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Conceiving and Developing 'CLIL Companion':

An Interactive Web-Based Platform for Building and Enhancing
Basic Language Skills and Delivering Engaging Content in EMI
Programmes

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DEDICATIONS

بسم الله والحمد لله والصلاة والسلام على رسول الله

بكى صاحبي لما رأى الدرب دوننا وأيقن أننا لاجفان بقيصرا
فقلت له لا تبك عينك إنما نحاول ملكاً أو نموت فنعدرا

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كنت أظن أن لا يكتب الإهداء وكلمات التقدير إلا من لسان حاله يقول:

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العمل الجد متواضع...

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2024/07/20 ★★ <<

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ABSTRACT

The growing adoption of English-Medium Instruction (EMI) in Algerian universities presents challenges for students, content educators, and language trainers. This study explores the needs of EMI students and proposes an interactive web platform, “CLIL Companion”, as a solution designed to bridge the gap between language learning and subject-specific content. An exploratory case study with a needs assessment component employed questionnaires distributed through Google Forms to first-year Social Sciences EMI students and language trainers at the University of Tlemcen. Social Sciences EMI students face challenges with academic English, particularly grammar, vocabulary, and writing. They exhibit diverse learning styles and a preference for technology-based solutions. Existing resources may not adequately address their specific needs. CLIL Companion is designed to address these findings. The platform caters to various proficiency levels by analysing subject-specific texts and providing integrated grammar lessons. It offers functionalities like evaluation tests, personalized resources, interactive activities, and vocabulary highlighting. These features, combined with other components (Content Management System, Flashcards, Editors, Lectures), create a comprehensive suite for successful EMI implementation. CLIL Companion has the potential to empower all stakeholders in the EMI environment by providing targeted language support and engaging content delivery. Further research is needed to evaluate its effectiveness in improving student learning outcomes.

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LIST OF ACRONYMS AND ABBREVIATIONS

AI: Artificial Intelligence

API: Application Programmemeing Interface

CCSS: Common Core State Standards

CEFR: the Common European Framework of Reference for Languages

CEIL: Centre d'Enseignement Intensif des Langues

CLIL: Content and Language Integrated Learning

CMS: Content Management System

EFL: English as a Foreign Language

EMI: English Medium Instruction

H#: Hypothesis

ICLHE: integrating content and language in higher education

ICT: Information and Communication Technology

LMS: Learning Management System

MIT: Massachusetts Institute of Technology

P21: Partnership for 21st Century Skills

RQ#: Research Question

TPACK: Technological, Pedagogical, and Content Knowledge

GENERAL INTRODUCTION

The global landscape of higher education is witnessing a surge in the implementation of English-Medium Instruction (EMI). While this shift offers numerous advantages, such as increased access to international resources and enhanced global communication, it presents challenges for universities transitioning from their native languages. Algeria's recent adoption of EMI in the 2023-2024 academic year exemplifies this phenomenon. This abrupt shift from French to English has created an opportunity for students to develop their English language proficiency before fully integrating it into their academic studies. However, many students struggle to adapt due to a lack of strong academic English skills.

This research project proposes CLIL Companion, an interactive web-based platform designed to address the challenges and capitalize on the opportunities presented by EMI programme. Through computational analysis of language needs, corpus and text analysis, CLIL Companion will offer targeted language resources and personalized learning experiences tailored to the specific academic disciplines of EMI students.

CLIL Companion is envisioned as a valuable tool for various stakeholders in EMI settings. Students will benefit from its engaging content, targeted language support, and built-in evaluation tools that cater to different proficiency levels. Teachers and institutions offering courses to EMI classes will find CLIL Companion a valuable resource for enhancing their teaching practices and supporting student success. Even private English language teachers can leverage CLIL Companion's personalized learning approach to complement their existing instruction.

This study investigates the challenges and needs of students transitioning to English-Medium Instruction (EMI) in Algerian universities, focusing on first-year Social Sciences students as a sample.

General Introduction

The findings will inform the design and development of CLIL Companion's initial components and functionalities, aiming to create a valuable tool that supports all EMI students, regardless of their academic discipline.

