Assessing Content and Language Integrated Learning in Algerian Higher Education

Khawla LADJEL[1]
Hassiba Benbouali University of Chlef –Algeria
laboratory of information and communication technologies in the teaching of foreign languages
and translation (TICELET)
k.ladjel@univ-chlef.dz
https://orcid.org/0009-0004-8702-3885

Aissa HANIFI[2]
Hassiba Benbouali University of Chlef –Algeria
a.hanifi@univ-chlef.dz
https://orcid.org/0000-0002-7411-1817

Abstract
This study explores the effectiveness of Content and Language Integrated Learning (CLIL) in Algerian higher education, aiming to enhance the language and content proficiency of English for specific purposes students. It targets the assessment of both language proficiencies with its constituent levels phonology, morphology, semantics, and syntax. The study focuses in parallel to assess ESP students' content proficiency considering the Four Cs; Content, Cognition, Communication, and Culture. Using an experimental design with 50 ESP students, the research employed pre-test and post-test assessments alongside structured questionnaires and classroom observations. The findings reveal significant improvements in both language learning and subject-specific knowledge following CLIL implementation. ESP Students demonstrated enhanced critical thinking, problem-solving skills, and effective communication across the Four Cs—content, cognition, communication, and culture. Language proficiency advancements were evident in phonology, morphology, semantics, and syntax, highlighting improved pronunciation, word formation understanding, semantic comprehension, and grammatical accuracy. Despite these gains, challenges surfaced in consistent scaffolding by teachers and students' application of cognitive strategies to avoid direct translation, hindering deeper language processing and complex idea expression. The study recommends ongoing professional development for teachers to refine scaffolding and cognitive strategies, and curriculum enhancements focusing on syntactical complexities and diverse communication tasks tailored to student needs. Addressing these recommendations can optimize CLIL's benefits and provide students with better preparation for global academic and professional demands.
Keywords; Content, Language, Integrated, Learning, ESP

Introduction

The process of both teaching and learning a second or a foreign language has been changing over time to obtain the required outcomes, which meet the standards of a particular era of time. In the late of 19th century, researchers and language practitioners were interested in learning the targeted languages to enrich literature and reading proficiency. The main objective was limited to the point of benefiting from reading for pleasure and developing the mental discipline of being a bilingual or a multilingual. Thus, the interest was purely based on exploring grammar and vocabulary of the targeted languages (Hutchinson & Waters, 1987). In the late of 20th century, the world immerse into a more globalized state has recently imposed a series of considerations and refinements within the realm of teaching and learning a second or a foreign language.

Previously, learning a particular input requires learners to cover both knowledge and skills to be applied in real life situations with regard to the maintenance of their native language. But as English has become the international language of technology and commerce, it has created a new generation of learners who need to develop both knowledge and skills through the use of a language which is not necessarily their mother tongue. As the demand is growing now for a more globalized world, influential new ideas in the field of education have begun to emerge in order meet the standards of the current era. That is, the main concern of educational practitioners is now turning to the focus on teaching content through the integration of a language that is not the student's native one. To illustrate, an Italian student who studies economy is required in this globalization era to excel his/her knowledge and skills in relation to this spectrum using English which is not his/her native language.

In a response to this need, many educational institutions in non-English speaking countries have decided to offer courses in different disciplines such as economy, technology and science to be taught through the use of English in order to develop skills which pave the way to students to stand their ground in international contexts (Costa, 2016). These offered courses which are suggested by the educational systems can be applied through the implementation of the Content and Language Integrated Learning (CLIL) whose main objective is similar to the standards of internationalization and globalization. In other words, CLIL is regarded as an educational setting incorporating a double-faced goal; using a second or even a third language to teach a specific content of a particular field (engineering, architecture, medicine, etc.) and utilizing the same content of a particular field of study to develop this second or foreign language (Carrió-Pastor, 2009).

The current research tends to examine and evaluate the effectiveness of Content and Language Integrated Learning (CLIL) within the realm of higher education. While CLIL has gathered considerable attention in various educational contexts, a noticeable research gap exists concerning its application and impact in higher education institutions. Prior studies have primarily focused on CLIL implementation in K-12 settings, but there remains lack of comprehensive investigations specifically tailored to the unique challenges and opportunities that higher education presents. As such, this research aims to shed light on this unexplored research area by investigating the efficacy of CLIL in higher education, thereby contributing innovative insights to the challenges encountered in CLIL classes, the teaching materials implemented, and the effectiveness of CLIL on ESP students' language proficiency and subject knowledge of the target discipline. This study aims then to answer the following research questions:

- What are the challenges encountered by both teachers and students when implementing a CLIL syllabus in higher education?
- What are the teaching materials used when implementing a CLIL syllabus in higher education?

