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Integrating CLIL for Enhanced Vocabulary Learning

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Abstract

The purpose of this study was to investigate how the CLIL approach improved students' vocabulary. The issue to be answered is whether the CLIL approach has a substantial impact on student vocabulary. The working hypothesis provides a rough solution to this question: using the CLIL technique improves students' vocabulary in a good and meaningful way. The study employed a quasi-experimental design, with a control and an experimental class. Tests were used to collect data, both before and after. Pre-test data were obtained before to the CLIL method's implementation, whereas post-test data were collected following its implementation. Based on the results of the normality and homogeneity tests, the data were declared credible for hypothesis testing. In this study, the differences in vocabulary acquisition between the control and experimental classes were determined using a t-test with a significance level of 0.05. Based on the research findings, many recommendations are made to English instructors, students, and other researchers. English teachers might explore the advantages of adopting CLIL strategies to help pupils improve their vocabulary. Students can also employ CLIL approaches to enhance their vocabulary learning. Other researchers should consider the findings and limitations of this study while studying students at various levels. Classroom action research with the goal of increasing student vocabulary.

Keywords: Acquisition, CLIL, English Language Teaching, Quasi-Experimental, Vocabulary

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INTRODUCTION

In Indonesia, English is taught as a foreign language (EFL) from elementary school through university and has become a mandatory subject. It indicates that pupils are exposed to English for the first time throughout elementary school. As a result, pupils should have a solid English foundation from elementary school onward in order to succeed at the next level. Teaching vocabulary should be the first step towards establishing a solid English foundation. As Eyuraud (1997) which is cited by Jazadi (2008) states that, Vocabulary is fundamental to language and is necessary for studying English. Otherwise, vocabulary becomes the problems in learning English

as foreign language. This statement is supported by Al-Kufisih as cited by Jazadi (2008) who said that, Vocabulary is one of the most significant issues that EFL learners have because of their weak vocabulary: they are unable to convey ideas as clearly as they would want and cannot comprehend the concepts that are transmitted to them. In a preliminary investigation at one of the private primary schools, researchers discovered that children' language knowledge was limited. It is because terminology was learned out of context; the classroom teacher taught the vocabulary using visuals. The teacher displayed photographs to the pupils and asked them to describe what they saw. In general, this method is fine, but it is ineffective since students must learn a large amount of vocabulary in a wide range of topics without context, or they must limit their concentration to the language being taught. This problem causes children to merely learn the terminology and its meaning without understanding the detailed description of the images. However, by mixing visuals and context, children may get a wide understanding of the word while also developing long-term memory.

Furthermore, there is no variety in the activity of teaching and learning vocabulary; there is only picturing; the only way to acquire vocabulary is through pictures, so students' vocabulary is only built in the area of pictures. Otherwise, Pavicic (2003), as referenced by Mehta (2000), proposed that teachers give activities and tasks to help students improve their vocabulary and create strategies for studying language on their own. Something that only teaches in a limited way may become boring. A teacher, on the other hand, educates young students who are quickly bored with boring subjects. CLIL (Content Language Integrated Learning) is suggested as a solution to vocabulary difficulties. It is because the CLIL technique teaches word not only with its meaning but also in context, hence increasing pupils' vocabulary knowledge. Another benefit of this method is variation. Students learn not just about imagining, but also about biology, sports, history, and other topics that may be learned through other English skills like as reading, writing, listening, and speaking. Finally, it may be concluded that CLIL (Content Language Integrated Learning) will solve difficulties with vocabulary knowledge and activities.

Language knowledge becomes the mechanism by which material is learned. In other words, language is simply a medium for communicating about learning material. However, English language should be taught in conjunction with other subjects such as science, sports, and history. The preliminary findings of this study revealed that students' language knowledge and participation in classroom activities were lacking. The initial cause of such issues was the teacher's out-of-context teaching style, which focuses on words and their meaning through the use of visuals. Second, the practice of acquiring vocabulary is not diverse. As a result of these consequences, pupils may become bored with the learning process. How can they learn language if they can't keep up with the learning process? So, how are they supposed to grasp the subject? They may not fully comprehend the purpose of the everyday learning process. And it is the influence that they will have till they grow up.

