

A Systematic Review of Understanding Content and Language Integrated Learning (CLIL) in Multiliteracy Cognitive Abilities: What The Literature Says?

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ABSTRACT

Literacy skills, particularly reading skills, are a crucial aspect of modern education. Content and Language Integrated Learning (CLIL), an approach that combines language and content learning, has been recognized as effective in enhancing students' cognitive skills, especially in the context of reading. This study aims to analyze the impact of CLIL implementation on students' cognitive reading abilities and its relevance to Indonesian language learning as well as the improvement of functional literacy. The study employs a Systematic Literature Review (SLR) method by analyzing 43 articles sourced from databases such as ScienceDirect, Scopus, and SINTA. These articles were selected based on their relevance to the topics of CLIL and the cognitive development of students' reading skills. The findings indicate that CLIL can enhance critical, analytical, and problem-solving skills in reading. Furthermore, its application in Indonesian language learning enables the integration of local and global content, thereby strengthening students' comprehension of texts. CLIL has also been proven effective in developing functional literacy by helping students apply both language and cognitive skills in real-world contexts. Challenges in its implementation, such as the lack of teacher training, can be addressed through more responsive strategies and technological support.

Keywords: multiliteracy, reading abilities, cognitive, CLIL

1. INTRODUCTION

In the era of globalization, reading proficiency goes beyond mere comprehension of texts; it encompasses deeper cognitive skills such as inference, critical evaluation, and decision-making. Functional literacy, which emphasizes the application of reading skills in real-life contexts, has become increasingly essential across various sectors, including education. To meet these challenges, students must develop reading abilities that integrate cognitive skills into their learning processes (Al-Othman, 2024).

One widely implemented approach is Content and Language Integrated Learning (CLIL), which integrates both language and content learning. CLIL does not merely teach language as a means of communication but also introduces students to substantial academic content. The cognitive element in CLIL plays a crucial role in enabling students to understand and process information more deeply, thereby supporting the development of more complex reading abilities (Escobar Urmeneta, 2019).

In Indonesia, the CLIL approach has not yet been fully optimized, even though it holds significant potential in enhancing functional literacy. Studies indicate that the use of CLIL can improve students' cognitive skills in various contexts, including the development of

critical thinking and memory (Daraini et al., 2021). With cognition as one of its pillars, CLIL trains students to connect new information with their existing knowledge, which in turn enhances their text comprehension (Mahan, 2022). Implementing CLIL in learning also offers multiple advantages, such as enabling students to apply their reading skills to real-world situations through deeper information processing.

Cognitive theories provide an important framework for understanding how students process information during reading. Cognitive models such as Cognitive Structuralism and Schema Theory are employed within CLIL to help students focus on reading objectives by utilizing cognitive strategies such as analysis and evaluation (Wahyono, 2019). Schema Theory is especially relevant in the CLIL context because it enables students to link their prior experiences with new information, ultimately supporting deeper comprehension of complex texts (Mahan, 2022). This understanding is further supported by Information Processing Theory, which explains how information is encoded and stored in both short-term and long-term memory—key aspects of effective reading skills (Al-Othman, 2024).

A primary objective of CLIL implementation is to foster cognitive skills that support students' reading comprehension (Zarichna et al., 2020). Through this approach, students not only learn academic content but also actively use language skills to understand, analyze, and evaluate the information presented in texts. This is highly relevant in the context of functional literacy, where students are expected to apply their reading abilities to solve problems and make informed decisions based on the texts they read (Escobar Urmeneta, 2019). Recent studies also suggest that technological tools, such as text-to-speech applications, can enhance students' cognitive reading skills by helping them develop abilities such as memory and critical evaluation (Bonifacci et al., 2022).

Although CLIL has been widely implemented in various countries, research on its impact on students' cognitive reading abilities remains limited—particularly in Indonesia. Cognitive skills such as short- and long-term memory, attention, and information processing are vital for effective reading comprehension (Hautala et al., 2022). However, the direct relationship between CLIL implementation and the development of these cognitive skills—especially within the context of Indonesian language education—has not been extensively explored. This is critical, as improving literacy skills is essential in facing modern challenges, where reading proficiency is integral to analyzing and utilizing information effectively (Muflichia et al., 2021).