- Does the implementation of a CLIL syllabus in Algerian higher education promote better ESP students' performance in terms of developing their language proficiency and subject-specific knowledge of the target discipline?

1. Definition of Content and Language Integrated Learning

Many scholars have defined Content and Language Integrated Learning (CLIL) from various perspectives. This teaching approach is defined as"a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language" (Coyle et al., 2010, p.10). Accordingly, it is implemented in situations where the teaching process of a non-language subject is carried out through a language that is not the students' first language. It includes a dual-focused objective as it tends to develop both students' language proficiency and content knowledge. Zarobe and Maria (2009) provide a clear description to the nature of the content knowledge incorporated in the CLIL definitions in the literature review. They describe CLIL as an approach to second or foreign language learning that integrates the target language with content from specific fields of study, emphasizing the use of a non-native language exclusively in teaching and learning. Thus, content incorporated in CLIL classes includes specific knowledge gathered from specific targeted driplines such as physics, mathematics, and economics. This means that CLIL is not restricted to the development of a foreign or second language proficiency, but also to the requirement of developing the subject-specific content presented in the foreign or second language. Hence, Nawrot-Lis (2019) suggests that in a CLIL classroom, students are required to engage cognitively with the challenging content and to use different cognitive strategies to work on the content that is presented in a language that is not their first language. Costa (2016) highlights the Council of Europe Resolution's view of CLIL as an innovative and effective way to enhance students' knowledge and skills in both the target language and the subject content. Marsh et al (2010) stress the fact that CLIL is not a new teaching method but a combination of language and subject education, providing a dual-focused approach where both language and content are interwoven. They emphasize that achieving a balance between language and content is crucial to avoid shifting entirely to either language-based or content-based instruction.

2. Challenges of Implementing Content and Language Integrated Learning

Despite of the fact that Content and Language Integrated Learning (CLIL) offers a beneficial educational environment for simultaneously developing both content and language, its implementation can present challenges for both teachers and students. These challenges include varying levels of language proficiency and the difficulty of processing content in a non-native language through the overuse of cognitive skills. One of the primary challenges in implementing CLIL is the varying levels of language proficiency among students. In a CLIL classroom, the content is delivered in a non-native language, which can be particularly challenging for students who are not yet proficient. This variation can lead to significant disparities in understanding and engagement. Students with lower language proficiency may struggle to follow the lessons, leading to frustration and disengagement. Teachers, on the other hand, must constantly adapt their instructional strategies to accommodate these differing levels, which can be time-consuming and may hinder the overall pace of the class (Morton, 2016). CLIL programs require both teachers and students to highly utilize the targeted language in the teaching-learning process. This subsequently leads to the need of using different cognitive skills to be able to process subject-specific content presented in a non-native language. In other words, students are required to comprehend complex subject matter while simultaneously navigating a foreign language (Coyle et

al., 2010). This dual focus can lead to cognitive overload, where the effort to understand the language detracts from the ability to grasp the content itself.

3. CLIL Program's Teaching Materials

CLIL, grounded in the communicative philosophy, emphasizes teaching communication through language rather than language through communication (Allwright, 1979, as cited in Mishan, 2005). This approach prioritizes practical communication skills and specific communicative goals over traditional grammar-focused instruction. Authenticity plays a crucial role in CLIL classrooms, facilitating genuine language use in real-world contexts. Advocates like Pinner (2021) highlight authenticity as a defining strength of CLIL, contrasting it with conventional EFL methods criticized for their lack of real-world relevance. Authentic materials, such as texts and multimedia created by native speakers for native audiences (Nawrot-Lis, 2019, as cited in Pinner, 2021), are integral to achieving this authenticity in CLIL settings. For instance, in Japan, English education mandated by the Ministry of Education emphasizes the importance of English proficiency for economic competitiveness in a globalized world (MEXT, 2019, as cited in Pinner, 2021). This educational approach emphasizes fostering positive attitudes toward communication across all educational levels, ensuring that students not only learn English but also apply it authentically in various academic and professional contexts. By integrating authentic materials, CLIL prepares students to communicate effectively in their disciplines by exposing them to language as used naturally in the target community. Thus, authenticity stands as a cornerstone of CLIL, bridging the gap between language learning and practical communication skills essential for academic and professional success.