An exploratory case study approach will be employed to gather qualitative data. Questionnaires distributed via Google Forms will target first-year Social Sciences students.

The study is guided by the following research questions:

- RQ1: What are the specific challenges and needs of Social Sciences EMI students in learning English for academic purposes?
- RQ2: What are the preferred learning styles and technology preferences of Social Sciences EMI students for language learning?
- RQ3: What existing resources are available to Social Sciences EMI students for English language support, and how effective are they perceived to be?

To inform the design of CLIL Companion and ensure its relevance to all stakeholders in EMI settings (content educators, language instructors, and students), the following sub-research questions were also considered:

- RQ4: What features and functionalities should a technology-based solution incorporate to address the identified needs and preferences of Social Sciences EMI students?
- RQ5: How can the solution be designed to provide targeted feedback and support for grammar and vocabulary learning within the context of Social Sciences academic texts?
- RQ6: What additional features, such as interactive exercises, gamification elements, and peer feedback, can be integrated to enhance student engagement and learning outcomes?

The study is based on the following hypotheses:

- H1: Social Sciences EMI students face specific challenges in learning English for academic purposes, including difficulties with grammar, vocabulary, and academic writing.
- H2: Social Sciences EMI students have diverse learning styles and preferences, with a growing demand for technology-based learning solutions.
- H3: Existing resources for English language support may not be fully meeting the specific needs of Social Sciences EMI students.
- H4: A technology-based solution designed with user-friendliness, targeted feedback, and engaging features can significantly improve the English language learning experience for Social Sciences EMI students.
- H5: Providing personalized grammar and vocabulary feedback based on student-submitted texts can lead to improved grammatical accuracy and vocabulary acquisition.
- H6: Integrating additional features like interactive exercises, gamification elements, and peer feedback can further enhance student engagement and learning outcomes.

By analysing the data, the study will inform practical recommendations to ensure a smoother transition to EMI for first-year students. Additionally, the insights gained will provide valuable information for refining the initiatives and preparatory courses designed to improve English proficiency for first-year students. Ultimately, this case study seeks to promote programme continuity and the academic success of students.

The research is structured as follows:

Chapter 1: Literature Review: This chapter will review relevant literature on EMI, English for Specific Purposes (ESP), needs analysis, corpus analysis, and existing Learning Management Systems (LMS) to highlight the limitations addressed by CLIL Companion.

General Introduction

Chapter 2: Research Methodology: This chapter will highlight the research design, including the participant population, research instruments (questionnaires), and data analysis procedures, as well as the findings from the data analysis and discuss their implications for the development of CLIL Companion.

Chapter 3: Conceiving CLIL Companion: This chapter will showcase the initial components and functionalities of CLIL Companion, designed to address the language needs and challenges identified in the research.

Chapter 4: Business Model and Future Directions: This final chapter will present a pitch deck outlining CLIL Companion's value proposition and a business model canvas detailing its commercial viability.

By focusing on the specific needs of EMI students and offering a user-friendly, innovative platform, CLIL Companion has the potential to revolutionize the EMI experience. This research project paves the way for CLIL Companion's development and implementation, ultimately promoting student success and programme continuity in EMI programme.

1. CHAPTER ONE: LITERATURE REVIEW

1.1. Introduction

The 2023-2024 academic year marked a significant shift in the Algerian higher education system with the implementation of English-Medium Instruction (EMI). The Ministry of Higher Education launched ambitious initiatives aiming to equip both students and teachers with the necessary English language skills. These initiatives target achieving fluency at the B2 level within a short timeframe (APS, 2023).

Several online sources, e.g. (Ryad, 2023), suggest that the Ministry plans to collaborate with foreign institutions like MIT to enhance the proficiency of both teachers and students. Additionally, Centres d'Enseignement Intensif des Langues (CEILs) across Algerian universities have begun integrating English for Specific Purposes (ESP) sessions into their timetables (APS, 2023).

This rapid shift towards EMI underscores the growing importance of English language proficiency for academic success. As English appears poised to become the dominant language of academia in Algeria, effective language learning strategies and resources become of paramount importance.