This study offers a new perspective by exploring the relationship between the CLIL approach and the development of cognitive reading skills, particularly within the under-researched context of Indonesian language education. While many studies have discussed the benefits of CLIL in language learning, this review examines how CLIL interacts with cognitive skills such as attention and information processing to support functional literacy in Indonesia (Daraini et al., 2021).

This study offers a new perspective on Content and Language Integrated Learning (CLIL) by focusing on the Indonesian context, which remains underexplored in the international literature. While many systematic reviews have addressed CLIL in European countries, this study highlights the specific impact of CLIL on cognitive reading abilities

within Indonesian language education. Additionally, this review proposes a more transparent and structured methodological approach, utilizing stricter selection criteria and a deeper quality assessment of the chosen articles. Therefore, this article not only enhances understanding of CLIL in the Indonesian context but also contributes to the development of systematic review methodologies in the field of language education.

The effectiveness of CLIL in developing cognitive reading abilities can be explained through several key cognitive theories. Schema Theory posits that comprehension is enhanced when learners connect new information with their prior knowledge. In CLIL, students engage with authentic, content-rich materials in the target language, activating their prior knowledge to facilitate deeper understanding. For instance, when learning about ecological issues in a CLIL environment, students are encouraged to connect local environmental experiences with new scientific concepts, which enhances comprehension and retention.

Moreover, CLIL's dual focus on language and content learning aligns with Information Processing Theory, which emphasizes the importance of memory encoding and storage. By processing both linguistic and conceptual information simultaneously, students enhance their ability to encode information deeply and retain it longer. This is particularly evident in CLIL practices, such as reading academic articles in a second language, which requires students to decode both language and complex content, reinforcing their cognitive processing.

In addition to Schema Theory and Information Processing Theory, Cognitive Load Theory and Constructivist Learning Theory further underpin the effectiveness of CLIL. Cognitive Load Theory highlights the challenge of balancing content and language learning but suggests that this cognitive load can be managed through well-designed scaffolding strategies. Constructivist learning emphasizes the active role of students in constructing knowledge through real-world problem-solving, a principle that is embedded in CLIL practices such as collaborative group work and problem-based learning. By engaging students in meaningful, authentic tasks, CLIL not only develops language skills but also enhances cognitive reading abilities, making it a powerful tool for fostering deeper learning.

2. METHODS

This study adopts a qualitative approach using the Systematic Literature Review (SLR) method, following the guidelines of Kitchenham and Charters (2007), to provide an overview of the relevance of the CLIL approach in the development of cognitive reading abilities. This method comprises several stages, as illustrated in Figure 1, which presents the review protocol adopted in this study.

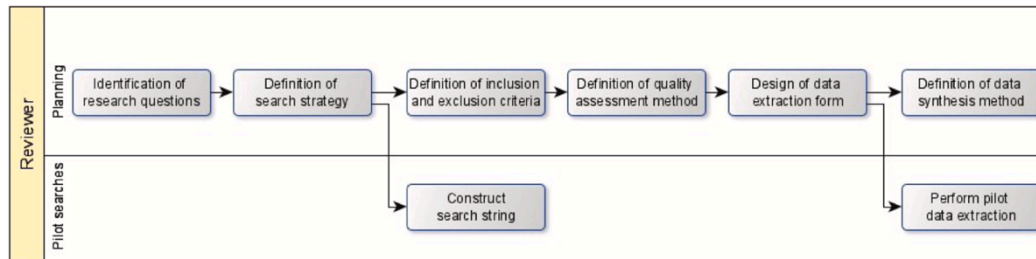


Figure 1. SLR Review Protocol (Kitchenham & Charters, 2007)

The following research questions (RQs) were formulated to guide the literature review:

Table 1. Research Questions

No	Research Question (RQ)
RQ1	How does CLIL implementation affect students' cognitive reading abilities?
RQ2	What is the relevance of CLIL in reading instruction within Indonesian language subjects?
RQ3	How does the CLIL approach relate to the improvement of students' functional literacy?