4. The Development of Content and Language Proficiency in CLIL Classes

In the field of bilingual and multilingual education, it is crucial to illustrate the way the content delivered in a CLIL classroom develops students' linguistic competence levels (phonology, morphology, semantics, and syntax). Lasagabaster's (2008) study compared phonological performance among Secondary Grade 3 and Grade 4 CLIL groups with a traditional EFL group, finding higher pronunciation proficiency in CLIL groups. Similarly, Ruiz de Zarobe (2008, as cited in Gallardo del Puerto & Gómez Lacabex, 2017) examined how varying levels of CLIL exposure impacted pronunciation, revealing improved oral proficiency with increased CLIL exposure, with the 2-subject CLIL group showing the highest scores. Fernández-Pena and Gallardo-del-Puerto (2021) investigated the morphological development in English among students in Cantabria, Spain, comparing those in regular English classes with those in CLIL. They found that CLIL learners, aged 11-12, demonstrated more advanced proficiency in using morphological patterns, particularly in applying suffixes correctly in verbs and nouns, compared to non-CLIL learners. Within the context semantics, empirical studies have highlighted the positive impact of CLIL programs on vocabulary development. Among these studies is the one of Dalton-Puffer (2008, as cited in Gutiérrez Ortiz, 2020) in which she investigated the development of vocabulary in CLIL classes. In her review, Dalton-Puffer explains that the target language vocabulary gains are significantly increased particularly in situations where lexis is dealt with explicitly in the CLIL environment. Regarding syntax, a study conducted by Villarreal and García Mayo (2009, as cited in Gutiérrez Ortiz, 2020) demonstrated that CLIL students displayed fewer omissions of final "*s*" and "*ed*" when compared to their non-CLIL peers. This finding emphasizes that the content illustrated in the CLIL classes affected positively students' use of syntactic properties, which in turn enabled them to produce well-grammatical utterances. In a CLIL syllabus, content is intricately intertwined with linguistic features that facilitate experiential acquisition and interpretative learning (Driver et al., 1994). This integration of

language and content not only aids in acquiring grammatical structures and vocabulary but also enhances learners' communicative abilities to discuss issues related to their subject-specific content (Smith et al., 2019). Coyle (2007) emphasizes the term Four Cs in which he explains that learners' use of the target language in CLIL classrooms fosters independence, enabling them to independently construct ideas and conceptual content (Content) within the targeted discipline using the appropriate cognitive strategies (Cognition). These strategies can then help them communicate content ideas appropriately (Communication) with regard to the cultural dimensions of the targeted language (Culture). The gradual development of basic vocabulary and grammar proficiency in the target language within a CLIL environment plays a crucial role in constructing disciplinary content, promoting autonomy in academic discourse and cognitive processing (Cummins, 2017). As learners engage in interpreting and generating meaning through language, they simultaneously enhance their cognitive skills, facilitating critical thinking and analytical abilities necessary for comprehending and producing complex linguistic and conceptual patterns.

5. Research Methodology

This section is restricted to the explanations and illustrations of the way the investigation was undertaken. It concerns issues related to the nature of the research, showing the reasons behind choosing the type of the research design, the research procedure, the participants who participated in the study, the research instrumented used to collect data, and the type of the analysis implemented.

5.1. Type of Research

The current research aims to explore the challenges experienced by teachers and students when implementing CLIL approach, specify the appropriate teaching materials utilized to reach a CLIL environment, and assess the development of both language and content language proficiency after implementing the CLIL approach. Accordingly, the researchers applied an experimental research design to investigate the efficacy of Content and Language Integrated Learning (CLIL) in higher education. The independent variable (CLIL) in this case was manipulated in order to obtain the necessary statistical coefficients which helped the researchers draw a conclusion about the effectiveness of integrating CLIL in higher education. Like other researchers, Bailey (1994, as cited in Catane, 2000) highlights the importance of undertaking experimental studies for two main reasons. First, an experimental study seems to be the appropriate method used to establish causality between variables. It helps the researcher measure the value of the dependent variable by introducing and manipulating the independent variable he/she suspects to be the cause. Second, experimental studies offer an ultimate controlled environment where possibilities of bias and error occurrence have less chance to happen due to the over control of the extraneous factors. This enabled the researchers to have reliability in the findings.

