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**Evaluating the Impact of Content-Based Instruction on English
Language Proficiency: A Case Study of Second-Year Licence
Informatics Students at Kasdi Merbah University, Ouargla,
Algeria**

Submitted by:

Dalal Guemmoula

Laila Antir

Supervised by:

Prof. Halima BENZOUKH

Board of Examiners:

Dr. Fouzia Bahri	Kasdi Merbah University of Ouargla	President
Prof. Halima BENZOUKH	Kasdi Merbah University of Ouargla	Supervisor
Dr. Zohra Merabti	Kasdi Merbah University of Ouargla	Examiner

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Dedication

I dedicate this dissertation to my beloved family who have supported and encouraged me throughout my academic journey.

To my dear mother for her endless love and care, and to my late father, whose guidance and sacrifices will always remain in my heart.

I also dedicate this work to my brothers, sisters, and all my relatives who believed in me.

Dalal

First and foremost, I would like to express my gratitude to Allah for giving me the strength, patience, and perseverance to complete this dissertation.

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Abstract

This study investigates the impact of content-based instruction on English language proficiency among second-year Informatics students at Kasdi Merbah University. It aims to examine whether integrating subject-matter content into English language teaching enhances students' linguistic competence and motivation. A mixed-methods descriptive research design was adopted. Data were collected through a questionnaire administered to 33 students, as well as a semi-structured interview conducted with English language teachers, in order to explore both students' and teachers' perceptions of the use of content-based instruction in English for Specific Purposes courses. The findings revealed that content-based instruction has a positive impact on students' learning, particularly in improving technical vocabulary acquisition, enhancing reading comprehension, and making learning more meaningful. However, the results also indicated that students face certain difficulties, especially in understanding complex materials and technical terminology. Overall, the study highlights that while content-based instruction is an effective approach, its successful implementation requires appropriate support, adapted materials, and interactive teaching strategies.

Keywords: *content-based instruction, English for Specific Purposes, Informatics students, English proficiency, motivation*

List of Abbreviations

CBI: Content-Based Instruction

CLT: Communicative Language Teaching

CS: Computer Science

EAP: English for Academic Purposes

EFL: English as a Foreign Language

ELT: English Language Teaching

ESP: English for Specific Purposes

FL: Foreign Language

HE: Higher Education

ICT: Information and Communication Technology

IT: Information Technology

L2: Second Language

TBLT: Task-Based Language Teaching

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General Introduction

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2. Significance of the Study
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5. Research Questions and Hypotheses
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1. Background of the Study

In recent decades, the rapid development of science and technology has made English the dominant language of global communication, research, and innovation. In higher education, particularly in scientific and technical fields, English has become an essential tool for accessing knowledge, understanding academic resources, and participating in international professional communities. In Informatics, English is crucial because students frequently use programming languages, software documentation, research materials, and online platforms that are primarily available in English.

Content-Based Instruction (CBI) integrates language teaching with subject-specific content to promote authentic language use (Brinton et al., 1989). In Algerian universities, English is taught as a foreign language and is included as a compulsory course for students in scientific and technical disciplines. However, despite several years of English instruction, many Informatics students continue to demonstrate low levels of proficiency, particularly in reading technical texts, understanding specialized vocabulary, and using English for academic and professional purposes. Classroom practices often emphasize grammar explanations, translation exercises, and textbook activities, with limited exposure to authentic disciplinary materials. Consequently, the instructional approaches commonly used do not adequately address students' academic needs (Richards & Rodgers, 2014). In response to these challenges, recent reforms in Algerian higher education have emphasized the importance of improving English teaching and aligning it with students' fields of study, especially fields in science and technology. Scholars have highlighted the need to adopt innovative approaches that reflect learners' academic and professional realities. Within this context, English for Specific Purposes (ESP) has gained increasing attention as an approach that enhances learners' functional language competence (Mohammedi, 2020). Nevertheless, many English courses remain general in nature and disconnected from students' academic specializations, leading

Informatics students to perceive English as a theoretical subject rather than a practical academic tool (Mohammedi, 2020).

2. Significance of the Study

This study is significant for several reasons. First, although Content-Based Instruction (CBI) has been widely examined in international research, relatively few studies in the Algerian context have focused specifically on Informatics students. Most existing studies have addressed English for general academic purposes or other scientific disciplines, leaving a gap in research related to computer science and Informatics programs (Bouزيد, 2017).

This gap underscores the need for the current study, which adopts a mixed-methods approach to investigate the effectiveness of CBI in a technical university context. Second, this research combines measures of language proficiency with students' attitudes toward CBI, providing a more comprehensive understanding of both learning outcomes and learners' perceptions. This methodological combination strengthens the contribution of the study.

Third, the study supports national efforts to improve English teaching in higher education, particularly in science and technology. By proposing an approach that integrates language learning with disciplinary content, the study contributes to ongoing discussions on curriculum reform and pedagogical innovation in Algerian universities. As emphasized by Wesche and Skehan (2002), effective language instruction should balance communicative objectives with meaningful academic content, which is a central principle of Content-Based Instruction (CBI).

3. Statement of the Problem

Despite the growing importance of English in Informatics, many Algerian university students continue to demonstrate insufficient English proficiency, which negatively affects their academic performance and limits their access to international scientific resources and professional opportunities. This problem stems from reliance on traditional teaching methods that emphasize grammatical knowledge and general language skills while neglecting students' specific academic and disciplinary needs.

According to Hutchinson and Waters (1987), effective ESP instruction must be grounded in learners' needs and the contexts in which the language is used. However, English courses designed for Informatics students often lack authentic computing-related materials and meaningful integration of subject content. Basturkmen (2010) further argues that language instruction should be closely linked to disciplinary content in order to achieve relevant and sustainable learning outcomes.

The core problem addressed in this study is the insufficient integration of English instruction with Informatics content, which limits students' language proficiency and their ability to use English effectively in academic and professional contexts.

4. Aims and Objectives of the Study

The main aim of this research is to investigate the impact of Content-Based Instruction (CBI) on the English language proficiency of Informatics students in Algerian universities. By addressing this aim, the study seeks to contribute to improving English pedagogy in technical higher education contexts.

More specifically, the study aims to:

1. Measure the effect of Content-Based Instruction (CBI) on Informatics students' English proficiency.
2. Explore students' attitudes toward learning English through CBI.
3. Evaluate CBI compared to traditional English teaching methods in terms of effectiveness and motivation.
4. Identify the challenges related to the implementation of CBI in Algerian universities.

Achieving these objectives is expected to provide pedagogical insights that may inform curriculum design and teaching practices in English courses for technical disciplines, in line with previous research on Content-Based Instruction (CBI) (Lyster, 2017; Pally, 2000).

These objectives inform the development of the research questions presented in the following section.

5. Research Questions and Hypotheses

This study aims to evaluate the impact of Content-Based Instruction (CBI) on the English language proficiency of Informatics students at Kasdi Merbah University. To achieve this objective, the research is guided by the following research questions and hypotheses.

a. Research Questions

The present study attempts to answer the following questions:

RQ1. To what extent does Content-Based Instruction (CBI) improve the English language proficiency of Informatics students at Kasdi Merbah University?

RQ2. What are Informatics students' attitudes toward learning English through Content-Based Instruction?

RQ3. How does Content-Based Instruction compare with traditional English teaching methods in terms of effectiveness and student motivation?

RQ4. What are teachers' perceptions of the impact of Content-Based Instruction on students' language proficiency and technical vocabulary development?

RQ5. What challenges are encountered in the implementation of Content-Based Instruction in Algerian universities?

b. Research Hypotheses

Based on previous studies indicating that integrating content and language enhances learning outcomes (Brinton et al., 1989; Lyster, 2017), the following hypotheses are formulated:

H1: Content-Based Instruction (CBI) positively impacts the English language proficiency of Informatics students at Kasdi Merbah University.

H2: Informatics students hold positive attitudes toward learning English through Content-Based Instruction.

H3: Content-Based Instruction is more effective than traditional teaching methods in improving students' language skills and motivation.

H4: Teachers perceive Content-Based Instruction as beneficial for students' language development and technical vocabulary acquisition.

H5: The implementation of Content-Based Instruction faces practical challenges in Algerian universities.

6. Methodology

In order to investigate the impact of Content-Based Instruction (CBI) on the English language proficiency of second-year Informatics students at Kasdi Merbah University, Ouargla, the present study adopted a descriptive mixed-method case study design. This methodology was considered appropriate because it allowed the researcher to combine both quantitative and qualitative data in order to obtain a broader understanding of the research problem.

The quantitative data were collected through a student questionnaire administered online to second-year Informatics students. The questionnaire aimed to explore students' attitudes toward English and Content-Based Instruction, their perceptions of its benefits, and the difficulties they encounter when learning English through subject-related content.

The qualitative data were collected through semi-structured online interviews conducted with English language teachers who teach Informatics students. These interviews provided deeper insights into teachers' experiences, classroom practices, and perceptions regarding the implementation of CBI in ESP classes.

The collected data were analyzed using descriptive statistics for the quantitative part and thematic analysis for the qualitative part in order to answer the research questions and interpret the findings effectively.

7. Organization of the Dissertation

This dissertation is divided into three main chapters in addition to the general introduction and the general conclusion.

The General Introduction presents the background of the study, the statement of the problem, the significance of the study, the research aims, questions, hypotheses, methodology, and the organization of the dissertation.

Chapter One is devoted to the literature review. It introduces the theoretical framework related to Content-Based Instruction and English for Specific Purposes. It also discusses the definitions, principles, models, advantages, and challenges of CBI, as well as its relationship with language learning in ESP contexts.

Chapter Two presents the research design and methodology adopted in the study. It describes the research approach, participants, sampling techniques, data collection instruments, procedures, methods of data analysis, ethical considerations, and the limitations of the study.

Chapter Three is concerned with the analysis and discussion of the collected data. It presents the findings obtained from the students' questionnaire and teachers' interviews, followed by the discussion of the main results, pedagogical implications, recommendations, limitations, and suggestions for further research.

Finally, the General Conclusion summarizes the main findings of the study, highlights its contributions and limitations, and provides recommendations for future research and pedagogical practice.

Chapter One: Literature Review

Introduction

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1.1.2 Origins of CBI

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1.3 Models of Content-Based Instruction

1.3.1 Theme-Based Language Instruction Model

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1.3.3 Sheltered Content Instruction Model

1.4 Advantages and Disadvantages of Content-Based Instruction

1.4.1 Advantages of CBI

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Introduction

Content-Based Instruction (CBI) is a modern approach to language teaching that integrates language learning with meaningful subject-matter content. Unlike traditional methods that focus mainly on grammar and vocabulary, CBI uses language as a tool for communication and knowledge acquisition. This approach is closely related to Communicative Language Teaching (CLT) because it promotes authentic interaction, learner participation, and the integration of the four language skills.

The development of CBI was influenced by communicative approaches and immersion programs, particularly in Canada during the 1960s. Since then, many scholars have emphasized its importance in improving both language proficiency and academic learning. CBI is widely used in educational contexts, especially in English for Specific Purposes (ESP), where learners study language through content related to their academic or professional fields.

This chapter presents an overview of CBI by discussing its definitions, origins, principles, instructional models, advantages, and disadvantages. It also examines the relationship between CBI and ESP and highlights the challenges of implementing this approach in Algerian universities.