1.2. English-Medium Instruction (EMI)

English-medium instruction (EMI), also known as ICLHE (integrating content and language in higher education), is a system that uses English as the primary medium of instruction, particularly in non-English speaking countries (Masrai et al., 2022; Khenioui & Boulkroun, 2023; “English-medium education,”). EMI is gaining traction in universities where separate EAP or ESP courses are often offered to equip students with necessary academic English language skills (Molina-Naar, 2022). As a reaction, Richards and Pun (2021, as cited in Khenioui & Boulkroun, 2023) valorises the adopting EMI.

The use of English as a Medium of Instruction (EMI) refers to the practice of teaching academic subjects, such as science, mathematics, or engineering, in English in countries where the primary language of the students is not English. By

adopting EMI, students are provided with increased exposure to the English language, which is critical for developing their proficiency in the language. EMI helps prepare students for higher education or professional opportunities that may require strong English language skills, particularly in fields involving significant international collaboration. Through the consistent use of English in the classroom, EMI can lead to improvements in students' English language abilities, including enhanced vocabulary, grammar, and fluency. EMI also allows students to access a wider range of educational resources, research, and information that may primarily be available in English.

The implementation of EMI can be part of a broader effort to internationalize the education system, attracting international students and faculty and fostering cross-cultural exchange.

However, the adoption of EMI also presents certain challenges. There is a potential risk of decreased understanding of course content among students, necessitating the need for specialized teacher training in EMI pedagogy. Additionally, there are concerns about socioeconomic disparities in access to EMI programme, as they may be more readily available in big cities and institutions.

The effectiveness of EMI programme depends on various factors, such as the English proficiency levels of both students and teachers, the availability of appropriate teaching materials, and the overall support and resources dedicated to the EMI initiative. In the Algerian context, the use of English as a Medium of Instruction has been a topic of ongoing discussion and debate, particularly within the field of English as a Foreign Language (EFL) education.

1.3. Teaching in the Algerian EMI Context

The Algerian higher education system has traditionally been dominated by the use of French as the primary language of instruction, especially in scientific and technical fields. The introduction of EMI has been seen as a way to diversify language options and prepare students for international academic and professional opportunities. However, the implementation of EMI has faced several challenges in terms of pedagogy:

- Lack of proficiency in English among both teachers and students, leading to challenges in comprehension and effective instruction.
- Shortage of teaching materials and resources available in English, requiring significant adaptations and translations.
- Need for teacher training and professional development in EMI pedagogical approaches, as traditional teaching methods may not be directly transferable.
- Concerns about the potential negative impact on the development of Arabic and French language skills, which are also important in the Algerian context.

1.4. EFL and EMI in Algeria

The teaching of English as a foreign language (EFL) in Algeria focused on developing basic language skills, such as reading, writing, and conversational abilities. The introduction of EMI has led to a shift in the focus of EFL education, with a greater emphasis on developing academic and professional English language proficiency.

EFL teachers in Algeria are now required to adapt their teaching strategies to support students in understanding and engaging with content delivered through EMI. This has led to the need for more specialized EFL curricula, teaching materials, and teacher training programme that specifically address the demands of EMI.

The successful integration of EMI in the Algerian higher education system will require a comprehensive and well-planned approach that addresses the didactic and EFL-related challenges, while also considering the broader linguistic and cultural context of the country.

1.5. EMI-Related Studies

In a study, Dearden (2014) examines the growing global phenomenon of English as a medium of instruction (EMI) in higher education. The study found that EMI is rapidly expanding, with an increasing number of universities, especially in non-English-speaking countries, offering degree programme taught entirely in English. This trend is driven by factors such as internationalization, student

mobility, and the perceived benefits of English language skills for employment and research. The primary motivations for implementing EMI include improving the international competitiveness of universities, attracting international students, and preparing domestic students for the global job market.

However, the report also identified several challenges associated with EMI implementation. These include the lack of English proficiency among students and faculty, the need for specialized teacher training, and the potential negative impact on the use of local languages. Other issues involve the availability of appropriate teaching materials, the need for language support services, and the potential for social and linguistic stratification within the student population. The study emphasizes the importance of comprehensive needs analyses, clear policies, and targeted teacher development programme to address these challenges and ensure the effective implementation of EMI programme while maintaining a balance between promoting English and preserving local languages and cultures.