5.2. Research instruments

This study aims to evaluate the effectiveness of Content and Language Integrated Learning (CLIL) on the language and content proficiency of students engaged in English for Specific Purposes (ESP). To achieve this, a pre-test and post-test were administered to ESP students before and after the intervention phase, respectively. By comparing the data from these tests, researchers can identify any potential progress. The performance reading tests employed provide students with a text from their specialty, sourced from an authentic book, accompanied by various activities. These activities are divided into two sections: one assesses the students' four Cs—content, cognition, communication, and culture—while the other evaluates their language proficiency levels, including phonology, morphology, semantics, and syntax. The tests are scored out of 20, with equal weight assigned to each criterion within the four Cs and language proficiency levels.

A classroom observation served as another crucial research instrument utilized during the intervention phase when the CLIL course was being delivered to students. It was focused on accurately capturing data pertaining to various elements within the classroom setting. These include an examination of the course delivery, the utilization of teaching materials, the challenges experienced by both the instructor and the students, as well as the diverse selection of classroom activities employed. This multifaceted observation approach is crucial in providing the study with an in-depth understanding of the dynamic processes unfolding during the CLIL intervention, thereby enriching the investigation's capacity to collect detailed insights into the complex nature of CLIL pedagogy.

A questionnaire constituted the third research tool, strategically distributed to both students and teachers. The primary objective of this questionnaire is to determine the attitudes and perceptions of the participants towards the framework of the CLIL syllabus in higher education. By obtaining feedback from these key participants, the study gained invaluable perspectives on the effectiveness, benefits, and potential areas of improvement concerning CLIL implementation within the higher education context. As Cohen et al. (2007) emphasize that employing a triangulation method in data collection is integral to ensuring the validity and reliability of the study. By incorporating multiple research instruments and perspectives, the investigation aimed to strengthen the overall objectivity and credibility of its findings.

5.3. Participants

Along with the thought of measuring the effectiveness of implementing CLIL in higher education, the participants in this research fell into two groups; students and both content and language teachers who belong to the department of Political Sciences, Faculty of Law and Politics, University of M'sila. The students who were in the current investigation include 50 master students (N = 50) from the department of political sciences, M'sila University. This study applied a probability sampling method, whereby participants were deliberately chosen based on specific criteria. Specifically, the researchers purposefully selected students who possess a B1 level of proficiency in English. This intentional selection process serves the purpose of ensuring that the students participating in the content and language integrated learning intervention possess foundational knowledge of general English. By applying this approach to participant selection, the investigation aimed to establish a solid basis for the subsequent implementation and assessment of content and language integrated learning within the chosen sample of participants.

Both content and language teachers are also considered as participants in this investigation since the main objective is to measure the effectiveness of content and language integrated learning. Thus, a sample of 49 teachers affiliated with the University of M'sila is encompassed within this research. The participants selected for this study comprised a diverse group, encompassing 20 content teachers, 20 language teachers, and an additional 9 teachers engaged in both content and language integrated instruction. This carefully composed incorporation of teacher groups afforded the researchers the unique opportunity to gather data from three distinct perspectives, thereby ensuring a comprehensive examination of the research question. By accommodating this varied representation of educators, the study tends to promote an expansive selection of responses and insights, bolstering the research's validity and enriching the subsequent analysis. For the course implementation, the teacher who implemented this phase was a content and language integrated teacher. The teacher holds a Ph. degree in the field of political sciences. He has been teaching at the department of political sciences for more than eight years. During the academic year 2019-2020, Professor BEDARI, while serving as the rector of M'sila University, granted permission to faculty members from various departments to seek enrollment in the English department. This facilitated their pursuit of both undergraduate and postgraduate degrees in the English language. As a result, the teacher concerned with the implementation of the Content and Language Integrated Learning (CLIL) course in this research undertaking assumed a dual role as a content

and language integrated instructor. This stems from the possession of a doctoral degree in the content area, specifically political sciences, in relation to a master's degree in the English language. Such a combination of academic qualifications highly suggested the teacher to adeptly combine content instruction with language learning, underscoring the efficacy and comprehensive nature of the CLIL approach in this investigation.

5.4. Research Procedure

As the current investigation carried out an experimental study, the researchers experienced three distinct phases: pre-intervention, during intervention, and post-intervention. In the pre-intervention phase, the researchers provided a pre-test to students of political sciences. The aim of the pre-test was to measure students' baseline language proficiency and subject knowledge in political sciences. Throughout the intervention phase, a content and language integrated teachers implemented a CLIL syllabus over a 12-week duration. During the intervention phase, the researchers used a classroom observation as a research instrument to collect data about various elements, including the delivery of the course, the utilization of teaching materials, the roles of both the teacher and students, as well as the array of classroom activities employed.