The search strategy involved three main components: scope, search method, and search string. The scope covered two dimensions—publication period and publication sources. The primary academic databases utilized in this study include ScienceDirect, Scimago, SINTA, and Google Scholar.

We used a multi-step approach to identify relevant studies, assess their quality, and synthesize the findings:

1. Inclusion/Exclusion Criteria:

- **Inclusion Criteria:** Studies focusing on CLIL and its impact on cognitive reading abilities; peer-reviewed articles that investigate language learning and cognitive development in CLIL settings.
- **Exclusion Criteria:** Studies unrelated to CLIL or cognitive reading abilities, or those that do not focus on cognitive processes like memory, comprehension, and reading strategies.

2. Search String and Database Specifics:

We tailored our search strategy for each database:

- **ScienceDirect:** ("CLIL" OR "Content and Language Integrated Learning") AND ("Cognitive Reading Abilities" OR "Reading Comprehension").

- **Scopus:** Advanced search filters were applied with terms such as ("CLIL" AND "Cognitive Abilities" AND "Reading").
- **Google Scholar:** Broader search terms like ("CLIL" AND "Cognitive reading skills") were used.

Following this selection, a **quality assessment** was performed to validate the reliability and validity of the chosen studies. The quality assessment used an 8-point checklist rated on a 1–0 scale:

- **1** = fully meets the criterion
- **0.5** = partially meets the criterion
- **0** = does not meet the criterion

Articles scoring below **4 out of 8** were excluded. However, at the final stage of quality assessment, none of the articles scored below 4, so **41 articles** were retained for further analysis.

Table 2. Quality Assessment Criteria

No	Quality Assessment Question
Q1	Is the research objective clearly stated?
Q2	Is the research design and context fully explained?
Q3	Are the research variables reliable and valid?
Q4	Is the research process well-documented?
Q5	Are all research questions answered in the study?
Q6	Are negative findings presented?
Q7	Are key findings clearly presented regarding credibility, validity, and reliability?
Q8	Are the conclusions relevant to the research objectives and dependable?

The data extraction process involved reading the full text of the 50 primary studies that passed the quality assessment. Extracted data included:

1. Article title
2. Year of publication
3. Methods used
4. Key findings related to ethics in information delivery on social media
5. Ethical challenges encountered in digital communication

This process continued with data synthesis and interpretation, aiming to answer the formulated research questions. The results of this synthesis provide insights into how written language can be ethically used in information dissemination via social media, while also addressing associated ethical challenges.

Table 3. Literature Review Stages

Stage	Description	Number of Articles
Initial Search	Keyword-based search in major databases (Google Scholar, Scopus)	9,437 articles
Title and Abstract Screening	Selection based on relevance to ethical language use in social media	3,425 articles
Inclusion Criteria Screening	Focus on relevant articles published in the last 10 years	180 articles
Full-Text Analysis	Thorough reading and analysis of relevant articles	75 articles
Final Synthesis	Articles used for core analysis and conclusion drawing	43 articles

3. RESULT AND DISCUSSION

Table 1 summarizes the 50 primary studies that formed the core of this systematic review. These studies were published between 2014 and 2024, with the annual distribution visualized in Figure 1. The first major automation of parts of the systematic review process was initiated in 2020 and 2021, primarily focusing on selecting primary studies for review.

Judul	Penulis	Tahun
CLIL Teacher Assessment Literacy: A Scoping Review	Liu J., E. Lo, Y. Xin J. (Liu et al., 2023)	2023
Exploring Teacher Scaffolding in a CLIL-framed EFL Intensive Reading Class	Dongying Li & Lian Zhang (Li & Zhang, 2022)	2023
Content and Language Integrated Learning (CLIL)	David Lasagabaster & Alberto Fernández-Costales	2023