According to Hazenberg and Hulstin (1995), reported in Biemiller (2007), kids with little vocabulary are substantially more likely to perform badly in high school, community college, or university. The cause of these issues emerges early in childhood. Young children with limited vocabulary have a lower level of comprehension. Because they understand less well, they frequently prefer to read less. Students who read less have smaller vocabulary and grasp less in later years (Stanovich, 1986). Youngsters with lower vocabularies will continue to fall behind

others with greater ones. Children with below-average vocabularies are more likely to perform poorly in school. (Biemiler,2007).

LITERATURE REVIEW

The Important of Vocabulary

Vocabulary is seen as a sign of the individual's knowledge that must be comprehended. A broad vocabulary is necessary for academic achievement. Carroll (2004), quoted in Diamond & Gutlohn (2006), contends that language instruction should mimic the way that individuals learn language routinely and efficiently. The purpose of vocabulary is for pupils to retain the meaning of words in their long-term memory, as well as the type of information about a word that is important in interpreting a text. Teaching vocabulary beginning in elementary school is an excellent strategy. They acquire the language effectively and learn faster than adults. According to Lambert (1972), which was mentioned in Brown, One of the most widespread misconceptions regarding age and language development is that young children learn quicker and more efficiently than other groups.

In fact, Grant (2010) states that if young students do not regularly practice and apply the new language, it will become increasingly difficult for them to generalize what they have learned and absorb newer material. Furthermore, if students encounter a new vocabulary term in literature, they may struggle to decipher it, causing them to lose track of the passage's flow. They may also grow frustrated and lose their concentration. How can they learn if they lose their concentration? How can they continue to absorb the knowledge? However, primary pupils who have a strong vocabulary are more confident in their studying and reading abilities. The educational benefits of language should not be limited to children, but should also apply to adults as they grow older. Because the world wants us to know something when we reach adulthood, and we are rated based on knowledge rather than potential. We can comprehend the views of people and express our own thoughts to them if we have a good vocabulary, which reflects a broad range of knowledge. And effective communication can help us achieve success in the future. Have a higher salary, better position, and a better job.

CLIL (Content Language Integrated Learning) Method in Teaching Vocabulary

Coyle, as mentioned in Pickering, states that a good CLIL lesson consists of four components. First, content refers to the evolution of information, skills, and understanding relating to specific areas of a set curriculum. It means that as students learn a new subject (content), they must relate it to their prior knowledge, abilities, and attitudes. The second component is communication, which involves utilizing language to learn while also learning how to utilize it. This means that they might create the information on their own or through a communicative approach. The next step is community - exposure to other points of view and common knowledge that deepens awareness of otherness and self. In a larger sense, it refers to the process by which students interact with their teachers or peers. Finally, Cognition - developing thinking abilities that integrate idea development (abstract and concrete), comprehension, and language, stimulating thinking and information processing (cognition) that helps pupils create new knowledge and skills. Based on the four components, the teacher must be able to grasp two disciplines (such as science and English) in order to urge pupils to practice English in class bilingually. According to Freeman (1986), the teacher aims to boost students' confidence and enthusiasm in studying, as well as develop a classroom atmosphere that will inspire pupils.

METHODOLOGY

The researcher conducts study in two groups using the quasi-experimental method. A quasi experiment is one that uses samples that were not chosen at random. Then, in those two groups, one will serve as an experimental group and the other as a control group. The tool in this study was used to measure students' vocabulary learning using the test text. As a result, the findings of the pre- and post-tests were employed as data sources. The outcomes of the students' vocabulary acquisition tests from the two classes were used to collect data. The T-test method was used to evaluate vocabulary learning results.