Subsequently, in the post-intervention phase, the researchers administered a post-test to the students, targeting their newly attained level of language proficiency and content knowledge. The result was accurately gathered and recorded to allow for a direct comparison with the data amassed during the pre-test. A questionnaire was distributed to both students and teachers to obtain their attitudes towards the framework of the CLIL syllabus in higher education. The utilization of an observation-based data collection approach in the "during-intervention phase" provided valuable insights into the dynamic processes taking place within the CLIL-infused classroom, thereby enhancing the understanding of how the intervention impacted both language and content acquisition. Though this triangulation in research instruments (i.e., using tests, observation sessions, and questionnaires), the results were contributed significantly to the existing body of knowledge concerning the effectiveness of CLIL in enhancing the educational experience of higher education students

5.5. Data Analysis

The results collected from the three research instruments require the researchers to apply two types of data analysis: quantitative and qualitative analysis. Concerning the first type of analysis, the researchers presented the data in forms of statistics with regard to measuring certain statistical elements such as means, standard deviations, and percentages of correspondences. The results which concern the quantitative analysis were highly collected from the tests and questionnaires where scores and numbers are utilized. For the qualitative analysis, the results gathered from open-ended questions and observation sessions provided the researchers with non-statistical data. This type of analysis usually concerns the attitudes and perspectives of the research participants towards the issue under study.

6. Results and Discussion

6.1. Performance Tests Results

The data analysis in table 1 reveals a notable enhancement in students' performance after implementing the CLIL approach. Initially, the pre-test mean score was 8.55 with a standard deviation (SD) of 3.10, reflecting a moderate proficiency level before the intervention. In contrast, the post-test mean score increased to 12.06, with an SD of 3.19, indicating an improvement in the students' language and content proficiency. The mean score increase of 3.51 points highlights a significant enhancement, suggesting that the CLIL approach effectively contributed to the students' learning progress. Additionally, the consistent standard deviations between the pre-test and post-test suggest that the variability in students' performance remained stable, indicating uniform improvements across the group. This stability in variation means that the observed gains

in proficiency were widespread, benefiting the majority of students rather than a select few. These findings demonstrate that the CLIL approach successfully enhances both language acquisition and content comprehension for ESP students.

### Table 1: Descriptive Statistics of Pre-Test and Post-Test Results

	N	Mean	SD
Pre-test	50	8.55	3.10
Post-test	50	12.06	3.19

Table 2: Means of Content and Language Proficiencies before and after the implementation of the CLIL approach

	Mean of Content Proficiency	Mean Language Proficiency	Total
Pre-test	3.25	5.25	8.5
Post-test	5.56	6.5	12.06

The results from Table 2 indicate a significant improvement in both language and content proficiencies among ESP students following the implementation of the CLIL approach. Initially, the mean language proficiency was 5.25, while the mean content proficiency was 3.25, resulting in a total mean score of 8.5 in the pre-test. After the implementation of CLIL, the mean language proficiency increased to 6.5 and the mean content proficiency to 5.56, with a total mean score of 12.06 in the post-test. This demonstrates a notable enhancement in students' proficiencies. The increase in the mean language proficiency by 1.25 points suggests that the CLIL approach effectively integrated language learning with content teaching, facilitating better language acquisition. Similarly, the rise in content proficiency by 2.31 points indicates that students not only improved their language skills but also gained a deeper understanding of the subject matter. The data underscores the efficacy of the CLIL approach in fostering a dual focus on language and content, leading to overall improved educational outcomes for ESP students. This significant improvement suggests that CLIL can be a powerful pedagogical strategy in enhancing both language and content mastery in ESP contexts.