1.1 Background of Content-Based Instruction (CBI)

1.1.1 What is CBI?

Content-Based Instruction (CBI) is defined in various ways by scholars; however, its core principle lies in integrating language learning with subject-matter content. Rather than organizing instruction around grammar rules and linguistic forms, CBI focuses on teaching language through meaningful content that learners need to study and understand. In this

approach, language is used as a medium for acquiring knowledge and developing communicative competence simultaneously.

Richards and Rodgers (2001) define CBI as follows:

Content-Based Instruction refers to an approach to second language teaching in which teaching is organized around the content or information that students will acquire, rather than around a linguistic or other type of syllabus. (p. 204)

Similarly, Snow (2001) explains that content in CBI may include themes, topics, or specific academic subjects used for language teaching purposes. According to the author:

Content is the use of subject matter for second or foreign language teaching purposes. Subject matter may consist of topics or themes based on interest or need in an adult EFL setting, or it may be very specific, such as the subjects that students are currently studying in their elementary school classes. (p. 303)

These definitions emphasize that CBI is not limited to language instruction alone; rather, it combines the learning of language with the learning of meaningful academic or thematic content. Through this integration, learners develop both linguistic competence and subject knowledge in a more communicative and purposeful learning environment.

1.1.2 Origins of CBI

Historical, political, and social changes have significantly influenced the evolution of language learning approaches throughout history. The spread of certain languages was closely connected to factors such as trade, science, religion, colonization, and cultural exchange (Ostler, 2005). As a result, learning foreign languages became increasingly important for communication, education, and access to knowledge.

The teaching and learning of foreign languages are not recent phenomena. Since ancient times, many languages functioned as *lingua franca* and were widely used in education, administration, and religious practices. During the Middle Ages, language instruction was largely content-centered, as learners focused primarily on understanding the meaning of texts rather than studying language forms in isolation. Educational materials mainly consisted of classical and religious texts, such as the Quran, the Bible, and other sacred writings, which served as the main sources of knowledge and instruction.

In medieval Europe, Latin was considered “the language of instruction” (Dalton-Puffer, 2007, p. 2) and occupied a central position in education. Scholars and students learned Latin mainly to access scientific, philosophical, and religious knowledge. Although some attention was given to vocabulary and grammatical structures, the primary objective remained the comprehension of content. This demonstrates that early language teaching practices shared similarities with modern content-centered approaches.

Over time, language teaching methods evolved, yet content continued to play an important role in instruction. Different teaching methods approached language learning in different ways, but many of them derived grammar, vocabulary, and communication practices directly from the content being studied. For instance, even the audio-lingual method incorporated vocabulary and structural patterns through contextualized content, while communicative approaches later emphasized meaningful interaction based on real-life situations and subject matter (Tedick, 2018). These developments gradually contributed to the emergence of modern Content-Based Instruction as an integrated approach to language and content learning.

1.1.3 Development of CBI in Language Teaching

Content-Based Instruction (CBI) began to develop as a formal approach to language teaching during the 1960s, particularly through the French immersion programs implemented in Canada (Lambert & Tucker, 1972). These programs are considered among the earliest initiatives that integrated language learning with academic content instruction. Their success encouraged many universities and educational institutions to adopt similar approaches across different languages and disciplines. Institutions such as the University of California, Los Angeles, the Monterey Institute of International Studies, the University of British Columbia, and the University of Ottawa played an important role in promoting and developing CBI practices.

The development of CBI was further reinforced by the work of Mohan (1986), who examined the relationship between language and content in education. In his book *Language and Content*, he argued that language and subject matter are often taught separately, which limits learners' academic and linguistic development. Mohan noted that language tends to be neglected during subject learning, while content is often underestimated in language classes. To address this issue, he proposed an integrated approach in which language and content are taught simultaneously.

Mohan (1986) also emphasized that second language learners should receive instruction that connects their linguistic needs with academic content requirements. This perspective contributed significantly to the development of modern CBI, as it highlighted the importance of using language as a meaningful tool for communication, comprehension, and academic achievement rather than teaching it in isolation. Consequently, CBI emerged as an effective approach that supports both language acquisition and content learning within authentic educational contexts.

1.1.4 CBI as an Approach to Communicative Language Teaching

According to Leaver and Stryker (1989), Content-Based Instruction (CBI) can be viewed as a philosophy, a methodology, and an approach to course design in which learners study different subject matters through the target language. In this approach, language learning occurs simultaneously with content learning, allowing learners to develop both communicative competence and academic knowledge.

CBI is closely associated with Communicative Language Teaching (CLT) because both approaches emphasize meaningful communication and authentic language use. Rather than focusing exclusively on grammatical structures and linguistic forms, CBI promotes the use of language in real contexts where learners communicate ideas, interpret information, and engage with meaningful content.

Furthermore, CBI emphasizes teaching language through communication in context instead of presenting language as isolated or static written forms. The primary purpose of language in this approach is the effective and accurate exchange of information. As a result, learners are encouraged to use the target language naturally while interacting with academic topics and real-world situations. This communicative orientation makes CBI effective in developing both language proficiency and content understanding simultaneously.

1.1.5 Content-Based Instruction (CBI) and English for Specific Purposes (ESP)

The implementation of Content-Based Instruction (CBI) in Algerian universities has encountered several challenges, particularly in the field of English for Specific Purposes (ESP). One of the main difficulties is the limited number of teachers who are adequately trained in ESP methodologies and content-based approaches. In addition, the Algerian educational curriculum remains largely traditional and rigid, offering limited opportunities for the effective

implementation of innovative approaches such as CBI. As a result, language instruction often focuses more on theoretical knowledge than on practical communication and meaningful content integration.

To better understand the relationship between CBI and ESP, it is important to examine the emergence of communicative approaches in language teaching. During the 1970s, communicative approaches gained prominence by emphasizing authenticity, meaningful interaction, and learner engagement. These approaches aimed to improve learners' communicative competence through active participation and real-life language use.

One of the major communicative approaches is Communicative Language Teaching (CLT), which developed from British situational teaching traditions and focused on developing learners' communicative competence. Another important approach is Cooperative Language Learning (CLL), defined by Olsen and Kagan (1992) as a learning process based on socially structured interaction in pairs or small groups. Whole Language Teaching also emerged as an educational philosophy that views language as a holistic system and encourages the integration of the four language skills: listening, speaking, reading, and writing (Harste, 1989).

In addition, Competency-Based Language Teaching (CBLT) emphasizes measurable learning outcomes and focuses on what learners are able to do with language rather than what they know about it (Richards & Rodgers, 2001). Similarly, Task-Based Language Teaching (TBLT) organizes instruction around communicative tasks and practical activities that require meaningful language use to accomplish specific goals (Richards & Rodgers, 1986).

Within this communicative framework, CBI emerged as an approach that integrates language learning with subject-matter instruction. Brinton et al. (1989) define CBI as an instructional approach that combines content learning with language acquisition. The

integration of approaches such as task-based learning and genre analysis can support the design of effective CBI courses adapted to ESP contexts (Johnson, 2018). These approaches are particularly valuable because they help learners develop both communicative competence and academic performance simultaneously.

Despite its educational value, the successful implementation of CBI in Algerian ESP contexts requires several improvements. Universities need to provide appropriate teaching resources, professional training for instructors, and more flexible curricula aligned with CBI principles. Moreover, learners should be encouraged to participate actively through meaningful and discipline-related content. Bouhafs and Bouacha (2020) argue that overcoming these challenges and adopting suitable CBI frameworks can significantly improve English language teaching in Algerian universities and better address students' academic and professional needs.

1.2 Principles and Distinctive Characteristics of CBI

Content-Based Instruction (CBI), as an approach within communicative language teaching, shares several theoretical foundations with Communicative Language Teaching (CLT), particularly in its emphasis on learner-centered instruction. In both approaches, the learner plays a central role in the learning process through active participation and meaningful engagement with language.

According to Richards and Rodgers (2001), one of the main principles of CBI is using language as a medium for learning content rather than as an isolated object of study. They argue that learning becomes more effective when learners are exposed to meaningful and relevant subject matter, where language functions as a tool for communication and knowledge acquisition. This approach enhances learners' motivation by connecting language learning to real content and authentic purposes.

A second key principle of CBI is the integration of language skills. Listening, speaking, reading, and writing are not taught separately but are developed simultaneously through content learning. This integration ensures that language is used in meaningful contexts, enabling learners to develop communicative competence for real-life purposes such as academic study, work, or travel.

Beyond these principles, Brinton (2003) identifies several pedagogical characteristics that guide the implementation of CBI in educational settings. These characteristics highlight practical classroom decisions and instructional design.

1.2.1 Instruction Based on Content Rather than Language Forms

In CBI, instructional planning is primarily driven by content selection rather than linguistic structures. Materials development and adaptation are central responsibilities, especially for language teachers. According to Brinton (2003), content selection influences the sequencing of language items, ensuring that linguistic input emerges naturally from subject matter.

1.2.2 Integration of the Four Language Skills

CBI promotes the simultaneous development of listening, speaking, reading, and writing. These skills are integrated through meaningful tasks that reflect authentic communication. For instance, reading activities may be designed to extract specific information, which is then used in speaking or writing tasks.

1.2.3 Active Learner Participation

CBI is fundamentally learner-centered. Students are not passive recipients of knowledge but active participants in constructing meaning. Through interaction, collaboration,

and peer feedback, learners develop both linguistic and cognitive skills, while also enhancing motivation and self-confidence.

1.2.4 Content Relevant to Learners' Needs and Goals

The selection of content is based on learners' academic, professional, and personal needs. By using subject matter relevant to students' lives, CBI increases engagement and supports goal-oriented learning. This approach is widely used in secondary and higher education contexts.

1.2.5 Use of Authentic Texts and Tasks

Authenticity is a key feature of CBI. Materials are drawn from real-world contexts to expose learners to natural language use. As noted by Helgesen and Brown (2007), authenticity may vary from adapted to genuine texts, depending on learners' level and instructional goals. However, Brinton (2003) emphasizes that exposure alone is not sufficient; materials often need adaptation, especially for beginners, to ensure comprehension and effective learning.

CBI also requires careful sequencing of content over time, which may extend beyond a single lesson or unit (Brinton, 2003). To support learning, a variety of interactive techniques are commonly used, including pair and group work, discussions, debates, role plays, and jigsaw activities. These strategies promote critical thinking, collaboration, and problem-solving, aligning CBI closely with the principles of CLT.

Finally, the philosophy of CBI aims to develop learner autonomy. As Stryker and Leaver (1997) state that CBI seeks to empower students to become independent learners who continue learning beyond the classroom. Through sustained exposure to meaningful content and authentic language use, learners become more motivated, engaged, and capable of transferring their knowledge to real-life contexts.

1.3 Models of Content-Based Instruction

Content-Based Instruction (CBI) has been defined in various ways by different scholars, reflecting its multifaceted nature. Dupuy (2010) defines CBI as a teaching approach that integrates second or foreign language instruction with subject-matter content. This integration enables learners to develop both linguistic competence and content knowledge simultaneously, such as in subjects like biology, history, or science.