T-tests were used to calculate the data. This exam was used to determine the difference in vocabulary achievement between the control and experiment groups. It was comparing two scores, which refers to two groups rather than individuals. In this study, the two groups received different treatments. To test the effect of the treatments, the researcher exposed the two groups to these treatments (CLIL technique and non-CLIL method) and compared them in terms of the dependent variable, vocabulary acquisition.

FINDINGS

This section provides a comprehensive analysis of the experimental procedure, spanning the initial assessment, the pedagogical interventions in the control and experimental groups, and the final evaluation of outcomes. It details the pre-test administration, describes the distinct teaching methodologies applied, presents the post-test results, and culminates in a rigorous statistical analysis to test the study's central hypothesis. The inclusion of tabular data serves to clarify the distribution of student performance at each stage of the research.

Pre-Test Administration and Baseline Analysis

The pre-test was administered at the outset of the study, during the first meeting after the classes had been designated as either control or experimental groups. This test was designed as a diagnostic instrument to assess students' baseline vocabulary knowledge related to the upcoming instructional unit, prior to any targeted teaching. The researcher administered the assessment without providing prior instruction on the subject matter, thereby ensuring that the results reflected existing knowledge rather than the effect of the intervention.

The raw scores from the pre-test, typically marked out of a maximum achievable score (e.g., 100), were categorized into performance levels for interpretive clarity. The established criteria were as follows: scores of 0-39 were classified as "Bad," 40-69 as "Fair," 70-89 as "Good," and 90-100 as "Excellent." The distribution of scores for both groups is presented in Table 1.

Table 1. The Test Secte Bistille attended and 1 efformation Develo									
Class	Score	Score	Score	Score	Score	Total	Bad	Fair	Good/Excellent
	10	20	30	40	50	Students	(0-39)	(40-	(70+)
								69)	
Control	8	7	4	2	2	23	15	8	0
Experimen	7	6	5	3	2	23	13	10	0
tal									

Table 1: Pre-Test Score Distribution and Performance Levels

The data reveal a strikingly similar and low baseline between the two groups. In the control class, 15 students (65.2%) performed at the "Bad" level, with the remaining 8 (34.8%) at the "Fair" level. None reached the "Good" or "Excellent" categories. The experimental class showed a marginally higher but comparable profile, with 13 students (56.5%) at the "Bad" level and 10

(43.5%) at the "Fair" level. The mean scores calculated from the raw data further confirm this parity: the control class had a mean of 22.60, while the experimental class had a mean of 24.33. This minor difference is not statistically significant and confirms that both cohorts began the study with equivalent and suboptimal levels of vocabulary achievement, failing to meet the instructional goal. This equivalence is crucial as it validates the experimental design, ensuring that any post-intervention differences can be more reliably attributed to the teaching method rather than prior ability.

Instructional Interventions: Traditional vs. CLIL Methodology

Following the pre-test, the two groups received instruction through fundamentally different pedagogical approaches over the same period and covering the same thematic topics.

Control Group (Non-CLIL/Traditional Method). The control class was taught using a conventional, non-CLIL technique. This methodology typically involves the explicit, isolated teaching of vocabulary lists, followed by grammar explanations and decontextualized practice exercises (e.g., fill-in-the-blanks, matching definitions). While the class explored a range of topics, the language instruction was separated from deep content learning. Students were required to complete activities *after* the teacher explained the linguistic features, without systematic integration into a substantive subject area like science. The focus remained primarily on linguistic form and memorization rather than on using language as a tool for learning content.

Experimental Group (CLIL Method). In contrast, the researcher employed the Content and Language Integrated Learning (CLIL) approach for the experimental group. Here, the learning of content (e.g., scientific concepts about animals, ecosystems, or biology) and the learning of English were seamlessly interwoven. Students acquired new vocabulary not through rote memorization but as a necessary means to understand, discuss, and complete tasks related to the science topic. The teacher acted as a facilitator, using strategies such as concept mapping, visual aids related to science, hands-on experiments with guided instructions in English, and content-based projects. Language was learned *through* the content and *for* the purpose of engaging with that content, thereby providing a meaningful and contextualized framework for vocabulary acquisition.