Figure 1: Students' Performance of Four Cs and Four Language Levels
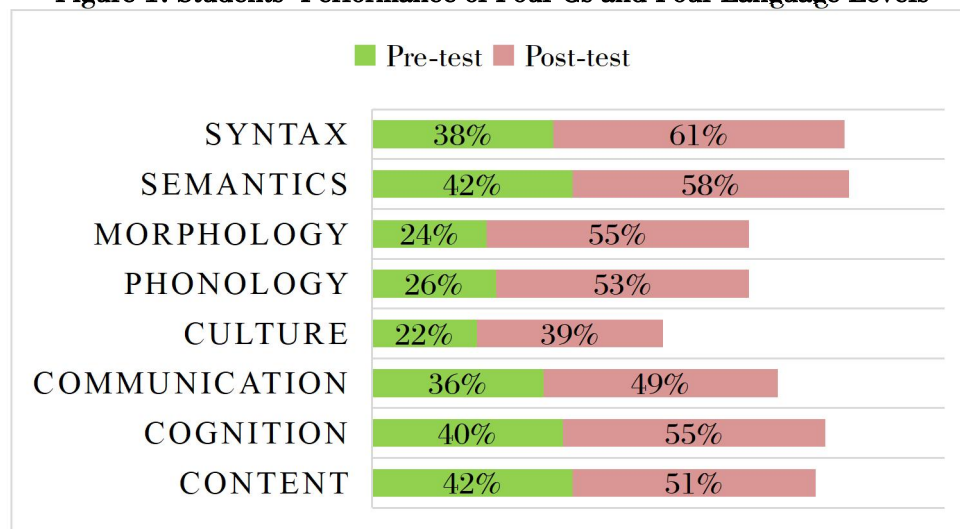
The analysis of the students' performance in the pre-test and post-test (Figure1) reveals significant improvements across the four Cs (content, cognition, communication, and culture) and four levels of language (phonology, morphology, semantics, and syntax). In the content area, there was a noticeable increase from 42% in the pre-test to 51% in the post-test, indicating enhanced understanding of the subject matter. Cognition saw a remarkable improvement from 40% to 55%, suggesting that students developed better critical thinking and problem-solving skills. Communication skills also improved substantially, with scores rising from 36% to 49%, reflecting increased proficiency in expressing ideas and effective interaction. The culture component exhibited the most significant growth, from 22% to 39%, showing greater awareness and understanding of cultural contexts. In terms of language levels, phonology scores more than doubled from 26% to 53%, highlighting improved pronunciation and sound pattern recognition. Morphology saw a dramatic increase from 24% to 55%, indicating a better grasp of word formations and structures. Semantics improved from 42% to 58%, reflecting enhanced understanding of meaning in language, and syntax scores rose from 38% to 61%, showing increased proficiency in sentence structure and grammatical rules. Overall, these results suggest that the instructional strategies and activities implemented were highly effective, leading to significant advancements in both content knowledge and language skills.

## 6.2. Classroom Observation Results

Based on the results of the classroom observation conducted over 12 weeks, the analysis of the Four Cs (content, cognition, communication, and culture) and language proficiency levels reveals significant insights. For the Content criterion, the curriculum content was comprehensively covered 85% of the time, with specified learning outcomes appropriate for students' levels in 80% of the sessions. Scaffolding to simplify content was provided in 75% of the cases, and visual content was functional most of the time. The suggested activities were varied and sufficient in 70% of the sessions, and authentic materials were used in 86% of the observations. In terms of language proficiency, authentic and relevant target language was integrated 80% of the time, and used by both teachers and students in 75% of the sessions. Vocabulary, pronunciation, morphology, and sentence structure were introduced effectively most of the time, with a well-sequenced presentation observed in 85% of the sessions. Target language activities allowing practice of linguistic levels were noted in 80% of the sessions. Communication activities encouraged interaction in 85% of sessions, supporting individual, pair, and group work in 75%, and fostering collaboration in 75% of the observations. Cognition activities activated prior knowledge in 70% of sessions, utilized problem-solving in 65%, and applied cognitive strategies in 80% of the sessions. Cultural awareness and sensitivity were promoted in 60% of sessions.

The evaluation of teaching materials and activities highlights their effectiveness and the challenges faced. A variety of teaching materials, such as pictures, texts, videos, and authentic documents, were used to engage students in 80% of the sessions. These materials were effective in improving language and content proficiency in 75% of cases. Teaching activities were varied to meet different learning styles in 80% of observations, linked and sequenced progressively in 85% of sessions, and encouraged speaking and writing in 80% of cases. However, some of the difficulties were also noticed. For example, teachers faced challenges in consistently providing scaffolding (observed 45% of the time) and ensuring the engagement of all students in collaborative tasks (41%). Students occasionally struggled with problem-solving activities, with effectiveness noted in only 32% of sessions, and maintaining consistent cognitive engagement throughout varied tasks. The results indicated also that students overused direct strategies when struggling with some linguistic features (i.e., vocabulary and structure). In other words, instead of using word guessing, asking for clarifications, students overused translation to their native language when experiencing new vocabularies or grammatical structures. Assessment and feedback were used to address these issues, with teachers highlighting and correcting mistakes in

75% of cases and using assessment activities to monitor students' content and language progress and use of cognitive strategies in 80% of sessions.

