials and

resources tailored to CLIL settings remains a persistent issue, necessitating the development of contextually relevant materials that align with Chinese curriculum standards and educational objectives (Liao & Yun, 2024).

Despite these challenges, empirical studies have demonstrated positive outcomes associated with CLIL implementation in Chinese classrooms. Research indicates that CLIL can contribute to improvements in students' language proficiency, academic achievement, and overall motivation towards learning English (Said et al., 2023). Moreover, CLIL has been shown to foster positive attitudes towards language learning and promote intercultural awareness among Chinese students, preparing them for success in an increasingly globalized world (Sun, 2023).

Foreign Language Learning Motivation and Anxiety

Motivation and anxiety are two significant affective variables that profoundly influence the process and outcomes of foreign language learning. Understanding their interplay and impact on learners' experiences is crucial for educators, researchers, and policymakers seeking to optimize language learning environments and promote successful language acquisition (Gozdawa-Gołębiowski, 2019). Several theoretical frameworks provide insights into the complex nature of motivation and anxiety in foreign language learning. Self-Determination Theory, proposed by Deci and Ryan (1985), emphasizes the importance of intrinsic motivation, autonomy, and competence in fostering sustainable engagement and positive learning outcomes. According to this theory, learners are more likely to persist in language learning when they perceive a sense of autonomy, competence, and relatedness to the learning context.

Another influential framework is the Socio-Educational Model of Second Language Acquisition (Gardner, 2010), which posits that integrative and instrumental orientations towards language learning, as well as attitudes towards the target language community, significantly impact learners' motivation and language proficiency. Integrative motivation, characterized by a desire to connect with the target language community and culture, is associated with greater persistence and achievement in language learning compared to instrumental motivation, which focuses solely on practical benefits.

Anxiety in language learning is often conceptualized through the Affective Filter Hypothesis Krashen (1982), which suggests that anxiety and other affective factors can create a mental barrier that impedes language acquisition. High levels of anxiety may hinder learners' willingness to take risks, participate actively in language activities, and internalize new linguistic forms and structures.

Empirical research has consistently demonstrated the significant impact of motivation on foreign language learning outcomes. Studies have found positive correlations between intrinsic motivation, integrative orientation, and language proficiency (Đorđević, 2023). Conversely, extrinsic motivation, such as grades or external rewards, has been associated with lower levels of engagement and achievement (Yegizbayeva, 2024). Anxiety, on the other hand, has been identified as a pervasive challenge for language learners, particularly in communicative contexts. Foreign language anxiety encompasses various dimensions, including communication apprehension, fear of negative evaluation, and test anxiety (Rong

& Nair, 2021). Research indicates that high levels of anxiety can impair language performance, reduce motivation, and contribute to language learning difficulties (Geoghegan, 2024).

Understanding the dynamics of motivation and anxiety in foreign language learning has important implications for language educators and practitioners. Teachers can cultivate a supportive and inclusive learning environment that promotes autonomy, competence, and a sense of belonging among learners. Incorporating communicative activities, authentic materials, and opportunities for social interaction can help reduce anxiety and enhance motivation in language classrooms (Kewara & Prabjandee, 2018). Moreover, fostering a growth mindset and resilience-oriented approach to language learning can empower students to overcome setbacks and persist in their language learning journey (Hu, 2023a). Providing scaffolding and personalized feedback, as well as recognizing learners' efforts and progress, can further bolster motivation and confidence in language learners.

Methodology

Underpinned by the quantitative paradigm of research, a quasi-experimental design with pretest-posttest measurements and a control group was employed in this study. The control group received traditional instruction, while the experimental group underwent CLIL instruction. Both groups were assessed using pretest and posttest measures to compare changes in motivation and anxiety levels. The participants in this study were 80 primary school students from two intact classes in the same grade level. This study adhered to ethical guidelines concerning participant confidentiality, informed consent, and voluntary participation (Creswell, 2015). Prior approval was obtained from the school administration, and informed consent was obtained from both the participants and their parents or guardians.

Convenience sampling was employed to recruit these two classes, given the non-probability sampling nature key to the quasi-experimental design and the impossibility of randomly assigning students into two new classes against their original arrangement (Ary et al., 2018). It was important to note that participants were selected based on their similar demographic characteristics and language proficiency levels to ensure the validity of the study (Ary et al., 2018). These two classes were randomly assigned to either the control group or the experimental group.