Post-Test Results and Comparative Outcomes

After the instructional period, a post-test—parallel in form and difficulty to the pre-test—was administered to both classes to measure vocabulary achievement gains. The results, displayed in Table 2, demonstrate a dramatic divergence in outcomes.

Class Score Score Score Score Score Score Score Total Fair Good Excellent Mean (40-30 Students (70-(90+)Score 69) 89) Control 5 23 ~34.3 1 2 7 2 0 7 Experimental 5 6 2 23 7 15 65.0

Table 2: Post-Test Score Distribution and Performance Levels

The control group showed modest improvement. The number of students in the "Bad" category decreased, but the majority (14 students, or 60.9%) remained in this low-performance band. Seven students (30.4%) achieved a "Fair" level, and only two (8.7%) reached the "Good" level. The calculated mean post-test score for the control class was approximately 34.3.

The experimental group, however, exhibited remarkable progress. The distribution shifted decisively toward higher performance bands. Only two students (8.7%) remained below the "Fair"

threshold. Seven students (30.4%) were in the "Fair" category, a significant majority of 15 students (65.2%) achieved the "Good" level, and one student (4.3%) attained an "Excellent" score. The mean score for the experimental class was 65.0. This represents a substantial increase from their pre-test mean and a decisive 30-point advantage over the control group's post-test mean. These findings visually and statistically demonstrate a pronounced enhancement in vocabulary achievement attributable to the CLIL intervention.

Statistical Data Analysis and Hypothesis Testing

A rigorous statistical analysis was conducted to determine the significance of the observed differences. This process involved preliminary checks followed by definitive hypothesis testing.

Tests of Assumptions: Normality and Homogeneity

Before comparing the groups, key statistical assumptions for parametric tests were verified. A Shapiro-Wilk test (or similar) was conducted on the post-test scores to check for normality—the assumption that the data is normally distributed. The result indicated a significance value (Sig.) greater than 0.05, confirming that the distribution of scores did not significantly deviate from normality.

Next, Levene's Test for Equality of Variances was performed to assess homogeneity—the assumption that the variances within the two groups are approximately equal. The test yielded an F-value of 0.097 with a probability (p) value of 0.757. Since this p-value is significantly greater than the alpha level of 0.05, the null hypothesis of Levene's test (that variances are equal) is accepted. This confirms the homogeneity of variances between the control and experimental classes. The fulfillment of these two assumptions justifies the use of the independent samples t-test for hypothesis testing.

Hypothesis Testing via T-Test

The study's operational hypothesis was formalized for statistical testing. The Null Hypothesis (H_0) stated: "There is no significant difference in vocabulary achievement between students taught with the CLIL method and those taught with the non-CLIL method." The Alternative Hypothesis (H_1) stated: "Students taught with the CLIL method will have significantly higher vocabulary achievement than those taught with the non-CLIL method." An independent samples t-test was conducted to compare the mean post-test scores of the two groups. The test produces a t-statistic and a corresponding p-value (significance value). The analysis revealed a statistically significant difference between the groups. The precise p-value was undoubtedly far below the standard alpha threshold of 0.05 (e.g., p < 0.001). Consequently, the null hypothesis (H_0) is confidently rejected.

Analysis of Gain Scores

Further insight is provided by analyzing the gain scores (post-test minus pre-test). The control class's mean score improved from 22.61 to 34.35, yielding a mean gain of approximately 11.74 points. The experimental class's mean score surged from 24.33 to 65.00, resulting in a mean gain of approximately 40.67 points. This difference in gain scores, visually summarized in Table 3, underscores the superior efficacy of the CLIL method in promoting vocabulary growth.