6.3. *Questionnaire Results*

After analyzing data related to students' test performances and CLIL classroom implementation, it is now important to obtain some findings regarding the participants' attitudes towards the effectiveness of CLIL as an approach.

Figure 2: Students' and Teachers' Perceptions towards CLIL
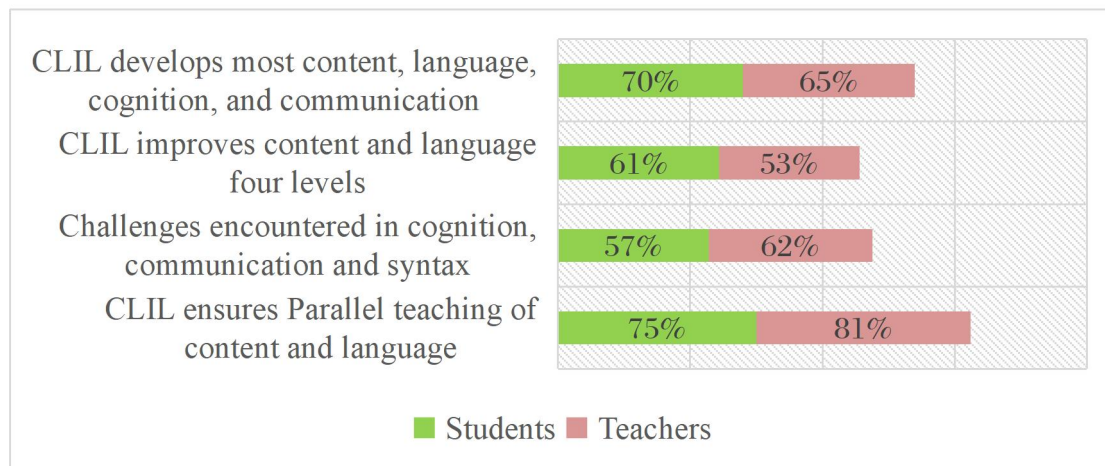
The analysis of the questionnaire results (Figure 2) reveals that CLIL ensures parallel teaching of content and language, with 75% of students and 81% of teachers affirming this. However, challenges are encountered in cognition, communication, and syntax, as reported by 57% of students and 62% of teachers. A significant issue identified is that many students over-rely on direct translation to their mother language rather than employing cognitive strategies that bypass the mother language. For instance, instead of using context clues or inferencing to understand new vocabulary, students often translate words directly, which can hinder deeper cognitive engagement and understanding. Communication challenges also arise, as students may struggle to express complex ideas in the target language, leading to a reliance on simpler sentences or avoiding speaking altogether. Syntactical errors are common, such as incorrect word order or misuse of grammatical structures, indicating a need for more focused practice on these areas. These challenges highlight the necessity for strategies that promote cognitive processing in the target language and improved support for communication and syntax learning.

Despite these challenges, the results confirm that CLIL significantly improves language proficiency levels and the Four Cs. According to the questionnaire, 61% of students and 53% of teachers agree that CLIL enhances language proficiency across phonology, morphology, semantics, and syntax. Moreover, 70% of students and 65% of teachers believe that CLIL mostly develops content, language, cognition, and communication. This approach integrates content learning with language use, providing authentic contexts for language application, which reinforces learning and helps in utilizing more different cognitive strategies. In addition, 71% of students and 81% of teachers confirm that CLIL ensures parallel teaching of language and content. This result emphasizes that achieving a balance between language and content is crucial to avoid shifting entirely to either language-based or content-based instruction.