The review by Macaro et al. (2018) provides a comprehensive analysis of the existing research on EMI in higher education. The authors systematically examined 83 studies from 16 countries to identify the key trends, challenges, and outcomes associated with the implementation of EMI programme. The review found that the adoption of EMI is driven by factors such as the perceived benefits of English language proficiency, the desire to attract international students, and alignment with national policies. However, the implementation of EMI faces several challenges, including the lack of English language proficiency among students and faculty, the need for specialized teacher training, and the impact on the use of local languages.

The review also explored the potential outcomes of EMI, which include improved English language skills for students, increased international collaboration and research opportunities, and enhanced institutional prestige and competitiveness. However, the findings also suggest that EMI can lead to social stratification, with students from higher socioeconomic backgrounds benefiting more from these programme. The authors emphasize the need for a comprehensive approach to EMI implementation, including language support services, faculty development

programme, and the maintenance of a balance between English and local languages. The insights from this systematic review can inform the development of more effective and equitable EMI policies and practices in the higher education sector.

In their study, Galloway et al. (2017) explores the growing demand for English and the rapid expansion of English medium instruction (EMI) in the higher education sectors of China and Japan. The authors found that the implementation of EMI in these countries is driven by factors such as the desire to enhance the international competitiveness of universities, attract foreign students, and prepare domestic students for the global job market. However, the report also identified several challenges associated with EMI, including the lack of English proficiency among students and faculty, the need for specialized teacher training, and the potential impact on the use of local languages.

The study highlights the differences in the EMI landscape between China and Japan. In China, the government has made significant investments to promote EMI, leading to a rapid increase in the number of EMI programme. In contrast, the adoption of EMI in Japan has been more gradual, with a focus on selective programme and initiatives. The authors emphasize the importance of addressing the language proficiency gaps, providing adequate support services, and maintaining a balance between promoting English and preserving local languages and cultures for the successful implementation of EMI in these contexts. The insights from this report can inform the development of more contextualized EMI strategies in other parts of the world.

1.6. Digital Solutions for EMI Support

The article by Alismail & McGuire (2015) explores the evolving educational standards and curriculum to meet the demands of the 21st century. The authors highlight the need to move beyond traditional subject-based curricula and instead focus on developing students' critical thinking, problem-solving, communication, and collaboration skills. This shift is driven by the rapidly changing work and social environments, which require individuals to be adaptable, innovative, and technologically proficient.

The authors discuss the implementation of 21st-century learning standards and frameworks, such as the Partnership for 21st Century Skills (P21) and the Common Core State Standards (CCSS), which aim to integrate core academic subjects with essential 21st-century skills. These frameworks emphasize the integration of technology, the development of interdisciplinary and project-based learning, and the incorporation of real-world applications into the curriculum. The article underscores the importance of ongoing professional development for teachers to ensure effective implementation of 21st-century teaching and learning practices. The insights from this article can inform curriculum development and instructional practices to better prepare students for the challenges and opportunities of the 21st-century.

The study by Ifinedo et al. (2020) investigated the factors that influence technology integration among Nigerian teacher educators. The researchers explored various characteristics, knowledge constructs, Information and Communication Technology (ICT) practices, and beliefs of the teachers to understand their technology integration in teaching and learning. The findings revealed that the teacher educators' technological, pedagogical, and content knowledge (TPACK) played a significant role in their ability to effectively integrate technology in the classroom. Additionally, the teachers' beliefs about the usefulness and ease of use of technology, as well as their level of ICT experience and access to technological resources, were identified as crucial factors shaping their technology integration practices.

The study highlights the importance of addressing the multifaceted nature of technology integration in teacher education programme. To effectively support Nigerian teacher educators in integrating technology, the authors emphasize the need for comprehensive professional development initiatives that foster the development of TPACK, promote positive technology-related beliefs, and ensure equitable access to ICT resources. By addressing these key factors, teacher education programme can better prepare pre-service and in-service teachers to

leverage technology to enhance teaching and learning outcomes in the Nigerian context.