Similarly, Long (1997) emphasizes the importance of combining language and content in instructional settings. Richards and Rodgers (1986) describe CBI as a relatively recent pedagogical approach that prioritizes content learning over the direct teaching of linguistic forms such as grammar, phonology, and morphology. In this model, language functions as a medium for learning rather than the primary focus of instruction. This shift addresses limitations found in traditional language teaching approaches, which often isolate language forms from meaningful use. In the same line, Brinton et al. (2010) argue that CBI enhances second language learning by effectively integrating language and content instruction.

CBI is commonly implemented through three main instructional models in educational contexts, particularly at the university level. According to Unirow (2012), these models are: theme-based instruction, adjunct instruction, and sheltered instruction.

1.3.1 Theme-Based Language Instruction Model

Theme-based instruction is one of the most widely used forms of CBI, particularly in English for Specific Purposes contexts such as business English (Satilmis et al., 2015). This model places the learner at the center of the learning process, adopting a learner-centered approach rather than a textbook-driven one.

In this model, course content is organized around selected themes that are relevant to learners' interests, needs, and goals. These themes are identified through a needs analysis process and are used as the basis for designing tasks, activities, and case studies. As a result, learners engage more actively in the learning process through meaningful participation, motivation, and problem-solving activities related to real-life situations.

Theme-based instruction also supports the use of authentic materials, which help learners connect classroom learning with real-world contexts. According to Kiziltan and Ersanli (2007) teachers in this model act not only as instructors but also as facilitators and coordinators of learning. Their role involves integrating thematic content with relevant language input rather than focusing solely on linguistic instruction.

1.3.2 Adjunct Language Instruction Model

The adjunct model involves the simultaneous delivery of a language course and a content course, which are closely coordinated but taught as separate components. According to Kiziltan and Ersanli (2007), this model is designed to support learners in acquiring both subject knowledge and language skills in an integrated academic environment.

Baecher et al. (2014) highlight that successful implementation of this model requires language teachers to have sufficient familiarity with subject-matter content. This is particularly important because lack of content knowledge has historically been a challenge for language instructors working in specialized fields.

In this model, collaboration between language and content teachers is essential. Dellicarpini and Alonso (2014) emphasize the importance of cooperation and joint syllabus design to ensure coherence between the two courses. This collaboration helps align linguistic objectives with disciplinary content, improving overall learning outcomes.

The adjunct model enables learners to achieve two goals simultaneously: developing language proficiency and acquiring academic content knowledge. It also encourages active engagement through task-based learning, which enhances motivation, confidence, and the ability to express ideas effectively in academic contexts.

Bielak and Pawlak (2013) note that modern language teaching has shifted from a focus on grammatical accuracy to communicative competence. In this model, the emphasis is placed on using language appropriately in context rather than merely studying linguistic structures. Therefore, content knowledge becomes an essential component of effective language learning.

1.3.3 Sheltered Content Instruction Model

The sheltered model differs from the previous two in that it focuses primarily on content delivery, while adapting language input to match learners' proficiency levels (Echevarria & Short, 2010). In this approach, learners engage directly with subject-matter content, while language support is provided through simplified and adapted instruction.

Teachers play a critical role in this model, as they are responsible for modifying instructional materials to ensure accessibility for learners with limited language proficiency (Hung & Hai, 2016). This includes adjusting vocabulary, simplifying texts, and providing additional scaffolding to support comprehension.

Effective implementation of the sheltered model requires careful selection of materials and appropriate teacher training. Davies (2003) emphasizes that instructors must be familiar with both content and language teaching strategies to ensure successful learning outcomes. When these conditions are met, learners' language skills can improve significantly while they simultaneously develop subject knowledge.

1.4 Advantages and Disadvantages of Content-Based Instruction

Content-Based Instruction (CBI) is an instructional approach that integrates language learning with subject-matter content. Unlike traditional language teaching methods that focus primarily on isolated linguistic elements such as grammar or vocabulary, CBI emphasizes the use of language as a vehicle for learning meaningful content (Snow & Brinton, 1997). This dual-focus approach has gained increasing attention because it enables learners to develop both linguistic competence and subject knowledge simultaneously.

However, while CBI offers several pedagogical benefits, its implementation also presents certain challenges that must be considered in instructional practice.

1.4.1 Advantages of CBI

One of the main advantages of CBI is its positive impact on learner motivation and engagement. By exposing students to meaningful and context-rich content, learning becomes more relevant and less abstract than traditional grammar-based instruction. Learners engage with real-world topics such as science, history, or social issues, which increases their interest and participation in classroom activities (Brinton et al., 1989).

Another important advantage is the expansion of learners' academic and general knowledge. CBI lessons expose students to subject matter beyond language learning itself, allowing them to acquire both linguistic input and conceptual understanding. For example, a lesson on environmental issues not only introduces related vocabulary but also develops awareness of ecological concepts and global sustainability issues (Snow & Brinton, 1997). This integration supports both cognitive and linguistic development.

CBI also contributes to the development of academic learning skills. Learners are often required to engage with authentic texts through tasks such as summarizing, note-taking, identifying main ideas, and interpreting information. These skills are essential in higher

education contexts and help learners become more autonomous and effective in handling academic materials (Nunan, 2003). In this way, CBI supports the development of both language proficiency and academic literacy.

In addition, CBI promotes collaborative learning and interaction among students. Classroom activities typically involve group work, discussions, and project-based tasks, which encourage learners to use language in meaningful social contexts. According to Leaver (2007), such collaborative environments enhance communication skills, critical thinking, and peer-supported learning. This interactive dimension also contributes to increased learner confidence and reduced language anxiety.

1.4.2 Disadvantages of CBI

Despite its benefits, CBI presents several pedagogical challenges. One significant difficulty is the potential lack of explicit language instruction. Because the focus is primarily on content, learners—particularly beginners—may find it difficult to recognize and consolidate specific language structures. This may lead to uncertainty regarding their linguistic progress if instructional support is not carefully structured (Nunan, 2003). Therefore, teachers must maintain a balance between content delivery and language focus to ensure effective learning outcomes.

Another challenge is the possible overreliance on the learners' first language. In some CBI classrooms, teachers may resort to using the native language to clarify complex concepts. While this can facilitate comprehension, excessive use may reduce learners' exposure to the target language and limit opportunities for immersion (Snow & Brinton, 1997). Careful classroom management is therefore required to maintain an appropriate balance.

A further limitation is the difficulty of adapting authentic materials for learners with lower proficiency levels. Since many CBI resources are originally designed for native or advanced users, they may be linguistically demanding for beginners. Teachers are often required to simplify or modify texts while preserving the original meaning and instructional value, a process that can be time-consuming and pedagogically challenging (Brinton et al., 1989).

Despite these challenges, CBI remains a highly effective approach when implemented appropriately. As noted by Nunan (2003), although it requires careful planning and skilled instruction, CBI encourages deeper engagement with content, promotes critical thinking, and facilitates meaningful language use. Consequently, it offers significant benefits for both learners and educators when its limitations are properly addressed.

Conclusion

Content-Based Instruction (CBI) is an effective approach that combines language learning with meaningful academic content. It encourages learners to use language in authentic contexts while developing communicative competence and subject knowledge simultaneously. The chapter has shown that CBI is based on important principles such as learner-centered instruction, authentic materials, integration of language skills, and meaningful communication.

The discussion also demonstrated that CBI offers several advantages, including increased motivation, improved academic skills, and greater learner interaction. However, its implementation may face challenges related to teacher training, curriculum design, and material adaptation. Despite these difficulties, CBI remains a valuable approach for improving English language teaching, particularly in ESP contexts and higher education settings such as Algerian universities.

Chapter Two: Research Design and Methodology

Introduction

2.1 Research Design

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Conclusion

Introduction

This chapter describes the methodology used in the present study. It presents the research design, participants, sampling techniques, data collection instruments, procedures, and methods of data analysis. The chapter also discusses validity, reliability, ethical considerations, and study limitations.

The main objective of this study was to investigate the impact of Content-Based Instruction (CBI) on the English language proficiency of second-year undergraduate Informatics students at Kasdi Merbah University, Ouargla. More specifically, the study explored students' attitudes toward learning English through subject-related content and teachers' perceptions of the effectiveness of CBI in English for Specific Purposes (ESP) classes.

Selecting an appropriate methodology was essential to ensure the credibility and reliability of the research findings. According to Creswell (2014), research methodology helps researchers conduct studies systematically and rigorously. Therefore, the methodological choices adopted in this study were carefully selected to address the research questions effectively.

The study relied on both quantitative and qualitative methods to obtain a broader understanding of the research problem. Quantitative data helped identify general trends among students, whereas qualitative data provided deeper insights into teachers' experiences and classroom practices related to CBI implementation.

2.1 Research Design

This study adopted a descriptive mixed-methods case study design to investigate the impact of Content-Based Instruction on students' English language proficiency. A mixed-

methods approach was selected because it enabled the researcher to collect both quantitative and qualitative data.

According to Creswell (2014), mixed-methods research combines the strengths of quantitative and qualitative approaches within the same study. In the present research, the quantitative approach was used to collect numerical data related to students' attitudes, motivation, perceived benefits, and difficulties concerning CBI. The qualitative approach, on the other hand, explored teachers' experiences, classroom practices, and opinions regarding the implementation of CBI in ESP classes.

The descriptive design was considered appropriate because the study did not aim to test hypotheses or establish cause-and-effect relationships. Instead, it aimed to describe and interpret students' and teachers' perceptions of Content-Based Instruction within a specific educational context.

In addition, the study followed a case study approach because it focused on a particular group of learners, namely second-year Informatics students at Kasdi Merbah University. According to Yin (2018), a case study approach is appropriate when researchers investigate a contemporary phenomenon within its real-life context. Therefore, the present study attempted to provide an in-depth understanding of CBI implementation in ESP classes.

Using both quantitative and qualitative data helped strengthen the credibility of the findings by allowing the researcher to compare information collected from different sources. In other words, the students' questionnaire data were supported by the teachers' interview responses.

2.2 Participants and Sampling

2.2.1 Students

The target population included approximately 80 second-year undergraduate Informatics students at Kasdi Merbah University, Ouargla. During the data collection period, 33 students completed the questionnaire and were included in the study sample. The study relied on convenience sampling, which involves selecting participants based on accessibility and willingness to participate. This sampling technique is frequently used in educational research when researchers face practical constraints such as limited time and low participation rates. Although convenience sampling limits the generalizability of the findings, it was appropriate for the present study due to practical constraints and participant accessibility.

The selection of second-year students was intentional and academically justified. At this stage, students begin to encounter subject-related materials in English and become progressively exposed to ESP learning situations. Unlike first-year students, who mainly study General English, second-year students possess greater familiarity with technical vocabulary and discipline-related content. Consequently, they were considered more capable of evaluating the effectiveness of Content-Based Instruction and expressing informed opinions about its advantages and challenges.

Selecting Informatics students was also particularly relevant because English plays an important role in the fields of technology and computer science. Students frequently encounter English terminology, software interfaces, technical documentation, and academic resources written in English. As a result, the implementation of CBI may contribute to improving both language proficiency and subject comprehension.

2.2.2 Teachers

The qualitative phase of the study involved two English language teachers who taught Informatics students at Kasdi Merbah University. The small number of participants was mainly due to the limited number of teachers assigned to teach English in the Informatics department.