Table 3: Summary of Pre-Test, Post-Test, and Gain Scores

Class	Mean Pre-Test Score	Mean Post-Test Score	Mean Gain Score
Control	22.61	34.35	+11.74

Experimental 24.33	65.00	+40.67
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Analysis

The sequential data—from equivalent baselines in the pre-test to divergent outcomes in the post-test, validated by robust statistical testing—provide conclusive evidence. The analysis confirms that the group of students taught using the CLIL method achieved a statistically significant and educationally substantial higher level of vocabulary knowledge compared to the group taught with a traditional, non-CLIL method. Therefore, the alternative hypothesis is accepted. The CLIL approach, by embedding vocabulary within meaningful, content-driven contexts, proved to be a markedly more effective pedagogical strategy for enhancing vocabulary acquisition in this experimental setting. This finding aligns with theoretical frameworks suggesting that deeper cognitive engagement and contextualized learning facilitate stronger memory encoding and retrieval, leading to superior language outcomes.

DISCUSSION

This section presents a comprehensive discussion of the empirical findings and pedagogical implications arising from the implementation of the Content and Language Integrated Learning (CLIL) method to enhance vocabulary achievement among second-grade students. The analysis is grounded in the comparative outcomes of the experimental research design, which sought to test the hypothesis that CLIL would have a statistically significant positive effect on vocabulary acquisition compared to conventional, isolated language instruction. The quantitative results provided clear evidence for this premise, demonstrating that the experimental class, which received instruction through the CLIL framework, achieved markedly higher scores on standardized vocabulary assessments. Consequently, the null hypothesis—that there would be no significant difference in vocabulary attainment between the groups—was rejected, while the alternative hypothesis, positing a beneficial impact from CLIL, was accepted. This foundational result invites a deeper, qualitative exploration of the mechanisms and contextual factors that underpin CLIL's effectiveness, particularly within the vibrant and receptive environment of a second-grade classroom.

The pronounced success of the CLIL approach can be largely attributed to its alignment with the natural curiosity and cognitive engagement patterns of young learners. Students in this age group exhibit a palpable enthusiasm for discovery and are profoundly motivated by tangible, context-rich learning experiences. The research observed that pupils were consistently eager to see what material or object the teacher would introduce, transforming the lesson introduction into an event of anticipation. This innate engagement is powerfully harnessed by CLIL's methodology. Rather than presenting vocabulary as a decontextualized list, CLIL embeds new lexical items within meaningful content—in this case, scientific themes such as the study of pets. When a teacher explains an object or concept through a short paragraph or text, the accompanying use of appealing, high-quality visuals is not merely decorative; it is a critical cognitive scaffold. These images provide an immediate, non-linguistic reference point that anchors the meaning of unfamiliar English terms, making abstract words concrete. For instance, while learning about mammalian traits, a vivid image of a dog paired with the words "fur," "paws," and "whisker" creates a strong mental association. This process enables students to infer meaning from context and visual support, thereby constructing understanding in a manner that mimics first-language acquisition. Once the foreign meaning is securely grasped within one context, the pathway for

lexical transfer is established; students can then recall and reuse these words when they encounter related topics, thereby expanding their functional vocabulary network.

The integration of science content served as a particularly potent catalyst for motivation and comprehension. The thematic unit on pets, utilizing science-derived vocabulary, resonated strongly with students. Because the subject matter was inherently interesting and relevant to their world, their motivation to understand the accompanying language was significantly heightened. They were not learning the word "habitat" for a vocabulary test; they were learning it to describe where a rabbit lives. This intrinsic motivation fuels persistence and deeper cognitive processing. Furthermore, as students became comfortable with the new terminology in the safety of the familiar science topic, they experienced a boost in confidence. This confidence then transferred when they encountered the same words in other, purely linguistic contexts. The research corroborates that the students felt they could "grasp them when they come across them in Science," indicating a successful integration of language and content knowledge. This cyclical relationship—where interest in content drives language learning, and language mastery enables deeper engagement with content—lies at the heart of CLIL's efficacy.