Conclusion

The main objective of the current study was to investigate the effectiveness of Content and Language Integrated Learning (CLIL) in Algerian higher education, focusing on enhancing the language and content proficiency of ESP students. The findings reveal that CLIL significantly improves students' performance in both language acquisition and subject-specific knowledge. However, the implementation of CLIL poses challenges for educators and learners alike. Teachers often struggle with consistently providing scaffolding to support students in comprehending complex content. Ensuring active engagement in collaborative tasks remains another significant barrier. Students encounter difficulties in using cognitive strategies that avoid direct translation, hindering deeper language comprehension. Moreover, syntactical errors are common, necessitating targeted practice in language structure and grammar. Despite these challenges, a diverse range of instructional materials, including visuals and authentic documents, effectively enhances student engagement and proficiency. Yet, maintaining consistent effectiveness across diverse learning styles and proficiency levels remains an ongoing concern. The study's findings suggest that the CLIL approach positively impacts both language proficiency and academic knowledge acquisition among ESP students. Analysis of the Four Cs—content, cognition, communication, and culture—indicates marked improvements in students' critical thinking, problem-solving abilities, and cultural awareness. Language proficiency also sees enhancement across phonology, morphology, semantics, and syntax, demonstrating improved pronunciation, word structure comprehension, semantic understanding, and grammatical proficiency. These outcomes underscore CLIL's dual benefits in enhancing language skills and deepening subject understanding, thereby fostering overall academic performance in targeted disciplines. To enhance CLIL implementation, continuous professional development for teachers is crucial, focusing on effective scaffolding and cognitive strategies. Curriculum refinements should emphasize syntactical complexity and varied communication tasks to address identified challenges. Integrating diverse, authentic materials tailored to different learning styles is essential for sustaining engagement and proficiency levels. Policymakers and educators should capitalize on CLIL's potential to better prepare students for global academic and professional demands.

References

Carrió-Pastor María Luisa. (2009). Content and language integrated learning: Cultural diversity. P. Lang.

Catane, J. A. (2000). Conducting research: A practical application. Quezon, Philippines: JMC Press.

Cohen, L., Manion, L., & Morrison, K. (2007). Research methods in education. London: Routledge.

Costa, F. (2016). Clil: (content and language integrated learning): Through English in Italian higher education. LED Edizioni universitarie di lettere economia diritto.

Coyle, D., Hood, P., & Marsh, D. (2010). Clil: Content and language integrated learning. Cambridge University Press.

Coyle, Do. (2007). Content and Language Integrated Learning: Towards a connected research agenda for CLIL pedagogies. The International Journal of Bilingual Education and Bilingualism 10(5). 543–562.

Cummins, J. (2017). Cognitive processing in bilinguals. In Bilingualism in education (pp. 1-20). Routledge.

Driver, R ., Asoko, H . , Leacher, J. Mortimer, E. and Scott, P.: 1994, Constructing scientific knowledge in the classroom, Educational Researcher (23), 5-12

Fernández-Pena, Y & Gallardo-del-Puerto, F. (2021). Agreement morphology errors and null subjects in young (non-)CLIL learners. Vigo International Journal of Applied Linguistics, 18(2021), 59-95. https://repositorio.unican.es/xmlui/handle/10902/21391 . DOI: 10.35869/VIAL.V0I18.3365. ISSN: 1697-0381

Gallardo del Puerto, F. & Gómez Lacabex, E. (2017). Oral production outcomes in CLIL: an attempt to manage amount of exposure. European Journal of Applied Linguistics, 5(1), 31-54. https://doi.org/10.1515/eujal-2015-0035

Gutiérrez Ortiz, Mar. 2020. Assessing the Development of Second Language Syntax in Content and Language Integrated Learning. Revista de lenguas para fines específicos 26.2, pp. 111-130 · https://ojsspdc.ulpgc.es/ojs/index.php/LFE/indexx

Hutchinson, T., & Waters, A. (1987). English for Specific Purposes: A Learning-centered Approach. Cambridge: Cambridge University Press.

Mishan, F. (2005). Designing authenticity into language learning materials. Bristol, UK: Intellect.

Morton, T. (2016). Content and language Integrated Learning. In G. Hall. (Ed.), Routledge Handbook of English Language Teaching (pp. 252-264). Routledge.

Nawrot-Lis, B. (2019). The challenges of content acquisition in a CLIL course: A Clil-based chemistry course at the lower Secondary School Level. J.B. Metzler.

Pinner, R. (2021). Authenticity and Motivation in CLIL: Creating a Meaningful Purpose by Experiencing the Language in Use. In C. Hemmi & D.L. Banegas, (Eds). International Perspectives on clil (pp 23-39). Palgrave Macmillan.

Smith, L. E., Trofimovich, P., & Collins, L. (2019). Developmental changes in second language learners' motivation, self-concept, and motivation-related behaviours: A cross-sectional and longitudinal study. Studies in Second Language Acquisition, 41(1), 163-186.

Zarobe, Y. R. de, & Maria, J. C. R. (2009). Content and language integrated learning evidence from research in Europe. Multilingual Matters.