These studies cover a range of topics, including the challenges and implementation of EMI, the role of digital technologies in language learning and instruction, and the integration of technology in educational contexts. They can provide valuable insights and frameworks to inform the development of effective EMI support initiatives, including the design of a comprehensive digital platform, in the Algerian university context.

1.7. The Introduction of English as a Medium of Instruction (EMI)

EMI can have significant impacts on various stakeholders, including students, instructors, and language trainers:

1.7.1. Impact on Students

Many studies (e.g. Islam, 2013 and Kang & Park's, 2005, as cited in Macaro et al., 2018) report concerns about students' ability to understand lectures, participate in discussions, and learn effectively through English. This can lead to feelings of anxiety and marginalization for students with lower proficiency (Macaro et al., 2018)

Language proficiency: Students exposed to EMI are expected to develop stronger English language proficiency, particularly in academic and domain-specific vocabulary. However, Students who are not proficient in English may feel less confident and motivated in the classroom, potentially leading to disengagement or anxiety. It is worth noting to mention that the cognitive load associated with learning content through a non-native language can affect students' cognitive development, particularly in areas like critical thinking and problem-solving.

1.7.2. Impact on Instructors

Instructors teaching in EMI programme need to have a high level of English language proficiency, both in terms of fluency and accuracy, as well as the ability to effectively communicate complex academic concepts. This leads instructors to adapt their teaching methods and strategies to accommodate the linguistic

challenges faced by students in EMI classrooms, requiring additional training and preparation.

Furthermore, the need to create or translate teaching materials, as well as the added demands of addressing language-related issues in the classroom, can increase the workload and stress levels for instructors.

1.7.3. Impact on Language Trainers

Language trainers may need to develop specialized curricula and teaching materials that cater to the specific language needs of students and instructors in EMI programme. The aforementioned action requires ongoing training and development to stay up-to-date with the latest trends and best practices in EMI-focused language education.

The impacts of EMI on students, instructors, and language trainers highlight the multifaceted nature of this educational approach. Successful implementation of EMI requires careful planning, comprehensive support, and ongoing evaluation to address the linguistic, pedagogical, and institutional challenges that may arise. Besides, Factors such as the educational system, language policies, available resources, and societal attitudes towards English can all play a role in the success of EMI implementation.

The effectiveness of EMI in promoting academic achievement is a complex issue that depends on a variety of factors, including student language proficiency, cognitive load, equity and access, instructional quality, and institutional support. While EMI can potentially provide opportunities for international exposure and enhance certain academic skills, its effectiveness in promoting overall academic achievement may be contingent on a comprehensive and well-planned approach that addresses the linguistic, pedagogical, and contextual challenges.

1.8. Strategies Enhancing Instructors' Proficiency in EMI

Enhancing instructors' proficiency in delivering English as a Medium of Instruction (EMI) content is crucial for the effective implementation of EMI

programme. Some strategies that can be employed to help instructors improve their EMI delivery skills:

- Offer specialized EMI-focused professional development workshops and training sessions that cover topics such as:
- Effective lesson planning and classroom management strategies for EMI settings
- Techniques for scaffolding and supporting student learning in EMI contexts
- Integrating language-focused and content-focused instructional approaches
- Strategies for promoting active student engagement and participation in EMI classrooms
- Provide instructors with access to a comprehensive repository of EMI-specific teaching materials, including lesson plans, activities, and assessment tools.
- Develop or curate a library of EMI-focused instructional resources, such as multimedia content, interactive simulations, and virtual learning environments.
- Establish a mentoring or peer-support programme, where experienced EMI instructors can share best practices and provide guidance to less experienced colleagues.

1.9. A Roadmap for Algerian Universities

The successful implementation of English as a Medium of Instruction (EMI) requires a multi-pronged approach. While well-designed curricula and technological tools are essential, equally important is the creation of a supportive environment for faculty. This introduction explores strategies for building a collaborative and empowering network within the institution, along with measures to incentivize and recognize faculty commitment to effective EMI delivery. These strategies fall under two main pillars: fostering collaboration and professional development, and providing robust institutional support and incentives.