To measure motivation and anxiety levels, self-report questionnaires on a five-point Likert scale were administered to the participants. The questionnaires were adapted from established scales, including Gardner's (2004) Attitude/Motivation Test Battery and Horwitz et al.'s (1986) Questionnaire on Foreign Language Classroom Anxiety, and were translated into Chinese to ensure comprehension among the participants. The motivation questionnaire included items related to motivational intensity, desire to learn English, and attitudes to learning English. The anxiety questionnaire assessed various dimensions of anxiety, including communication apprehension, fear of negative evaluation, and test anxiety. A pilot study organized before the study indicated that the questionnaires had considerable reliability, with Cronbach's alpha coefficients being above .80 for all constructs.

Before the implementation of the intervention, pretest measures were administered to both the control and experimental groups to establish baseline levels of motivation and anxiety.

Following the pretest, the experimental group received CLIL instruction while the control group received traditional instruction for eight weeks, adequate for an intervention design (Ary et al., 2018). After the intervention, posttest measures were administered to both groups to assess changes in motivation and anxiety levels.

Quantitative data collected from the pretest and posttest questionnaires were analyzed using appropriate statistical methods. Descriptive statistics were used to summarize the mean and standard deviation (SD) of the data. Based on the fulfilment of normal distribution of data, paired-sample t-tests were conducted to compare pretest and posttest scores within each group, while independent-sample t-tests were employed to compare the differences in scores between the control and experimental groups.

Results

Firstly, independent-sample t-tests were utilized to compare the pretest and posttest scores of the two groups. Descriptive statistics in Table 1 and inferential statistics in Table 2 indicated that, prior to the study, although there were slight score discrepancies between the experimental and control groups, they did not exhibit statistically significant differences in overall levels of motivation ($t = .16$, $p = .65$) and anxiety ($t = -1.01$, $p = .78$), as well as in most corresponding constructs. These included motivational intensity ($t = 1.23$, $p = .57$), desire to learn English ($t = -.23$, $p = .45$), attitude towards learning English ($t = -1.23$, $p = .44$), and communication apprehension ($t = 2.13$, $p = .55$). However, significant statistical variances were observed between the experimental and control groups prior to the intervention concerning fear of negative evaluation ($t = 3.12$, $p = .04$) and test anxiety ($t = -4.21$, $p = .01$), with the former exhibiting higher fear of negative evaluation but lower test anxiety. Following the intervention, statistical differences emerged between the experimental and control groups in terms of overall motivation ($t = 2.12$, $p < .001$) and anxiety ($t = -2.56$, $p = .01$), indicating that the experimental group demonstrated higher motivation and lower anxiety overall. Specifically, the experimental group exhibited higher levels of motivational intensity ($t = 3.41$, $p < .001$) and desire to learn English ($t = 3.56$, $p < .001$) compared to the control group, while maintaining a similar level of attitude towards learning English post-study ($t = .15$, $p = .67$). Similarly, post-intervention, the experimental group displayed lower levels of communication apprehension ($t = -.56$, $p = .04$) and fear of negative evaluation ($t = -3.76$, $p < .001$) compared to the control group, while demonstrating similar levels of test anxiety ($t = .43$, $p = .54$).

Table 1
Descriptive Statistics of Questionnaire Data

Group		Overall Motivation	Motivational Intensity	Desire to Learn English	Attitude to Learning English	Overall Anxiety	Communication Apprehension	Fear of Negative Evaluation	Test Anxiety
Control Group	Mean (pretest)	2.91	2.72	2.55	3.45	4.14	4.12	3.78	4.51
	Mean (posttest)	3.08	2.94	2.73	3.56	3.98	3.92	3.90	4.12
	SD (pretest)	3.31	2.79	3.62	3.52	3.32	3.18	3.12	4.01
	SD (posttest)	4.19	3.26	4.01	5.31	4.12	4.13	3.12	3.72
Experiment Group	Mean (pretest)	2.90	2.83	2.54	3.34	4.11	4.23	4.12	3.98
	Mean (posttest)	3.85	4.12	3.87	3.55	3.36	3.12	2.85	4.12
	SD (pretest)	3.12	3.34	2.98	4.12	3.42	3.52	2.12	3.14
	SD (posttest)	4.32	4.12	3.65	3.14	2.18	3.36	4.01	3.37