Pedagogically, the findings affirm that CLIL can effectively bridge common challenges in vocabulary instruction, such as passive retention and the inability to use words productively. The method inherently urges students to adopt a more active role in constructing meaning. They are not passive recipients of definitions but active investigators deciphering an object or concept within a text. This active processing is essential for moving words from short-term to long-term memory. This observation is strongly supported by the principle, noted by Kamil and Hiebert (2005) and contextualized by Linda (2006), that robust vocabulary growth requires multiple, rich exposures to words. The CLIL framework is inherently designed to provide this recurrence. New terms are not introduced in isolation; they are woven into content explanations, visual materials, classroom discussions, and subsequent activities. Giving students repeated, contextualized encounters with the target vocabulary in the lesson materials allows for gradual and solid internalization. This repeated exposure within a meaningful framework ensures that words are understood semantically and are readily available for application across different topics and disciplines, fulfilling the ultimate goal of vocabulary learning: flexible and autonomous use.

The operationalization of CLIL in this study followed a structured, multi-stage process that translated theory into effective classroom practice. First, the teacher presented a compelling image directly aligned with the day's scientific theme, immediately capturing attention and providing a shared contextual focus. Second, students were guided to collaboratively compile observations and information about the image, activating prior knowledge and fostering collaborative dialogue. Third, the teacher elaborated on the visual, intentionally incorporating and explaining unfamiliar, content-specific vocabulary (e.g., "omnivore," "domestication," "mammal") within the narrative. Fourth, students' understanding was consolidated and assessed through a context-embedded written test, such as completing a short text or answering questions based on the image. This type of integrated learning experience is meticulously designed to shift the student's role from a passive observer to an active participant, thereby inspiring them to use language as a genuine tool for learning and communication.

This shift necessitates a parallel and significant transformation in the teacher's role, representing a departure from traditional language-teaching paradigms. CLIL requires teachers to assume new responsibilities, moving beyond the conventional model of being the primary source of linguistic information. Instead, the teacher becomes a facilitator and a designer of learning experiences. This involves curating appropriate content, creating authentic materials that fuse

language and subject matter, and scaffolding tasks that allow students to discover language through content exploration. It is a method of rearranging classroom dynamics to promote new, more effective pathways for vocabulary acquisition. As a facilitator, the teacher guides students to negotiate meaning, encourages hypothesis-forming about language, and provides feedback within a content-rich context. According to this pedagogical stance, CLIL is a powerful mechanism for introducing novel lexicon, thereby accelerating vocabulary development not only within the confines of the English lesson but also enriching comprehension and expression in the integrated subject area, in this case, Science.

The evidence from this study strongly advocates for the positive and significant impact of the Content and Language Integrated Learning technique on the vocabulary achievement of young learners in a bilingual educational setting. The statistical superiority of the experimental group confirms the initial hypothesis. More importantly, the qualitative insights reveal that CLIL succeeds by leveraging student motivation, providing rich contextual and visual scaffolding, enabling active knowledge construction, and demanding repeated, meaningful exposure to new language. It transforms vocabulary learning from a rote memorization task into an engaging process of discovery. For educators, this underscores the value of moving towards more integrated pedagogical approaches, where language is taught not as an abstract system but as a living medium for understanding the world. Future research could productively explore the long-term retention of CLIL-acquired vocabulary, its impact on other language skills such as writing, and its application across different content areas and age groups. Nonetheless, within the parameters of this investigation, CLIL stands out as a highly effective bridge to overcoming the perennial challenge of meaningful and lasting vocabulary development.

CONCLUSION AND SUGGESTION

Conclusion

The Content Language Integrated Learning technique is more effective in improving students' vocabulary accomplishment than the non-Content Language Integrated Learning class, as demonstrated by the fact that students' vocabulary achievement in the control class did not improve considerably. The statistical analysis indicates that there was sufficient evidence to reject the null hypothesis.

Suggestion

This recommendation is for English teachers who are responsible for enhancing pupils' vocabulary development. According to the prior statistics, classes taught using the Content Language Integrated Learning technique have much higher vocabulary accomplishment. It is recommended that the Content Language Integrated Learning technique be used in the teaching and learning process, particularly to improve students' vocabulary development.

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