- Encourage collaborations between EMI instructors and language teaching specialists to foster interdisciplinary exchanges and co-develop effective teaching strategies.
- Facilitate regular meetings or communities of practice where EMI instructors can share challenges, discuss solutions, and learn from one another.
- Organize EMI-focused conferences, workshops, or webinars to provide instructors with opportunities for professional networking and knowledge sharing.

Institutional Support and Incentives:

- Ensure that the institution provides sufficient resources, time, and financial support for instructors to engage in EMI-related professional development activities.
- Implement a system of recognition and rewards, such as promotions, research grants, or teaching awards, to incentivize and motivate instructors to enhance their EMI delivery skills.
- Integrate EMI-specific criteria into the institution's faculty evaluation and promotion processes to emphasize the importance of EMI expertise.
- Regularly collect feedback from students, peers, and department heads on the quality of EMI instruction and the effectiveness of the institution's support measures.

By employing these strategies, institutions can help instructors develop the necessary language proficiency, pedagogical skills, and institutional support to effectively deliver EMI content and foster academic success for students.

1.10. ESP Course Design and EMI Students

Designing English for Specific Purposes (ESP) courses for students in English as a Medium of Instruction (EMI) programme has both strengths and weaknesses that are worth considering in our research work

1.10.1. Strengths of ESP Course Design for EMI Students

ESP courses are designed to focus on the specific language skills and vocabulary required for a particular academic or professional domain, such as engineering, business, or medicine. This targeted approach can help EMI students develop the necessary linguistic competencies to effectively engage with the course content and participate in their respective fields.

1.10.1.1. Improved Comprehension and Performance

By addressing the language needs of EMI students through ESP courses, they may be better equipped to understand lectures, follow class discussions, and produce written assignments or presentations in their target subject area.

The targeted language support can enhance EMI students' academic performance and overall learning outcomes.

1.10.1.2. Enhanced Discipline-Specific Communication

ESP courses provide opportunities for EMI students to practice discipline-specific communication skills, such as technical writing, scientific reporting, or professional presentations. This specialized training can prepare students for the specific communication demands of their academic programme and future careers.

1.10.2. Weaknesses of ESP Course Design for EMI Students

ESP courses are often highly specialized and tailored to specific academic or professional domains, which may limit their generalizability across different disciplines. EMI students may encounter language challenges in courses or situations outside of their ESP-focused areas, potentially hindering their overall academic success.

1.10.2.1. Lack of Integrated Approach

ESP courses may be designed and implemented in isolation from the EMI programme's core curriculum, leading to a lack of integration and coordination between language learning and content learning.

This disconnection can result in a fragmented learning experience for EMI students, where language and content knowledge are not effectively combined.

1.10.2.2. Potential Neglect of General Academic Language Skills

While ESP courses focus on discipline-specific language, they may not adequately address the development of broader academic language skills, such as critical thinking, analytical writing, or research-related competencies.

This could result in EMI students struggling with general academic tasks that require more language abilities.

1.10.2.3. Inconsistent Quality and Instructor Expertise

If the ESP instructors lack a deep understanding of the target academic disciplines or the specific needs of EMI students, the language instruction may not be optimally aligned with the EMI programme's requirements.

1.10.3. Addressing Weaknesses

To address these weaknesses, a more holistic and integrated approach to language support for EMI students may be beneficial. This could involve:

- Closer collaboration between content instructors and language specialists to ensure seamless integration of language and content learning.
- Developing comprehensive language digital support that combines discipline-specific ESP courses with broader academic language development
- Providing continuous language assessment and tailored interventions throughout the EMI programme to address individual student needs.
- Investing in the professional development of ESP instructors to enhance their discipline-specific knowledge and understanding of EMI student needs.

By striking a balance between the strengths of targeted ESP course design and the integration of language and content learning, institutions can better support the academic success of EMI students.