Purposive sampling was used to select the participants. This sampling technique involves choosing individuals who possess relevant knowledge and experience related to the research topic. The selected teachers were directly involved in teaching English to Informatics students, which ensured informed perspectives regarding the implementation of CBI in ESP classes.

Although only two teachers participated in the interview process, their responses provided rich qualitative insights related to classroom practices, students' motivation, institutional support, and the challenges associated with Content-Based Instruction. Nevertheless, the small sample size limits the generalizability of the findings.

2.3 Data Collection Instruments

Two research instruments were used in this study: a student questionnaire and a semi-structured teachers' interview. The use of multiple instruments contributed to collecting both quantitative and qualitative data and enhanced the comprehensiveness of the research findings.

2.3.1 Students' Questionnaire

The student questionnaire was designed to collect quantitative data related to students' attitudes, perceptions, and difficulties concerning the use of Content-Based Instruction in learning English. Questionnaires are widely used in educational research because they allow researchers to collect data from a relatively large number of participants in an efficient and practical way.

The questionnaire consisted of three sections:

A: Personal Information

This section collected demographic information about the participants, including gender, age, field of study, and academic level.

B: Attitudes toward, Perceptions of, and Difficulties with CBI

This section employed a five-point Likert scale ranging from “Strongly Agree” to “Strongly Disagree.” It focused on students’ attitudes toward English and CBI, perceived benefits of CBI, and difficulties encountered during CBI lessons. Several items addressed motivation, technical vocabulary acquisition, reading comprehension, and the usefulness of integrating Informatics-related content into English learning

C: Students’ Preferences and Suggestions

This section consisted of multiple-choice questions that allowed participants to select more than one answer. It aimed to identify students’ preferred classroom activities, difficulties experienced during CBI lessons, and suggestions for improving the implementation of Content-Based Instruction.

Before the final distribution, the questionnaire was reviewed by the supervisor and an expert in Applied Linguistics to ensure the clarity, relevance, and comprehensibility of the items.

A copy of the questionnaire is provided in Appendix A.

2.3.2 Teachers’ Interview

A semi-structured interview was used to collect qualitative data from teachers. Semi-structured interviews allow participants to express their opinions freely while maintaining focus on the research objectives.

The interview guide consisted of 16 open-ended questions organized into six sections. The first section explored the participants’ professional background, while the second focused on their awareness and understanding of Content-Based Instruction (CBI). The third section examined their classroom practices and the ways in which CBI was implemented

during instruction. The fourth section addressed institutional support and the availability of teaching resources. The fifth section investigated teachers' perceptions of the impact of CBI on students' language learning and academic development. Finally, the sixth section focused on the challenges encountered during implementation and the recommendations proposed for improving the effectiveness of CBI in the educational context.

The interview questions were developed based on the objectives of the study and previous literature related to Content-Based Instruction and ESP teaching. Through these questions, the researcher explored teachers' experiences with CBI, their evaluation of its effectiveness, and the challenges encountered during implementation.

The interviews were conducted online due to time and logistical constraints. Although this method facilitated communication with participants, it limited direct interaction and immediate clarification of responses.

Teachers' responses were carefully organized and analyzed to identify recurring themes and perspectives. A copy of the interview guide is presented in Appendix B.

2.4 Validity and Reliability

Ensuring validity and reliability is an essential aspect of academic research because the credibility of the findings depends on the quality of the research instruments. Therefore, several procedures were followed to improve the accuracy and consistency of the questionnaire.

2.4.1 Validity

Validity ensures that a research instrument measures what it is intended to measure. According to Creswell (2014), validity is essential in educational research because it helps ensure that the collected data accurately reflect the phenomenon under investigation.

In the present study, content validity and face validity were established through expert review. The questionnaire was examined by the research supervisor and another teacher specialized in Applied Linguistics. The reviewers evaluated the clarity of the questionnaire items, the relevance of the questions to the research objectives, the appropriateness of the language used, and the alignment of the items with the principles of Content-Based Instruction.

Based on the reviewers' comments, several modifications were introduced to improve the quality of the questionnaire. Some items were reformulated to increase clarity and reduce ambiguity, while others were reorganized to improve coherence between sections.

The validation process enhanced the suitability and effectiveness of the questionnaire as a data collection instrument.

2.4.2 Reliability

Reliability refers to the consistency and stability of a research instrument. In quantitative research, reliability is commonly measured using Cronbach's Alpha coefficient, which evaluates the internal consistency of questionnaire items.

The reliability of the questionnaire was assessed using Cronbach's Alpha coefficient through Microsoft Excel based on students' responses. The obtained Cronbach's Alpha value was 0.847.

According to commonly accepted standards in educational research, values above 0.70 are considered acceptable, while values above 0.80 indicate a high level of reliability. Therefore, the obtained result demonstrated that the questionnaire possessed good internal consistency and was reliable for the purposes of this study.

Cronbach's Alpha was particularly appropriate because the questionnaire mainly relied on Likert-scale items intended to measure students' attitudes, perceptions, and difficulties regarding Content-Based Instruction.

2.5 Data Collection Procedure

The data collection process was conducted in two main stages.

First, the student questionnaire was designed using Google Forms and distributed online to second-year Informatics students. The online format facilitated access to participants and simplified the collection of responses. The questionnaire link was shared several times to encourage participation and increase the response rate. Despite these efforts, only 33 students completed the questionnaire.

Participation was voluntary, and participants were informed about the objectives of the study before responding. They were also assured that their responses would remain anonymous and confidential.

The second stage involved collecting qualitative data through teachers' interviews. The interview was conducted online because this method was considered practical and convenient for both the researcher and the participants. Teachers were given sufficient time to answer the questions carefully and provide detailed responses.

After collecting the responses, the data were organized systematically in preparation for analysis. Quantitative data were prepared for statistical analysis, whereas qualitative responses were categorized and examined through thematic analysis.

2.6 Data Analysis

Data analysis is an essential stage in the research process because it enables researchers to interpret collected information systematically and answer the research questions. Since the

present study adopted a mixed-methods design, both quantitative and qualitative methods of analysis were employed.

2.6.1 Quantitative Data Analysis

The quantitative data collected through the questionnaire were analyzed using Google Forms and Microsoft Excel. These tools were appropriate because the study mainly relied on descriptive statistics rather than advanced inferential statistical analysis.

Google Forms facilitated the automatic organization of responses and the calculation of frequencies and percentages. Microsoft Excel was used to present the data in tables and figures clearly and systematically.

Section B of the questionnaire employed a five-point Likert scale as follows:

5 = Strongly Agree

4 = Agree

3 = Neutral

2 = Disagree

1 = Strongly Disagree

The quantitative analysis focused mainly on descriptive statistics, including frequencies and percentages. Inferential statistics were not employed due to the relatively small sample size.

The use of descriptive statistics enabled the researcher to identify general trends among participants, such as students' perceptions of vocabulary improvement, reading comprehension, and motivation through CBI.

2.6.2 Qualitative Data Analysis

The qualitative data obtained from teachers' interviews were analyzed using thematic analysis. According to Braun and Clarke (2006), thematic analysis aims to identify and interpret recurring themes within qualitative data.

The analysis process involved three main steps. First, the responses were read carefully several times to gain a thorough understanding of the participants' perspectives. Next, important ideas and recurring statements were identified and coded. Finally, similar codes were grouped into broader themes to facilitate interpretation and discussion of the data. Several themes emerged during the analysis process, including students' motivation, technical vocabulary acquisition, improvement in reading comprehension, classroom challenges, lack of teaching resources, and institutional support. These themes provided a framework for understanding participants' experiences and perceptions regarding the implementation of Content-Based Instruction (CBI).

For example, repeated references to insufficient teaching materials were categorized under the theme of implementation challenges. Similarly, teachers' comments concerning increased student engagement were grouped under the theme of motivation.

Thematic analysis enabled the researcher to organize the qualitative data systematically and gain deeper insights into teachers' perspectives regarding the implementation of Content-Based Instruction in ESP classes.

2.7 Ethical Considerations

Ethical principles were respected throughout all stages of the study in order to protect participants' rights and ensure the integrity of the research process.

Participation in the study was entirely voluntary. Students and teachers were informed about the objectives of the research before participating, and they were assured that their

responses would be used only for academic purposes. Participants also had the right to withdraw from the study at any stage without negative consequences.

Confidentiality and anonymity were maintained throughout the research process. No personal names or identifying information were included in the questionnaire or interview analysis. In addition, the collected data were stored securely and accessed only by the researcher.

Ethical approval was not formally required but ethical principles were strictly followed, because the study did not involve sensitive personal information or experimental procedures. Nevertheless, ethical considerations remained an important part of the research process.

2.8 Limitations of the Study

Like any academic research, the present study encountered several limitations that may have influenced the findings.

One limitation was the relatively small number of student participants. Although the target population included approximately 80 students, only 33 completed the questionnaire and were included in the analysis. This limited response rate reduces the generalizability of the findings to the wider population of Informatics students.

Another limitation concerned the number of teachers involved in the interview process. Only two English language teachers participated in the study because the Informatics department included a limited number of teachers specialized in ESP instruction. Although their responses provided valuable qualitative insights, a larger sample could have produced more diverse perspectives.

In addition, the study relied mainly on self-reported data collected through questionnaires and interviews. As a result, some responses may have reflected participants' personal opinions rather than objective classroom realities.

Despite these limitations, the study still provided meaningful insights into the implementation of Content-Based Instruction in the context of English language teaching for Informatics students at Kasdi Merbah University.

Conclusion

This chapter presented the methodological framework adopted in the present study. It described the research design, participants, sampling techniques, data collection instruments, procedures, methods of analysis, ethical considerations, and study limitations.

A descriptive mixed-methods case study design was adopted to obtain both quantitative and qualitative insights into the implementation of Content-Based Instruction in ESP classes. The integration of questionnaires and semi-structured interviews contributed to achieving methodological triangulation and provided a broader understanding of the research problem.

The following chapter presents the analysis and interpretation of the collected data in relation to the research questions and study objectives.

Chapter Three: Data Analysis and Discussion

Introduction

3.1 Analysis of Students' Questionnaire

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3.1.2 Section B: Attitudes toward English and CBI

3.1.3 Students' Perceived Difficulties of CBI

3.1.4 Students' Preferences and Suggestions

3.2 Analysis of Teachers' Interview

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3.2.3 Teachers' Attitudes toward CBI Effectiveness

3.2.4 Classroom Implementation of CBI

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3.2.6 Teachers' Suggestions

3.2.7 Overall Interpretation of Teachers' Interview

3.3 Discussion of the Main Findings

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3.3.2 Discussion of Teachers' Interview Results

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3.3.4 Relation to Previous Studies and Theoretical Framework

3.4 Pedagogical Implications

3.5 Recommendations

3.6 Limitations of the Study

3.7 Suggestions for Further Research

Conclusion

Introduction

This chapter presents the analysis and discussion of the data collected in the present study, which investigates the impact of Content-Based Instruction (CBI) on the English language proficiency of second-year undergraduate Informatics students at Kasdi Merbah University, Ouargla.