Table 2
Inferential Statistics of Independent Samples t-Test

Group		Overall Motivation	Motivational Intensity	Desire to Learn English	Attitude to Learning English	Overall Anxiety	Communication Apprehension	Fear of Negative Evaluation	Test Anxiety
Experiment Group-Control Group (pretest)	t	.16	1.23	-.23	-1.23	-1.01	2.13	3.12	-4.21
	p	.65	.57	.45	.44	.78	.55	.04	.01
Experiment Group-Control Group (posttest)	t	2.12	3.41	3.56	.15	-2.56	-.56	-3.76	.43
	p	.000	.000	.000	.67	.001	.04	.000	.54

Then, paired-samples t-tests were utilized to examine the progress achieved by each group throughout the study. As depicted in Table 3, the experimental group exhibited a significant improvement in its overall motivation level during the study period ($t = -2.34$, $p < .001$), which encompassed enhancements in motivational intensity ($t = -1.98$, $p < .001$) and desire to learn

English (t = -2.14, p = .001). However, no significant statistical difference was discerned in attitude towards learning English (t = -.56, p = .32). Additionally, the experimental group experienced a significant reduction in its overall anxiety level over the course of the study (t = 3.05, p < .001), manifesting in decreased communication apprehension (t = 2.44, p < .001) and fear of negative evaluation (t = 2.64, p = .001). Nevertheless, no significant statistical difference was observed in test anxiety (t = -.65, p = .24). In contrast, the control group's motivation and anxiety levels exhibited no statistically significant change during the study period (p > .05), except for a slight reduction in test anxiety (t = 1.32, p = .05).

Table 3
Inferential Statistics of Paired Samples t-Test

Group		Overall Motivation	Motivational Intensity	Desire to Learn English	Attitude to Learning English	Overall Anxiety	Communication Apprehension	Fear of Negative Evaluation	Test Anxiety
Experiment Group (pretest-posttest)	t	-2.34	-1.98	-2.14	-.56	3.05	2.44	2.64	-.65
	p	.000	.000	.001	.32	.000	.000	.001	.24
Control Group (pretest-posttest)	t	-.56	-1.23	-1.02	-.79	1.44	-.56	-1.12	1.32
	p	.72	.15	.22	.54	.53	.45	.44	.05

Discussion

The research findings provide valuable insights into the effects of CLIL on primary school students' motivation and anxiety levels. The significant improvements observed in motivation and reductions in anxiety within the experimental group underscore the potential benefits of CLIL in enhancing students' affective experiences in language learning. These findings resonate with existing literature on CLIL and language learning psychology, while also highlighting important nuances that warrant further investigation (Kewara & Prabjandee, 2018).

Consistent with previous research, the significant improvement in motivational intensity and desire to learn English among students in the experimental group aligns with the intrinsic motivational benefits associated with CLIL (Hu et al., 2022; Rong & Nair, 2021). By integrating language instruction with meaningful content, CLIL engages students in authentic learning experiences, fostering a sense of relevance and purpose that enhances their motivation to learn (Sun, 2023). However, the lack of significant change in attitudes towards learning English raises interesting questions about the differential effects of CLIL on various motivational constructs. While CLIL may positively impact students' motivation to engage with English language content, it may not necessarily alter their overall attitudes towards the language itself. This nuanced finding highlights the importance of considering multiple dimensions of motivation in language learning research (Ercolino et al., 2018).

Furthermore, the significant reduction in communication apprehension and fear of negative evaluation among students in the experimental group underscores the role of CLIL in mitigating language-related anxiety. By providing opportunities for authentic communication and collaborative learning, CLIL creates a supportive learning environment that reduces students' anxiety about using the target language (Kewara & Prabjandee, 2018; Mattheoudakis, 2024). However, the lack of significant change in test anxiety suggests that CLIL may have differential effects on different dimensions of anxiety. While CLIL may alleviate anxiety related to communicative tasks, it may not necessarily impact anxiety associated with formal assessments. This finding highlights the need for further research to explore the specific mechanisms through which CLIL influences students' anxiety levels in different contexts (Liao & Yun, 2024; Tanaka, 2019).