Reciprocal Effects between Reading Comprehension and Emotional Cognitive Ability	Shiqing Wenren et al. (Wenren et al., 2024)	2024
Measuring the Effect of Implementing CLIL in Higher Education	Dora Chostelidou & Eleni Griva (Chostelidou & Griva, 2014)	2014
Models in Collaborative Writing among CLIL Learners of English in Primary School	Izaskun Villarreal & Amparo Lázaro-Ibarrola (Villarreal & Lázaro-Ibarrola, 2022)	2022
Cognitive Abilities, Conditions of Learning, and the Early Development of Reading Skill	Mary Ann Evans & Thomas H. Carr (Evans & Carr, 1985)	1985
Content and Language Integrated Learning (CLIL) to Work on Students' Reading Comprehension Skills	Irene Anabell Apo Muso (Anabelle, 2023)	2023
Teaching Critical Literacy in the Classroom: A Comparison of CLIL and EFL	Yolanda Ruiz de Zarobe & Alba Gutiérrez (Ruiz De Zarobe & Gutiérrez, 2024)	2024
Critical Analysis of CLIL: Taking Stock and Looking Forward	Jasone Cenoz, Fred Genesee, Durk Gorter (Cenoz et al., 2014)	2014
Cognitive and Linguistic Factors in Reading Acquisition	Ludo Verhoeven, Pieter Reitsma, Linda S. Siegel (Verhoeven et al., 2011)	2010
Assistive Technology for Enhancing Saudi Female Undergraduate Students' Reading Cognitive Abilities	Amal Abdul-Aziz Mohammed Al-Othman (Al-Othman, 2024)	2024

An Introduction to Content and Language Integrated Learning (CLIL) for Teachers and Teacher Educators	Cristina Escobar Urmeneta (Escobar Urmeneta, 2019)	2019
The Comprehending Teacher: Scaffolding in Content and Language Integrated Learning (CLIL)	Karina Rose Mahan (Mahan, 2022)	2020
Pengembangan Bahan Ajar Berbasis Pendekatan CLIL pada Pembelajaran Menulis Puisi	Ahmad Fadilah et al. (Fadilah et al., n.d.)	2023
Correlation between Students' Cognitive Reading Strategies and Reading Comprehension	Edi Wahyono (Wahyono, 2019)	2019
The Perceptions of Tertiary Students and Lecturers Regarding CLIL-Based Critical Reading Material	Fitrawati et al. (Fitrawati et al., 2023)	2023
Need Analysis for Developing Model-Based Scientific Writing Teaching Materials in CLIL	Sri Astuty Madu et al. (Madu et al., 2023)	2023
Content and Language Integrated Learning: A Duoethnographic Study about CLIL Pre-Service Teacher Education in Argentina and Spain	Darío Luis Banegas, Marta del Pozo Beamud (Banegas & del Pozo Beamud, 2022)	2020
Teaching psychology at university using the content and language integrated learning (CLIL) approach	Navarro-Guzmán, Romero-Alfaro, Menacho-Jiménez, Aragón-Mendizábal (Navarro-Guzmán et al., 2021)	2021
Killing Two Birds with One Stone? A Study on Achievement Levels and Affective Factors in Content and Language Integrated Learning (CLIL)	Hengzhi Hu, Nur Ehsan Mohd Said, Harwati Hashim (Hu et al., 2022)	2022