To achieve the objectives of the study, two research instruments were used: a students' questionnaire and semi-structured interviews with teachers. The questionnaire explored students' attitudes toward English and Content-Based Instruction, their perceptions of its benefits, and the difficulties they encounter when learning English through Informatics-related content. The interviews provided qualitative insights into teachers' awareness of CBI, their classroom practices, and the challenges associated with its implementation.

A mixed-methods approach was adopted in order to combine both quantitative and qualitative data. The questionnaire data were analyzed using descriptive statistics, mainly frequencies and percentages, whereas the interview data were analyzed thematically.

This chapter is divided into several sections. The first section presents the analysis of the students' questionnaire, including demographic information, attitudes toward English and CBI, perceived benefits, learning difficulties, and students' suggestions. The second section focuses on the analysis of teachers' interviews. The final sections discuss the findings in relation to the research questions, the theoretical framework presented in Chapter One, and previous studies. Pedagogical implications, recommendations, limitations, and suggestions for further research are also provided.

3.1 Analysis of Students' Questionnaire

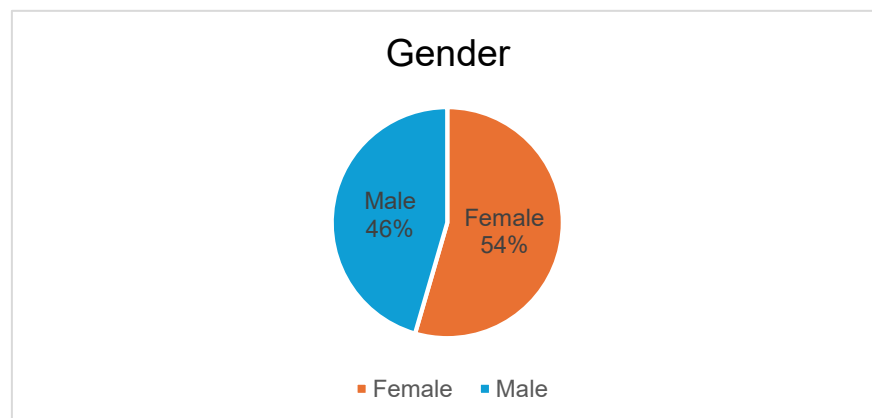
3.1.1 Section A: Personal Information

This section presents the demographic characteristics of the participants. Such information is important for contextualizing the findings and ensuring the appropriateness of the sample in relation to the objectives of the study. The demographic variables include gender, age, field of study, and academic level, which provide a clearer overview of the participants' background.

Gender Distribution

Figure 3.1

Gender Distribution of Participants

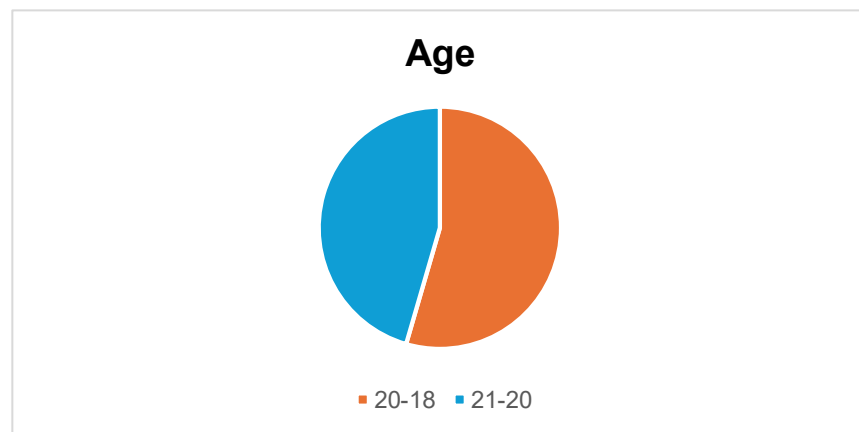


The results indicate that the sample includes both male and female students. Female students represent 54.5% (18 students), whereas male students represent 45.5% (15 students). Although the difference is relatively slight, female participants constitute a marginal majority within the sample. The inclusion of both genders ensures diversity in responses and reduces potential gender bias, thereby strengthening the reliability of the findings.

Age Distribution

Figure 3.2

Age Distribution of Participants

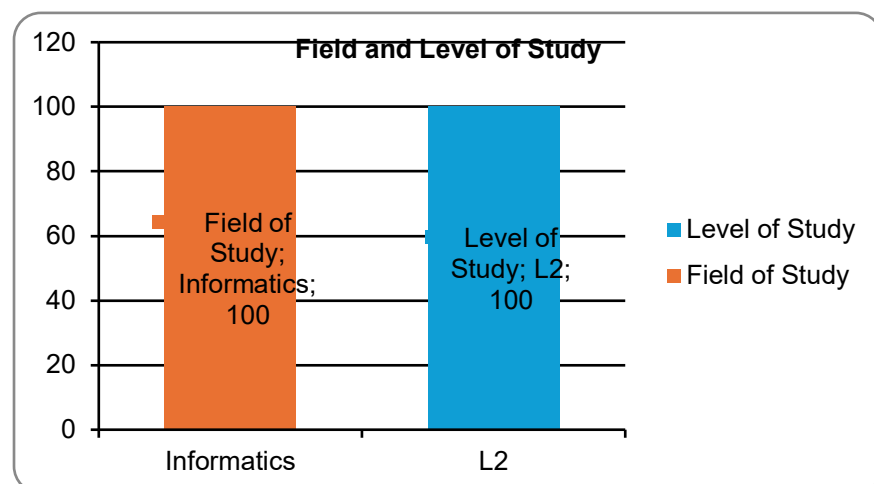


The findings reveal that participants are relatively homogeneous in terms of age, which is typical of second-year university students. Specifically, 18 students (54.5%) are aged between 18 and 20 years, while 15 students (45.5%) are between 20 and 21 years old. This close age range suggests that participants share similar academic and cognitive characteristics. Consequently, their responses are likely to reflect comparable educational experiences and learning conditions.

Field and Level of Study

Figure 3.3

Field and Level of Study



All participants (33 students, 100%) are enrolled in the second-year Informatics program. This confirms the relevance of the sample to the objectives of the study, as Informatics students regularly use English in their academic studies. In this field, English plays a crucial role in understanding programming languages, software documentation, and technical resources. Therefore, the selected sample is considered appropriate for examining the impact of Content-Based Instruction on English language learning.

3.1.2 Section B: Attitudes toward English and Content-Based Instruction

This section examines students' attitudes toward English and Content-Based Instruction, with particular emphasis on the academic importance of English, its relevance for future careers, students' motivation, enjoyment of learning English, and their preferences regarding Content-Based Instruction.

Understanding students' attitudes is essential because attitudes play a significant role in language learning success. As discussed in Chapter One, Content-Based Instruction aims to increase learner engagement by connecting language learning to meaningful academic content related to students' field of study.

Importance of English for Academic Studies

Table 3.1

Importance of English for Academic Studies

Response	Frequency	Percentage
Agree	19	57.6%
Strongly Agree	11	33.3%

Neutral	2	6.1%
Disagree	1	3.0%
Strongly Disagree	0	0%
Total	33	100%

The findings indicate that students hold highly positive attitudes toward the importance of English in their academic studies. Specifically, 19 students (57.6%) agreed and 11 students (33.3%) strongly agreed. Only two students (6.1%) expressed neutral opinions, while one student (3.0%) disagreed.

Overall, 90.9% of the participants recognize the academic importance of English. This reflects the essential role of English in the field of Informatics, where students frequently rely on English to access technical content, programming languages, scientific articles, and digital resources.

Importance of English for Future Career

Table 3.2

Importance of English for Future Career

Response	Frequency	Percentage
Agree	21	63.6%
Strongly Agree	8	24.2%
Neutral	3	9.1%
Disagree	1	3.0%

Strongly Disagree	0	0%
Total	33	100%

The results also demonstrate strong awareness of the professional importance of English among Informatics students. A total of 21 students (63.6%) strongly agreed and 8 students (24.2%) agreed that English is necessary for their future careers, whereas only a small minority expressed neutral or negative opinions.

Overall, 87.8% of the participants consider English essential for employability and professional development in the field of Informatics. This finding highlights students' awareness of the increasing demand for English proficiency in technological and professional environments.

Motivation for English Learning

Table 3.3

Motivation for English Learning

Response	Frequency	Percentage
Agree	22	66.7%
Strongly Agree	6	18.2%
Neutral	4	12.1%
Disagree	1	3.0%
Strongly Disagree	0	0%
Total	33	100%

The findings reveal a high level of motivation among students to improve their English proficiency. Specifically, 22 students (66.7%) strongly agreed and 6 students (18.2%) agreed that they are motivated to develop their English skills, while only a small percentage expressed neutral or negative responses.

Overall, 84.9% of the participants demonstrate positive motivation toward English learning. This positive attitude may be attributed to the academic and professional value associated with English in the field of Informatics.

Enjoyment of English Learning

Table 3.4

Enjoyment of English Learning

Response	Frequency	Percentage
Agree	8	24.2%
Strongly Agree	8	24.2%
Neutral	11	33.3%
Disagree	3	9.1%
Strongly Disagree	3	9.1%
Total	33	100%

Students' responses show greater variation regarding their enjoyment of learning English. Only 48.4% of the participants expressed positive attitudes, whereas 33.3% remained neutral and 18.2% expressed negative opinions.

Although students recognize the academic importance of English, some of them do not fully enjoy the learning process. This may be related to teaching methods, learning difficulties, or limited classroom interaction. The findings suggest the need for more engaging and interactive teaching practices in ESP classrooms.

Students' Preference for Content-Based Instruction (CBI)

Table 3.5

Students' Preference for Content-Based Instruction (CBI)

Response	Frequency	Percentage
Agree	11	33.3%
Strongly Agree	11	33.3%
Neutral	9	27.7%
Disagree	1	3%
Strongly Disagree	1	3%
Total	33	100%

The results reveal generally positive attitudes toward learning English through Informatics-related content. A total of 66.6% of students expressed a preference for Content-Based Instruction, whereas 27.3% remained neutral.

These findings indicate that students appreciate learning English when it is directly connected to their field of study. However, the relatively high percentage of neutral responses may suggest that some students are still unfamiliar with this approach or have had limited exposure to it.

The findings of this section demonstrate that students generally hold positive attitudes toward English and Content-Based Instruction. Most participants recognize the importance of English for academic success and future professional opportunities, while also expressing strong motivation to improve their language proficiency. Nevertheless, the moderate level of enjoyment reported by some students indicates the importance of adopting more motivating and learner-centered teaching practices in ESP contexts.

3.1.3 Perceived Benefits of Content-Based Instruction

This section examines students' perceptions of the benefits of Content-Based Instruction in learning English through Informatics-related content. Content-Based Instruction integrates language learning with subject matter knowledge in order to improve both linguistic competence and academic understanding. The analysis focuses on conceptual understanding, vocabulary acquisition, reading comprehension, meaningful learning, and motivation.

CBI and Understanding of Informatics Concepts

Table 3.6

CBI and Understanding of Informatics Concepts

Response	Frequency	Percentage
Agree	10	30.3%
Strongly Agree	13	39.4%
Neutral	9	27.3%
Disagree	0	0%

Strongly Disagree	1	3.0%
Total	33	100%

The data indicate that 69.7% of students believe that Content-Based Instruction helps them better understand Informatics concepts in English. This suggests that integrating academic content with language learning facilitates comprehension by making learning more contextualized and meaningful.