Importantly, the lack of improvement in motivation and anxiety levels observed in the control group reinforces the potential benefits of CLIL in promoting positive affective outcomes in language learning. Compared to traditional instruction, CLIL provides a dynamic and engaging learning environment that stimulates students' interest and reduces their anxiety, leading to more positive learning experiences (Lo, 2020). These findings underscore the importance of implementing innovative instructional approaches, such as CLIL, in primary school settings to enhance students' motivation and well-being in language learning.

However, the study had certain limitations that should be acknowledged. One limitation is the reliance on self-reported measures to assess motivation and anxiety levels. While self-report questionnaires are commonly used in research, they are subject to response biases and may not fully capture the complexity of students' internal states (Gaballo, 2023). Future studies could complement self-report measures with objective assessments, such as behavioral observations or physiological indicators, to provide a more comprehensive understanding of the effects of CLIL on student motivation and anxiety. Another limitation is the generalizability of the findings. The study was conducted in a specific context with a particular group of primary school students, which may limit the extent to which the results can be extrapolated to other populations or educational settings. Cultural factors, instructional practices, and individual differences among students may influence the outcomes of CLIL programs (Hu et al., 2022). Therefore, caution should be exercised when applying the findings of this study to different contexts, and further research in diverse settings is warranted to validate the generalizability of the results.

Overall, the research findings contribute to our understanding of the effects of CLIL on primary school students' motivation and anxiety levels. While the study provides support for the positive impact of CLIL on motivational intensity and anxiety reduction, it also highlights important nuances in its effects on different motivational and anxiety constructs. Future research should continue to explore the underlying mechanisms through which CLIL influences students' affective experiences in language learning, with implications for pedagogical practice and policy development in primary education.

Conclusion

The findings of this quantitative study provide valuable insights into the effects of CLIL on primary school students' motivation and anxiety levels. The results demonstrate significant improvements in motivation and reductions in anxiety among the experimental group

following CLIL intervention. Specifically, the experimental group exhibited enhanced motivational intensity and desire to learn English, indicating increased engagement and interest in language learning. Furthermore, significant reductions in communication apprehension and fear of negative evaluation were observed, reflecting a positive impact of CLIL on alleviating language-related anxiety. However, attitudes towards learning English and test anxiety remained unchanged among the experimental group.

These findings have several implications for both theory and practice. Firstly, they underscore the potential of CLIL as an effective instructional approach for enhancing motivation and reducing anxiety among primary school students. Educators and policymakers can consider integrating CLIL into primary school curricula to promote positive language learning experiences and foster students' intrinsic motivation. Additionally, the differential effects of CLIL on various dimensions of motivation and anxiety highlight the importance of adopting a holistic approach to language instruction, addressing both affective and cognitive aspects of learning.

Furthermore, the null effects on attitudes towards learning English and test anxiety suggest the need for further investigation into the mechanisms underlying the impact of CLIL on student attitudes and anxiety levels. Future research could explore additional factors, such as instructional design, teacher-student interactions, and individual differences, to better understand the nuanced effects of CLIL on student outcomes.

For practitioners, these findings emphasize the importance of implementing CLIL programs with careful consideration of instructional strategies and learner characteristics. Educators should strive to create supportive and inclusive learning environments that encourage active engagement and foster positive attitudes towards language learning. Additionally, targeted interventions may be needed to address specific areas of concern, such as test anxiety, within the CLIL context.

Overall, the findings of this study contribute to the growing body of literature on CLIL and highlight its potential to enhance motivation and reduce anxiety among primary school students. By acknowledging the multifaceted nature of language learning, educators can effectively design and implement CLIL programs that optimize student outcomes and promote lifelong learning. This study is significant as it provides empirical evidence supporting the broader adoption of CLIL, demonstrating its potential to positively impact young learners. It suggests that CLIL can serve as a bridge to more engaging and effective language education, encouraging a generation of learners to embrace language skills with enthusiasm and confidence. By focusing on a combination of content and language, CLIL has the unique capacity to enrich the educational experience, not just linguistically but also cognitively, laying a strong foundation for future academic and personal growth.

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