Pengaruh Pendekatan Content and Language Integrated Learning (CLIL) Terhadap Keterampilan Menulis Narasi Siswa Kelas V	Erfania, Apri Irianto, Reza Rachmadtullah (Erfania et al., 2023)	2023
Pengembangan Bahan Ajar Berbasis Pendekatan Content and Language Integrated Learning (CLIL) pada Pembelajaran Menulis Puisi Siswa Kelas IV	Ahmad Fadilah, Abdul Muktadir, Puspa Djuwita (Fadilah et al., n.d.)	2023
CLIL for Achieving Positive Outcomes of Students College of English Program	Khulaifiyah (Khulaifiyah, 2023)	2021
Conceptualising Language Acquisition Process in Content and Language Integrated Learning (CLIL) Classroom Context: A Systematic Review	Meridian Saturnus, Ashadi, M. Zaenal Abidin (Saturnus et al., 2024)	2024
Implementation of Content and Language Integrated Learning (CLIL) Towards Indonesian Language Learning	Dina Fitria Handayani, Annisa Mutia Rahmah (Handayani & Rahmah, 2023)	2023
Implementing Content and Language Integrated Learning (CLIL) Through Group Discussion in Reading Comprehension Class	Balqis Nazilah Husna Zunaedi, Frida Unsiah, Khairil Azwar Razali (Zunaedi et al., 2024)	2024
Content and Language Integrated Learning (CLIL) in Indonesian Context: an Overview	Khoiriyah (Khoiriyah, 2021)	2021
Implementasi Content and Language Integrated Learning (CLIL) dalam Pembelajaran Bahasa Lintas Kurikulum	Nardiansyah Kamumu (Kamumu, 2020)	2020
Content and Language Integrated Learning (CLIL) in Science Class During COVID-19 Outbreak: A Narrative Inquiry	Rina Wahyu Setyaningrum et al. (Setyaningrum et al., 2020)	2020

Improving Students' Factual Report Writing Skill by Using Content and Language Integrated Learning (CLIL) Method	Yadi Kusmayadi & Yayan Suryana (Kusmayadi & Suryana, 2017)	2017
The Effectiveness of English Teaching Materials Based on Content and Language Integrated Learning (CLIL) to Increase the Technological Pedagogical Content Knowledge (TPACK) of Prospective Biology Teachers	Aulia Dwi Amalina Wahab et al. (Wahab et al., 2023)	2023
Curriculum and Material Development Using Content and Language Integrated Learning (CLIL) for Teaching Science in Junior High School	Navisatul Izzah & Sri Wulandari (Izzah & Wulandari, 2023)	2023
The relevance of school self-concept and creativity for CLIL outreach learning	Roth, Tamara., Cathérine Conradty., & Franz X. Bogner. (Roth et al., 2022)	2022
Content and language integrated learning (CLIL): Experiences and challenges of English preparatory school graduates in a Cambodian international university	Macaraeg, Jonathan Marcos., et al. (Macaraeg et al., 2024)	2024
Content and Language Integrated Learning (CLIL) Approach across Curriculum in Science Classrooms: Are the English Language Use and Learning Reveal?	Deswila, Nurhamshi., et all (Deswila et al., 2020)	2020
The Investigation in Reading Problems and Reading Strategies of Undergraduate Students	Soisuwan, T., et all (Soisuwan et al., 2022)	2022

Embedding Content and Language Integrated Learning (CLIL)	Mukadimah, H., & Wening Sahayu (Mukadimah & Sahayu, n.d.)	2021
The comprehending teacher: scaffolding in content and language integrated learning (CLIL)	Mahan, K. (Mahan, 2022)	2022
Conceptualising assessment literacy of teachers in Content and Language Integrated Learning programmes	Lo, Yuen Yi., & Constant Leung (Lo & Leung, 2022)	2022
Digital multimodal composing as translanguaging assessment in CLIL classrooms	Jiang, Lianjiang., et all (Jiang et al., 2024)	2024
The Impacts of Content & Language Integrated Learning (CLIL) Method on University Students' Reading Comprehension Skills in Indonesia	Guntur, Muhammad (Guntur et al., 2021)	2021

RQ1: How does CLIL implementation affect students' cognitive reading abilities?

The implementation of Content and Language Integrated Learning (CLIL) has emerged as a pedagogical innovation that strategically combines academic content learning with language acquisition. This dual-focused approach allows learners to internalize subject matter while simultaneously developing linguistic proficiency. One of the critical benefits of this integration is its positive impact on students' cognitive reading abilities, particularly those related to higher-order thinking such as analysis, synthesis, and critical evaluation. Through CLIL, learners are frequently exposed to authentic, content-rich materials that require them to engage in deeper mental processing, fostering the development of complex reading comprehension skills. The necessity to decode, interpret, and interact with academic texts in a target language stimulates metacognitive awareness—a trait essential for effective and autonomous reading.