However, the 27.3% of neutral responses indicate that some students still experience difficulties, possibly due to limited English proficiency or insufficient familiarity with technical terminology.

CBI and Technical Vocabulary Learning

Table 3.7

CBI and Technical Vocabulary Learning

Response	Frequency	Percentage
Agree	9	27.3%
Strongly Agree	15	45.5%
Neutral	7	21.2%
Disagree	2	6.1%
Strongly Disagree	0	0%

Total	33	100%
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The findings show that 72.8% of the participants consider Content-Based Instruction effective in learning technical vocabulary. This suggests that vocabulary acquisition becomes more effective when technical terms are learned within meaningful academic contexts rather than in isolation.

Nevertheless, some students still experience difficulties with specialized terminology, which indicates the need for additional vocabulary support in ESP classes.

CBI and Reading Comprehension Improvement

Table 3.8

CBI and Reading Comprehension Improvement

Response	Frequency	Percentage
Agree	9	27.3%
Strongly Agree	10	30.3%
Neutral	9	27.3%
Disagree	4	12.1%
Strongly Disagree	1	3.0%
Total	33	100%

The results reveal that 57.6% of students perceive improvement in their reading comprehension skills through Content-Based Instruction, while a considerable percentage remained neutral.

This finding suggests that reading technical English texts remains challenging for some students because it requires both language proficiency and subject knowledge. Consequently, students may need further practice and guidance in reading specialized materials.

Meaningfulness of Learning through CBI

Table 3.9

Meaningfulness of Learning through CBI

Response	Frequency	Percentage
Agree	16	48.5%
Strongly Agree	10	30.3%
Neutral	5	15.2%
Disagree	2	6.1%
Strongly Disagree	0	0%
Total	33	100%

The data show that 78.8% of students find learning English through Informatics-related content more meaningful. This reflects a relatively high level of engagement and supports the

principles of Content-Based Instruction, which emphasize relevance, authenticity, and meaningful communication in language learning.

Motivation Enhancement through CBI

Table 3.10

Motivation Enhancement through CBI

Response	Frequency	Percentage
Agree	9	27.3%
Strongly Agree	11	33.3%
Neutral	10	30.3%
Disagree	3	9.1%
Strongly Disagree	0	0%
Total	33	100%

The findings indicate that 60.6% of students believe that Content-Based Instruction increases their motivation to learn English. However, 30.3% of the participants expressed neutral opinions, suggesting that motivation may also be influenced by other factors such as teaching style, classroom atmosphere, and students' individual learning preferences.

Overall, students perceive Content-Based Instruction as beneficial for learning English in the field of Informatics. The majority of participants reported improvements in vocabulary acquisition, reading comprehension, motivation, and meaningful learning experiences. Nevertheless, the neutral responses observed in several items suggest that the effectiveness of

Content-Based Instruction may vary according to students' language proficiency levels and the quality of classroom implementation.

3.1.4 Students' Perceived Difficulties of Content-Based Instruction

Introduction

This section examines the main difficulties encountered by second-year Informatics students when learning English through Content-Based Instruction (CBI). While previous sections highlighted the benefits of this approach, this part provides a more balanced perspective by focusing on the linguistic, cognitive, and instructional challenges experienced by learners.

The analysis addresses difficulties related to technical vocabulary, comprehension of Informatics materials in English, dependence on teacher support, and the perceived complexity of integrating language learning with subject-specific content. Understanding these challenges is essential for evaluating the effectiveness of CBI in ESP contexts.

Difficulty in Understanding Technical Vocabulary

Table 3.11

Difficulty in Understanding Technical Vocabulary

Response	Frequency	Percentage
Agree	8	24.2%
Strongly Agree	7	21.2%
Neutral	12	36.4%
Disagree	4	12.1%

Strongly Disagree	2	6.1%
Total	33	100%

The results indicate that 8 students (24.2%) strongly agreed and 7 students (21.2%) agreed that they face difficulties in understanding technical vocabulary in English. In contrast, 12 students (36.4%) selected the neutral option, while 4 students (12.1%) disagreed and 2 students (6.1%) strongly disagreed.

Overall, 45.4% of students reported difficulties related to technical vocabulary, whereas 18.2% did not report such difficulties.

These findings suggest that technical terminology represents a significant challenge in CBI. Informatics relies heavily on specialized vocabulary, which often exposes students to unfamiliar terms beyond their general English proficiency.

Although previous results indicated that CBI supports vocabulary acquisition, this item shows that mastering technical terminology remains difficult for many learners. This highlights the need for gradual vocabulary presentation and contextual explanation during instruction.

Difficulty in Understanding Informatics Materials in English

Table 3.12

Difficulty in Understanding Informatics Materials in English

Response	Frequency	Percentage
Agree	8	24.2%
Strongly Agree	8	24.2%

Neutral	9	27.3%
Disagree	6	18.2%
Strongly Disagree	2	6.1%
Total	33	100%

The findings show that 8 students (24.2%) strongly agreed and 8 students (24.2%) agreed that they have difficulty understanding Informatics materials written in English. Meanwhile, 9 students (27.3%) remained neutral, whereas 6 students (18.2%) disagreed and 2 students (6.1%) strongly disagreed.

Overall, 48.4% of students reported difficulties in understanding English-based Informatics materials.

These results indicate that reading and comprehension of technical texts remain challenging for many learners. Such materials usually include complex structures, specialized terminology, and abstract concepts that require both linguistic and disciplinary knowledge.

The relatively high neutral responses suggest differences in students' proficiency levels and prior exposure to English in Informatics, reflecting the cognitive demands of CBI.

Need for Teacher Support

Table 3.13

Need for Teacher Support

Response	Frequency	Total
-----------------	------------------	--------------

Agree	11	33.3%
Strongly Agree	9	27.3%
Neutral	8	24.2%
Disagree	5	15.2%
Strongly Disagree	0	0%
Total	33	100%

The results reveal that 11 students (33.3%) strongly agreed and 9 students (27.3%) agreed that they need teacher support during CBI lessons. In contrast, 8 students (24.2%) remained neutral, while 5 students (15.2%) disagreed.

Overall, 60.6% of students reported a need for teacher support.

These findings indicate that many learners are not fully autonomous when dealing with English-based technical content. Because CBI integrates language and subject matter, students often require clarification, guidance, and additional explanation.

This emphasizes the central role of the teacher in facilitating understanding through simplification, examples, and interactive support. Variations in responses suggest that dependence on teachers differs according to task difficulty and learner proficiency.

Learning through CBI is Challenging

Table 3.14

Learning through CBI is Challenging

Response	Frequency	Percentage
-----------------	------------------	-------------------

Agree	6	18.2%
Strongly Agree	8	24.2%
Neutral	14	39.4%
Disagree	4	12.1%
Strongly Disagree	2	6.1%
Total	33	100%

The results show that 6 students (18.2%) strongly agreed and 8 students (24.2%) agreed that learning through CBI is challenging. Meanwhile, 13 students (39.4%) selected the neutral option, whereas 4 students (12.1%) disagreed and 2 students (6.1%) strongly disagreed.

Overall, 42.4% of students perceive CBI as challenging, while 18.2% do not consider it challenging.

The high percentage of neutral responses reflects mixed perceptions among students. This variation may be related to differences in language proficiency, familiarity with Informatics content, and teaching approaches.

These findings suggest that CBI creates cognitive demands, as learners are required to process both linguistic and subject-specific information simultaneously. However, despite these challenges, earlier findings show that students still recognize its educational value.

Overall Interpretation of Part Three

Overall, the findings of this section reveal that students encounter several challenges when learning English through Content-Based Instruction.

The results show that 45.4% face difficulties with technical vocabulary, 48.4% struggle with understanding Informatics materials in English, 60.6% require teacher support, and 42.4% perceive CBI as challenging.

At the same time, the presence of relatively high neutral responses indicates variability in students' experiences, which may depend on proficiency level, academic background, and familiarity with subject content.

These findings suggest that although CBI has clear educational benefits, its effectiveness depends on the gradual introduction of technical vocabulary, appropriate scaffolding, simplified explanations, and continuous teacher support.

Therefore, a balance between content difficulty and language accessibility is essential for effective learning in ESP contexts.

3.1.5 Students' Preferences and Suggestions

Introduction

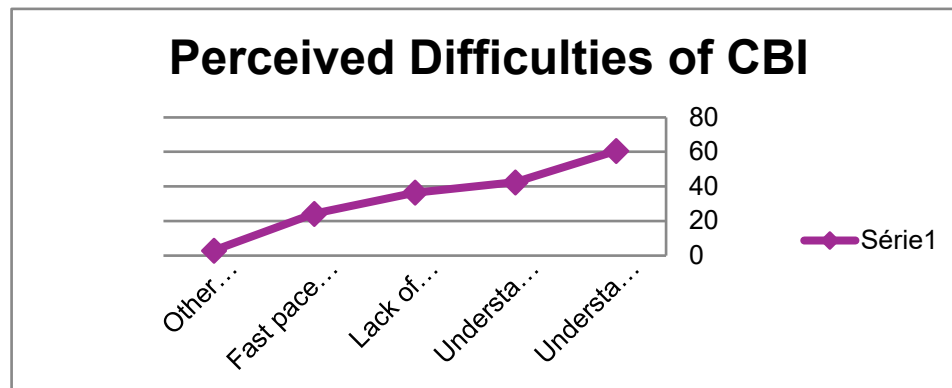
This section presents the analysis of students' difficulties, suggestions, and preferred classroom activities regarding the implementation of Content-Based Instruction (CBI) in English courses for Informatics students. The aim is to better understand learners' needs and expectations.

The analysis is based on three tables presenting students' difficulties, suggestions, and preferred classroom activities. Data are analyzed using frequencies and percentages.

Students' Difficulties

Figure 3.4

Students' Perceived Difficulties of CBI



The results show that the most common difficulty reported by students is understanding complex texts (60.6%, 20 students). This indicates that learners struggle with academic and technical reading materials that contain dense terminology and complex structures.

The second major difficulty is technical vocabulary (42.4%, 14 students), confirming that specialized terminology remains a persistent challenge.

In addition, 12 students (36.4%) reported a lack of background knowledge in Informatics, suggesting that difficulties are not only linguistic but also conceptual.

Furthermore, 8 students (24.2%) indicated that the fast pace of lessons affects their comprehension, showing that some learners require more time to process information.

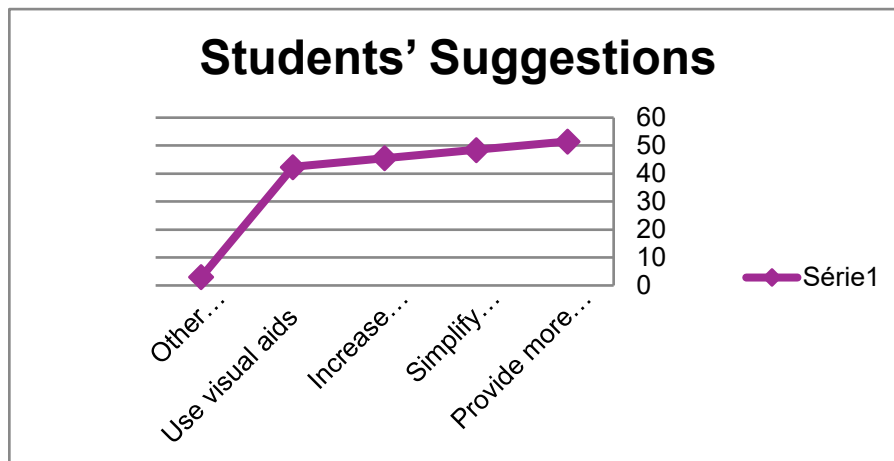
Only one student (3%) selected other difficulties, indicating that the listed items cover most challenges.

Overall, difficulties are mainly related to reading comprehension, vocabulary, and content knowledge.

Students' Suggestions

Figure 3.5

Students' Preferences and Suggestions



The findings show that the most frequent suggestion is providing more explanations (51.5%, 17 students), reflecting a strong need for clearer teacher guidance.

Closely related, 16 students (48.5%) suggested simplifying technical vocabulary, confirming that language difficulty remains a central issue.

In addition, 15 students (45.5%) recommended increasing practice activities, indicating a preference for more interactive learning.

Furthermore, 14 students (42.4%) emphasized the use of visual aids such as videos and slides, highlighting the importance of multimedia support.

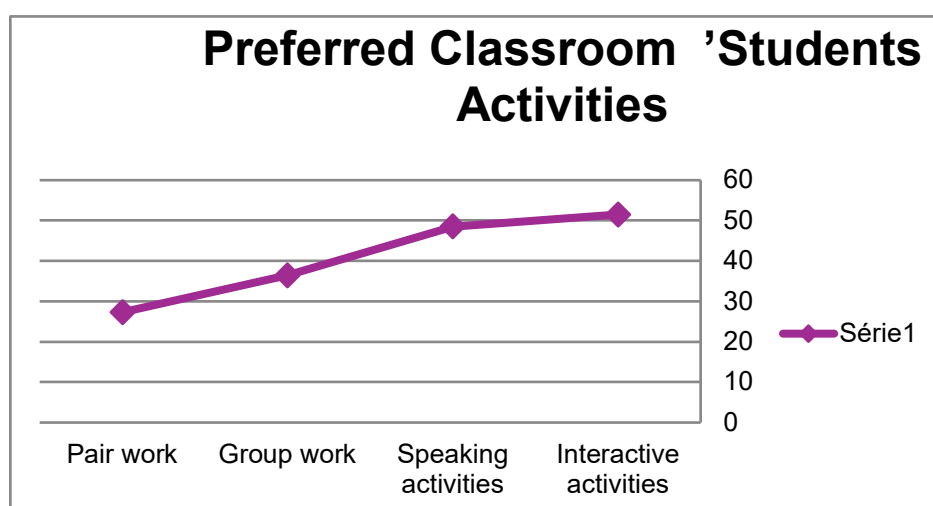
Only one student (3%) selected other responses, showing consistency in responses.

Overall, students expect more supportive, interactive, and visually enriched instruction.

Preferred Classroom Activities

Figure 3.6

Preferred Classroom Activities



The results show that speaking activities (discussions and presentations) are the most preferred (51.5%, 17 students), indicating a strong preference for oral communication.

Interactive activities such as games and quizzes follow closely (48.5%, 16 students), reflecting a desire for engaging learning methods.

Group work is preferred by 12 students (36.4%), showing interest in collaborative learning.

Finally, pair work is preferred by 9 students (27.3%), indicating a preference for smaller interaction settings.

Overall, students prefer interactive and student-centered activities rather than traditional lecture-based instruction.

Overall Interpretation of Section C

Overall, the findings show that students' main challenges are related to reading comprehension and technical vocabulary, while their preferences strongly favor interactive and communicative learning.

The results indicate that 60.6% struggle with complex texts, 42.4% face vocabulary difficulties, 51.5% request more explanations, and more than half prefer speaking-based activities.

In addition, students emphasized the need for simplified vocabulary, clearer explanations, more practice activities, and visual and multimedia support.

Therefore, effective implementation of CBI requires balancing content difficulty with language support and adopting learner-centered teaching strategies.

3.2 Analysis of Teachers' Interview

3.2.1 Introduction to the Interview Analysis

This section presents the analysis of qualitative data collected through semi-structured interviews with two teachers from the Informatics department at Kasdi Merbah University.

Although five teachers were contacted, only two participated. Therefore, the findings should be interpreted with caution due to the limited sample size.

The interviews aimed to explore teachers' awareness of Content-Based Instruction, their perceptions of its effectiveness, classroom practices, and implementation challenges. Data were analyzed thematically.

3.2.2 Teachers' Awareness of CBI

The results show varying levels of familiarity with CBI. One teacher reported limited knowledge, while the other demonstrated a clearer understanding, defining it as the integration of language teaching with subject content.

Both teachers indicated that they had not received formal training in ESP or CBI. This suggests that their understanding is based mainly on personal experience rather than institutional preparation.

3.2.3 Teachers' Attitudes toward CBI Effectiveness

The responses reflect generally positive attitudes toward CBI. Teachers stated that it helps students learn English in a more meaningful and practical way by linking it to Informatics content.

They also highlighted its role in improving vocabulary acquisition and reading comprehension. In addition, CBI was considered motivating, as it connects English to students' academic and professional needs.

However, the limited familiarity of one teacher affected the depth of analysis in some responses.

3.2.4 Classroom Implementation of CBI

The findings show that CBI is implemented differently depending on the teacher. Some use topics such as cybersecurity and programming, while others rely on technical texts.

Common classroom activities include discussions, presentations, problem-solving tasks, and reading authentic materials. Teachers also use technological tools such as projectors and computers.

However, implementation is not systematic, as one teacher reported using CBI only occasionally.

3.2.5 Challenges Faced by Teachers

The main challenges include differences in students' proficiency levels, lack of specialized materials, limited time, and the difficulty of technical texts.

These factors hinder the effective implementation of CBI in classrooms.

3.2.6 Teachers' Suggestions

Teachers suggested providing updated materials, offering training in ESP and CBI, improving collaboration between English and subject teachers, and adapting lessons to student levels.

These recommendations highlight the need for institutional support.

3.2.7 Overall Interpretation of Teachers' Interview

Overall, teachers expressed positive attitudes toward CBI despite practical challenges. They believe it improves motivation, vocabulary, and meaningful learning.

However, its effectiveness depends on teacher training, resources, student proficiency, and classroom conditions.

3.3 Discussion of the Main Findings

3.3.1 Discussion of Students' Questionnaire Results

The findings of the students' questionnaire indicate that learners generally hold positive attitudes toward English and Content-Based Instruction. Most participants recognize the importance of English for their academic studies and future careers, particularly in the field of

Informatics, where English is essential for accessing programming languages, technical documentation, and digital resources.

The results also show that Content-Based Instruction is perceived as beneficial in improving technical vocabulary, enhancing understanding of Informatics concepts, and increasing learner motivation. These findings are consistent with the theoretical assumptions presented in Chapter One, which emphasize that integrating language with meaningful content enhances learning effectiveness and learner engagement.

However, the findings also reveal several difficulties, particularly related to understanding complex texts, mastering technical vocabulary, and relying on teacher support. This suggests that although CBI is effective, its success depends on appropriate scaffolding, clear explanations, and well-adapted materials.

3.3.2 Discussion of Teachers' Interview Results

The findings from teachers' interviews generally support the results obtained from the questionnaire. Teachers view Content-Based Instruction as a useful approach that connects English learning with students' academic field, making learning more meaningful and relevant.

They also agree that CBI contributes to vocabulary development, reading comprehension, and student motivation. However, they identified several challenges, including lack of training, limited teaching materials, differences in students' proficiency levels, and time constraints.

These findings suggest that the effectiveness of CBI is not determined only by the approach itself but also by institutional support, teacher preparation, and classroom conditions.

3.3.3 Linking Findings to the Research Questions

The findings of this study provide clear answers to the research questions.

First, students generally hold positive attitudes toward English and Content-Based Instruction, recognizing its importance for both academic success and future employment.

Second, Content-Based Instruction contributes positively to vocabulary acquisition, comprehension of technical content, and learner motivation.

Third, several challenges were identified, including difficulties with technical vocabulary, comprehension issues, and the need for teacher support.

Finally, teachers confirmed the usefulness of CBI while highlighting practical challenges in its implementation.

3.3.4 Relation to Previous Studies and Theoretical Framework

The findings of this study are consistent with the theoretical framework and previous research discussed in Chapter One.

The positive impact of Content-Based Instruction on motivation and meaningful learning supports the views of Richards and Rodgers (2001), who emphasized the importance of meaningful input in language learning.

Similarly, the improvement in vocabulary acquisition and comprehension aligns with the work of Brinton et al. (1989), who argued that integrating language and content enhances both linguistic and academic development.

Moreover, students' preference for interactive and communicative activities is consistent with Communicative Language Teaching principles and learner-centered approaches.

However, the challenges identified in this study also reflect issues reported in previous research, particularly regarding material adaptation, language proficiency differences, and lack of institutional support.

3.4 Pedagogical Implications

The findings of this study have several important pedagogical implications.

First, integrating subject-specific content into English courses can significantly increase student motivation and engagement. Therefore, Content-Based Instruction should be encouraged in ESP contexts.

Second, teaching practices should be more learner-centered, including interactive activities such as discussions, presentations, group work, and problem-solving tasks.

Third, instructional materials should be adapted to students' language levels, with simplified vocabulary and clear explanations to support comprehension.

Finally, institutions should provide adequate support through teacher training programs, updated teaching materials, and collaboration between language and subject specialists.

3.5 Recommendations

Based on the findings of the study, several recommendations are proposed to improve English language instruction for Informatics students. First, English courses should include more authentic and specialized materials that are directly related to the field of Informatics in order to enhance students' motivation and professional language skills. Teachers are also

encouraged to adopt interactive and communicative teaching methods that promote active student participation and practical language use. In addition, technical vocabulary should be introduced gradually and supported with clear explanations to help students better understand and retain specialized terminology. Universities should further support this process by providing training programs for teachers in areas such as English for Specific Purposes (ESP) and Content-Based Instruction (CBI). Moreover, multimedia tools should be integrated into classroom instruction to create a more engaging and effective learning environment. Collaboration between English teachers and Informatics specialists is also recommended to ensure that course content meets students' academic and professional needs. Finally, additional support should be offered to students with lower levels of English proficiency so that they can overcome learning difficulties and achieve better outcomes.

3.6 Limitations of the Study

This study has several limitations that should be acknowledged. First, the sample size was relatively small, as it included only 33 students from a single university, which limits the generalizability of the findings to other contexts. Second, only two teachers participated in the interviews, reducing the depth and diversity of the qualitative analysis. In addition, the study relied mainly on self-reported data, which may reflect participants' subjective perceptions rather than actual classroom practices and behaviors. Furthermore, due to time constraints, classroom observation and experimental methods were not included in the research design. Despite these limitations, the study still provides valuable insights into the implementation of Content-Based Instruction (CBI) in English for Specific Purposes (ESP) contexts and offers useful directions for future research and practice.