More specifically, CLIL settings prompt students to activate prior knowledge as they process new content, a mechanism well-described in Schema Theory. Mahan (2022) emphasizes that the CLIL environment encourages learners to relate previously acquired experiences and concepts to the new input presented in texts, enhancing retention and comprehension. This intertextual engagement is not merely linguistic but deeply cognitive, compelling students to synthesize new information with pre-existing knowledge frameworks. The process results in a stronger cognitive architecture that supports long-term

learning and advanced literacy outcomes. Additionally, the inherently challenging nature of CLIL materials obliges learners to deploy cognitive strategies like making inferences, hypothesizing, verifying assumptions, and evaluating textual reliability—core components of critical reading.

Technological tools, when embedded within CLIL-based instruction, further amplify its benefits on cognitive reading. Al-Othman (2024) demonstrated that tools such as text-to-speech applications, when integrated thoughtfully, enhance students' ability to focus on the structural and semantic aspects of texts. These technologies support attention management, working memory, and deep processing by allowing learners to listen and process simultaneously—thus engaging multiple modalities. This multimodal interaction facilitates more sustained attention and enables learners to form mental models that represent the text at deeper levels. In doing so, students become better equipped to understand underlying themes, draw conclusions, and critically assess what they read.

Despite its clear advantages, the implementation of CLIL does face practical challenges. As noted by Mahan (2020), many teachers lack adequate scaffolding strategies to guide learners through the cognitive demands of CLIL content. This lack of support becomes especially problematic in disciplines like social sciences, where abstract reasoning and interpretation are essential. When teachers fail to model cognitive strategies explicitly—such as how to break down complex ideas or synthesize multiple viewpoints—students may struggle to make sense of content, leading to superficial understanding. Furthermore, many CLIL practitioners require more training in adaptive instruction, which is necessary to meet diverse learner needs.

To overcome these barriers, it is imperative that CLIL instruction be supported by comprehensive teacher training programs. These programs should focus on how to balance language and content objectives, how to scaffold complex reading tasks effectively, and how to differentiate instruction. Lasagabaster and Fernández-Costales (2023) underscore the importance of equipping teachers with strategies such as dialogic teaching, reciprocal reading, and explicit modeling of cognitive processes. Through such instructional approaches, CLIL can realize its full potential in transforming reading comprehension into a dynamic, cognitively rich activity that promotes lifelong literacy and intellectual growth.

The cognitive benefits of CLIL are fundamental in enhancing students' cognitive reading abilities. These benefits, which include the development of critical thinking, memory retention, and the ability to synthesize complex information, are directly linked to students' cognitive engagement with academic content in the target language. CLIL's dual focus on language and content demands that students process linguistic and conceptual information simultaneously, which fosters deeper cognitive engagement with the material.

For example, when students engage with academic texts in a second language, they are not only decoding the language but also analyzing and evaluating the content, requiring higher-order thinking skills. This process enhances their cognitive reading abilities, allowing them to better comprehend and retain complex information.

Moreover, CLIL practices such as task-based learning, problem-solving, and the use of authentic materials provide students with the opportunity to apply cognitive strategies like

inference, prediction, and summarization. These cognitive strategies are crucial for improving reading comprehension, as they allow students to make meaning from texts in a more structured and analytical way. Therefore, CLIL's integration of language and content not only improves linguistic proficiency but also strengthens the cognitive skills essential for proficient reading comprehension.

RQ2: What is the relevance of CLIL in Indonesian language reading instruction?

The relevance of CLIL within the context of Indonesian language education lies in its ability to merge local cultural contexts with global pedagogical standards, thereby cultivating literacy that is both rooted and expansive. In a multilingual and multicultural country like Indonesia, where students come from diverse linguistic backgrounds, CLIL serves as a bridge between indigenous knowledge systems and global discourse practices. By embedding language instruction within content areas such as literature, civics, or science, Indonesian CLIL programs provide a platform for learners to explore and articulate complex ideas in Bahasa Indonesia while engaging with interdisciplinary themes. This dual engagement enhances learners' reading comprehension by challenging them to navigate layers of meaning, perspectives, and registers within texts.

CLIL's cognitive benefits in reading instruction are particularly visible through the activation of strategic thinking. Wahyono (2019) identifies strategies such as inferring, predicting, and contextual vocabulary building as critical to successful reading comprehension in the Indonesian classroom. When these strategies are taught alongside content, students are encouraged to think metacognitively about how they understand and interact with texts. For example, a student studying environmental issues in science class through a CLIL approach may also be required to read and analyze persuasive articles or news reports in Indonesian, using prediction and inference to grasp authorial intent and tone. This combination of language and content sharpens the learner's ability to decode and critically evaluate complex informational texts, which is a fundamental skill in the modern Indonesian curriculum.

Moreover, CLIL promotes contextualized and meaningful learning, which is particularly important for student motivation and engagement. The integration of culturally relevant materials and interactive media in Indonesian CLIL classrooms has been shown to enhance learners' intrinsic motivation and cognitive investment. Fitrawati et al. (2023) found that the use of multimedia-enhanced texts, such as digital storybooks or infographics, supported analytical reasoning while increasing learners' enjoyment of reading tasks. These tools help learners visualize abstract concepts, link them to real-world situations, and engage with them on a personal level—all of which are essential for building deep reading literacy.

Nevertheless, the adoption of CLIL in Indonesian language instruction is not without challenges. One significant hurdle is the insufficient preparation of teachers in integrating language and content objectives within a cohesive pedagogical framework. As Lasagabaster and Fernández-Costales (2023) caution, without professional development in CLIL-specific strategies, teachers may struggle to create lessons that simultaneously promote language proficiency and conceptual understanding. Another challenge is the variability in language proficiency among students, which may widen achievement gaps if not properly addressed.

To mitigate this risk, Kamumu (2020) emphasizes the importance of differentiated instruction, which includes scaffolding techniques like graphic organizers, guided questioning, and visual cues that support learners at different proficiency levels.

Despite these challenges, the transformative potential of CLIL for Indonesian reading instruction is undeniable. It provides a flexible framework that allows students to develop language skills through content-rich, real-world themes that resonate with their lives and aspirations. In doing so, CLIL not only enhances reading comprehension but also cultivates critical awareness, cultural sensitivity, and academic independence—attributes that are essential for students to thrive in a globalized society.

CLIL has significant relevance in Indonesian language instruction, particularly in enhancing students' reading abilities. By integrating both language and content learning, CLIL allows students to engage with texts in a more meaningful way, developing not only their linguistic proficiency but also their cognitive reading skills. In the context of Indonesian language instruction, CLIL helps students navigate complex texts, both local and global, by promoting critical thinking and cognitive strategies essential for understanding and interpreting texts.

For instance, when students engage with literature, news articles, or academic papers in Bahasa Indonesia through CLIL, they are required to apply cognitive strategies like analysis, synthesis, and evaluation to understand the underlying meaning of the text. These cognitive processes are critical for reading comprehension, as they help students go beyond surface-level understanding to critically assess and engage with the material.

Moreover, CLIL's dual focus on content and language helps contextualize Indonesian language learning within real-world situations, which increases students' motivation and engagement. By engaging with content-rich texts that relate to students' lives and interests, CLIL enhances reading comprehension and fosters deeper engagement with the language. This approach not only strengthens Indonesian language proficiency but also prepares students to critically evaluate and interpret texts in diverse academic and professional contexts, making it highly relevant for the 21st-century classroom.

RQ3: How does the CLIL approach relate to the development of students' functional literacy?

Functional literacy is increasingly recognized as a multidimensional construct that goes beyond the ability to read and write; it encompasses the capacity to use language effectively in real-world problem-solving, decision-making, and knowledge transfer. The CLIL approach aligns with this broadened understanding by embedding language instruction within authentic and cognitively demanding content. Through CLIL, students are not merely recipients of information but active constructors of meaning, engaging in tasks that simulate real-life contexts. For instance, analyzing a science report, writing a policy brief, or discussing historical events—all within a second or foreign language—encourages learners to apply reading and writing skills in socially relevant and academically rigorous ways.