3.7 Suggestions for Further Research

Future research could extend this study in several important ways. First, researchers could use larger samples from different universities and academic disciplines in order to improve the generalizability of the findings. Second, longitudinal studies may help examine the long-term effects of Content-Based Instruction (CBI) on students' language proficiency and academic development over time. In addition, classroom observation could be incorporated into future studies to analyze actual teaching practices and interactions in real educational contexts. Finally, further research could explore the role of technology and digital tools in supporting and enhancing the implementation of Content-Based Instruction in English language classrooms.

Conclusion

This chapter presented the analysis, interpretation, and discussion of the data collected through students' questionnaires and teachers' interviews.

The findings indicate that students generally hold positive attitudes toward English and Content-Based Instruction. They recognize its importance for academic and professional success, particularly in the field of Informatics.

The study also shows that Content-Based Instruction contributes positively to vocabulary development, comprehension, and learner motivation. However, several challenges were identified, including difficulties with technical vocabulary, comprehension issues, and the need for teacher support.

Overall, Content-Based Instruction appears to be an effective approach in ESP contexts. However, its success depends on appropriate teaching strategies, adapted materials, teacher training, and institutional support.

General Conclusion

The present study investigated the impact of Content-Based Instruction (CBI) on the English language proficiency of second-year undergraduate Informatics students at Kasdi Merbah University, Ouargla. The main objective was to examine students' attitudes toward learning English through subject-related content, identify the benefits and difficulties associated with this instructional approach, and explore teachers' perceptions regarding its implementation in English for Specific Purposes (ESP) courses.

The theoretical framework presented in Chapter One highlighted the importance of Content-Based Instruction as an effective pedagogical approach that integrates language learning with academic content. It emphasized that CBI promotes meaningful learning, enhances learners' motivation, and supports the development of both linguistic and subject-matter knowledge. In addition, the reviewed literature demonstrated that previous studies generally support the effectiveness of CBI in improving vocabulary acquisition, reading comprehension, and student engagement, particularly in specialized fields such as science and technology.

Chapter Two presented the methodological framework adopted in this study. A descriptive mixed-methods case study design was used to obtain a comprehensive understanding of the research problem. Quantitative data were collected through a students' questionnaire administered to 33 participants, while qualitative data were gathered through semi-structured online interviews with English language teachers. The use of both quantitative and qualitative methods ensured methodological triangulation and strengthened the reliability and validity of the findings. The collected data were analyzed through descriptive statistics for the quantitative part and thematic analysis for the qualitative part.

The findings of the study revealed that Content-Based Instruction has a generally positive impact on students' English language learning. The results indicated that students recognize the importance of English for both academic and professional purposes, especially in the field of Informatics. Furthermore, CBI contributed positively to learners' motivation, technical vocabulary acquisition, reading comprehension, and understanding of subject-related content. Teachers also expressed favorable attitudes toward the approach and emphasized its effectiveness in making English learning more meaningful and closely related to students' academic specialization.

Despite these positive outcomes, the study also identified several challenges that may influence the effectiveness of Content-Based Instruction. These challenges include difficulties in understanding technical vocabulary and complex texts, differences in students' English proficiency levels, limited classroom time, lack of specialized teaching materials, and the need for additional teacher support and training. Such findings indicate that although CBI is an effective instructional approach, its successful implementation requires appropriate pedagogical strategies, sufficient educational resources, and continuous institutional support.

Overall, the findings confirm the research hypotheses and demonstrate that Content-Based Instruction is an effective approach for teaching English in ESP contexts, particularly for Informatics students. By linking language learning with academic content, CBI enhances students' engagement and contributes to a more meaningful learning experience. However, improving its implementation requires addressing the identified challenges through better instructional planning, teacher training, and the development of adapted teaching materials.

In conclusion, this study highlights the importance of Content-Based Instruction in enhancing English language learning in specialized academic contexts. Future research may explore its long-term effects and application in other disciplines.

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Appendices

Appendix A: Students' Questionnaire – Content-Based Instruction (CBI)

Title of the Study

Evaluating the Impact of Content-Based Instruction on English Language Proficiency: A
Case Study of Second-Year (L2) Informatics Students at Kasdi Merbah University, Algeria

Purpose of the Questionnaire

This questionnaire aims to investigate second-year (L2) Informatics students' attitudes toward Content-Based Instruction (CBI) and their perceptions of its benefits and difficulties when learning English through Informatics content.

Participation is voluntary. All responses are anonymous and will be used only for academic research purposes.

A: Personal Information

Please tick (✓) the appropriate box.

1. **Gender**

☐ Male ☐ Female

2. **Age**

☐ 18–20 ☐ 21–23 ☐ 24–26 ☐ 27+

3. **Field of Study**

☐ Informatics

4. **Level of Study**

☐ L2 (Second Year)

B: Attitudes, Perceptions and Difficulties toward CBI

Scale:

5 = Strongly Agree

4 = Agree

3 = Neutral

2 = Disagree

1 = Strongly Disagree

Part 1: Attitudes toward English and CBI

- English is important for my academic studies.

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

- English is necessary for my future career.

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

- I am motivated to improve my English proficiency.

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

- I enjoy learning English at university.

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

- I prefer learning English through Informatics-related content (CBI).

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

Part 2: Perceived Benefits of CBI

- CBI helps me understand Informatics concepts in English.

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

- CBI helps me acquire technical vocabulary in English.

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

- CBI improves my reading comprehension of Informatics materials.

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

- Learning English through Informatics content makes learning more meaningful.

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

- CBI increases my motivation to learn English.

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

Part 3: Difficulties in CBI

- I find technical vocabulary in English difficult to understand.

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

- I have difficulty understanding Informatics materials in English.

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

- I need support from the instructor during CBI lessons.

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

- Learning English through Informatics content is challenging for me.

☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1

C: Students' Preferences and Suggestions

5. What difficulties do you face when learning English through Informatics content?

(You may choose more than one answer)

- ☐ Understanding technical vocabulary
- ☐ Understanding complex texts
- ☐ Lack of background knowledge in Informatics
- ☐ Fast pace of the lesson
- ☐ Other: _____

6. What suggestions would you propose to improve CBI teaching?

- ☐ Simplifying technical vocabulary
- ☐ Providing more explanations
- ☐ Using visual aids (videos, slides)
- ☐ Increasing practice activities
- ☐ Other: _____

7. What types of classroom activities do you prefer in CBI courses?

- ☐ Group work
- ☐ Pair work
- ☐ Speaking activities (discussions, presentations)
- ☐ Interactive activities (games, quizzes)
- ☐ Other: _____

Appendix B: Teachers' Interview

1: Professional Background

1. How many years of experience do you have teaching English at the university level, and have you taught Informatics students? If yes, for how long?
2. What courses do you currently teach, and what is your academic rank/department?
3. Have you received any formal training in ESP or Content-Based Instruction (CBI)?

2: Awareness of CBI

4. How would you define Content-Based Instruction (CBI) in your own words?
5. How familiar are you with CBI, and how effective do you consider it for teaching English to discipline-specific learners (such as Informatics students)?

3: Classroom Practices (Integration of Content)

6. Do you integrate Informatics-related content into your English classes? If yes, could you describe how you do it?
7. What types of materials or activities do you usually use when applying this approach?
8. Do you use CBI in a regular or occasional way in your teaching practice?

4: Institutional Support and Resources

9. Does your department support the integration of subject content into English language teaching?
10. Do you think the available teaching materials are sufficient to implement CBI effectively? Why or why not?

5: Perceived Impact on Students

11. How does CBI affect students' motivation to learn English?
12. How does it influence their acquisition of technical vocabulary compared to traditional teaching methods?
13. Which language skill (reading, writing, speaking, listening) benefits most from CBI? Why?
14. In general, how does CBI contribute to students' overall English language proficiency?

6: Challenges and Improvement

15. What are the main challenges you face when implementing CBI with Informatics students?
16. What recommendations would you suggest to improve the implementation of CBI in this context?

Résumé

Cette étude examine l'impact de l'enseignement basé sur le contenu sur la compétence en langue anglaise des étudiants de deuxième année en informatique à Kasdi Merbah Université, en Algérie, et vise à déterminer si l'intégration du contenu disciplinaire dans l'enseignement de l'anglais permet d'améliorer la compétence linguistique ainsi que la motivation des étudiants. Une approche descriptive à méthodes mixtes a été adoptée. Les données ont été collectées à l'aide d'un questionnaire administré à 33 étudiants, ainsi que d'un entretien semi-directif réalisé avec des enseignants d'anglais, afin d'examiner les perceptions des étudiants et des enseignants concernant l'utilisation de l'enseignement basé sur le contenu dans les cours d'anglais pour des objectifs spécifiques. Les résultats ont montré que l'enseignement basé sur le contenu a un impact positif sur l'apprentissage des étudiants, notamment en améliorant l'acquisition du vocabulaire technique, la compréhension écrite et en rendant l'apprentissage plus significatif, mais certaines difficultés ont été relevées, en particulier dans la compréhension des contenus complexes et de la terminologie technique. Dans l'ensemble, l'étude souligne que l'enseignement basé sur le contenu constitue une approche efficace, mais que sa mise en œuvre réussie nécessite un soutien adéquat, des supports pédagogiques adaptés et des stratégies d'enseignement interactives.

Mots-clés : *enseignement basé sur le contenu, anglais pour des objectifs spécifiques, étudiants en informatique, compétence en anglais, motivation*

الملخص

تهدف هذه الدراسة إلى استكشاف أثر التدريس القائم على المحتوى على كفاءة اللغة الإنجليزية لدى طلبة السنة الثانية إعلام آلي بجامعة قاصدي مرباح ورقلة، الجزائر، كما تسعى إلى معرفة ما إذا كان دمج محتوى التخصص في تدريس اللغة الإنجليزية يساهم في تحسين الكفاءة اللغوية وزيادة دافعية الطلبة للتعلم. تم اعتماد منهج وصفي قائم على المنهج المختلط، وقد تم جمع البيانات من خلال استبيان موجه إلى 33 طالباً، بالإضافة إلى مقابلة شبه موجهة مع أساتذة اللغة الإنجليزية، وذلك بهدف دراسة تصورات كل من الطلبة والأساتذة حول استخدام التدريس القائم على المحتوى في دروس الإنجليزية لأغراض خاصة. أظهرت النتائج أن التدريس القائم على المحتوى له تأثير إيجابي على تعلم الطلبة، خاصة في تحسين اكتساب المصطلحات التقنية وتعزيز مهارة الفهم القرائي وجعل عملية التعلم أكثر معنى، ومع ذلك أظهرت النتائج أيضاً أن الطلبة يواجهون بعض الصعوبات، لا سيما في فهم المحتويات المعقدة والمصطلحات التقنية. وبشكل عام تبرز الدراسة أن التدريس القائم على المحتوى يُعدّ منهجاً فعالاً، إلا أن نجاح تطبيقه يتطلب توفير دعم مناسب ومواد تعليمية ملائمة واعتماد استراتيجيات تدريس تفاعلية.

الكلمات المفتاحية: التدريس القائم على المحتوى، الإنجليزية لأغراض خاصة، طلبة الإعلام الآلي، الكفاءة في اللغة

الإنجليزية، الدافعية