At the heart of CLIL's contribution to functional literacy is its focus on cross-disciplinary learning and real-world application. Escobar Urmeneta (2019) argues that CLIL, when implemented through a plurilingual framework, cultivates learners who are

capable of navigating multiple discourse communities with flexibility and competence. This skill is critical in today's interconnected world, where students must be able to decode and produce information across various formats, registers, and cultural contexts. By requiring students to interact with authentic texts—from news articles to scientific infographics—CLIL nurtures their ability to interpret, synthesize, and act upon information in meaningful ways. This not only bolsters their academic literacy but prepares them for lifelong learning and informed citizenship.

Furthermore, the use of interactive technology and multimedia within CLIL classrooms enriches the development of functional literacy. Fitrawati et al. (2023) demonstrate that digital tools foster logical reasoning and problem-solving, especially when students are tasked with interpreting multimodal texts or creating digital content in response to a real-world challenge. These experiences simulate workplace and civic tasks, such as reading government policies, participating in public discourse, or composing persuasive arguments. The emphasis on collaborative learning also mirrors real-life communication, training students to listen, debate, and negotiate meaning—skills that are indispensable in modern societies.

An essential but often overlooked component of functional literacy is academic writing, particularly in contexts where knowledge must be communicated with precision and authority. Madu et al. (2023) highlight that CLIL supports the development of academic genres, such as research reports, critical essays, and reflective commentaries. In producing such texts, students learn to formulate arguments, cite sources, and structure ideas logically—all while maintaining clarity in language. These competencies are vital for participation in higher education and professional environments.

Lastly, CLIL's success in fostering functional literacy is deeply connected to teacher assessment literacy. Liu et al. (2023) contend that teachers must be equipped to evaluate both language use and content mastery through balanced and integrative assessments. When teachers can provide formative feedback that addresses linguistic accuracy, conceptual clarity, and critical engagement, students are better able to refine their literacy practices and transfer them beyond the classroom. However, as Lasagabaster and Fernández-Costales (2023) caution, issues such as selection bias—where only high-performing students benefit from CLIL—must be addressed through inclusive planning and differentiated instruction.

In conclusion, CLIL holds immense promise for cultivating students' functional literacy by creating meaningful learning experiences that reflect the cognitive, linguistic, and social demands of the real world. When supported by intentional design, inclusive pedagogy, and responsive assessment, CLIL empowers students to become not only competent readers and writers, but critical thinkers, ethical communicators, and engaged global citizens.

4. CONCLUSION

The implementation of Content and Language Integrated Learning (CLIL) has proven to be an effective approach in enhancing students' cognitive reading abilities, reinforcing its relevance in Indonesian language instruction, and advancing students' functional literacy. CLIL fosters a simultaneous integration of academic content and language learning, which supports the development of critical thinking, analytical reasoning, and problem-solving

skills. While challenges such as limited scaffolding and insufficient teacher training persist, the overall cognitive benefits of CLIL remain evident and compelling.

In the context of Indonesian language education, CLIL serves as a pedagogical bridge between local content and global language practices. It enables students to engage with texts more meaningfully by encouraging the application of critical reading strategies, such as inference, evaluation, and synthesis. Additionally, the integration of interactive technologies within CLIL environments has been shown to increase student motivation and support the cultivation of analytical and reflective thinking, making reading instruction both engaging and cognitively stimulating.

The strong correlation between CLIL and the improvement of students' functional literacy is evident in its capacity to link language learning with real-world application. By equipping students with the skills to analyze, interpret, and apply information in practical contexts, CLIL enhances their ability to make informed decisions and solve real-life problems. Furthermore, its plurilingual orientation and balanced assessment practices enable a more inclusive and dynamic educational experience, preparing students to navigate academic, social, and professional challenges in an increasingly globalized world.

With proper implementation, continuous teacher support, and curriculum alignment, CLIL holds the potential to become a transformative and contextually relevant instructional model. It not only strengthens academic proficiency but also empowers students to become competent, critical, and globally literate individuals—capable of engaging meaningfully with the world around them.

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