1.11. The Challenges and Opportunities of Implementing EMI in Algeria: A Need for Digital Solutions

The Algerian higher education system is grappling with the implementation of English as a Medium of Instruction (EMI) across universities. While this shift aims to equip graduates with global communication skills, several challenges need to be addressed to ensure its success. Here, we'll explore these challenges and propose innovative solutions using digital platforms and smart applications.

One key challenge is the lack of English for Specific Purposes (ESP) programme. Traditional EMI approaches often employ a one-size-fits-all curriculum, neglecting the specific language needs of different disciplines. For instance, engineering students require different vocabulary and structures compared to literature students. Implementing tailored ESP programme through needs analysis is crucial. This involves identifying the specific language skills and knowledge students require in their chosen field, ensuring relevant and effective learning outcomes.

Another challenge is the limited use of corpus analysis. Corpus analysis involves studying large collections of written and spoken English in a specific domain. This data can be invaluable in designing ESP programme. By analysing authentic language used in engineering journals, for example, educators can identify the most frequently used vocabulary and grammatical structures relevant to that field. This data-driven approach can ensure ESP programme are grounded in the real-world language needs of students.

However, implementing EMI and ESP programme effectively requires innovative solutions. Digital platforms and smart applications hold immense potential. Imagine a central online platform offering a vast repository of ESP learning materials tailored to different disciplines. These would be informed by corpus analysis, ensuring they reflect the language of professional practice. Additionally, smart applications that utilize Artificial Intelligence (AI) could provide personalized learning experiences. These applications could assess students'

strengths and weaknesses, recommending relevant learning modules and practice exercises based on their specific needs.

This integration of digital tools with needs analysis and corpus analysis would create a dynamic and targeted approach to EMI. Students would have access to relevant materials readily, fostering independent learning and enhancing their English language proficiency in their chosen field.

In conclusion, while implementing EMI in Algeria presents challenges, it also opens doors for innovation. By incorporating ESP programme informed by needs analysis and corpus analysis, coupled with the power of digital platforms and smart applications, Algerian universities can create a more effective and engaging EMI experience for students, equipping them with the necessary language skills to excel in the globalized world.

1.12. Learning Management Systems (LMS)

Universities around the world are increasingly utilizing Learning Management Systems (LMS) to bridge the gap between educators and students. These software platforms serve as central hubs for accessing course materials, facilitating communication, and managing learning activities.

LMS platforms offer a multitude of advantages for both educators and learners:

- **Enhanced Accessibility:** Students can access course materials, assignments, and announcements conveniently from anywhere with an internet connection.
- **Streamlined Communication:** LMS platforms provide communication tools for announcements, discussions, and personalized feedback, fostering a more interactive learning environment.
- **Efficient Organization:** Courses are organized with centralized storage for materials, assignments, and grades, promoting student time management and reducing administrative burdens for instructors.

- **Interactive Learning:** Many LMS platforms incorporate features that support interactive learning activities, such as quizzes, forums, and online collaboration tools.

While LMS platforms offer significant benefits, some limitations and drawbacks should be considered:

- **Technical Issues:** Technical difficulties such as internet connectivity problems or software glitches can potentially disrupt learning activities.
- **Over-reliance on Technology:** Overdependence on technology within an LMS can diminish face-to-face interaction and the development of essential interpersonal skills.
- **Privacy Concerns:** Data security and privacy issues related to student information stored within the LMS platform require careful consideration.

1.12.1. Moodle

Moodle is a widely used open-source LMS platform adopted by many Algerian universities. Its popularity can be attributed to several factors:

- **Open-Source Model:** Being open-source, Moodle offers universities significant cost savings compared to proprietary LMS platforms.
- **Customizable Interface:** Moodle allows universities to customize the platform interface to align with their specific needs and branding.
- **Flexible Learning Environment:** Moodle supports diverse learning activities and content formats, catering to various instructional approaches.

Moodle provides a comprehensive suite of features, including:

- **Course Management:** Create and manage courses, upload materials, and organize learning activities.
- **Assessment Tools:** Design and administer quizzes, assignments, and other forms of assessment.

- **Communication Tools:** Facilitate communication through forums, discussions, and messaging features.
- **Collaboration Tools:** Support online collaboration with activities like group projects and peer review.

Learning Management Systems are powerful tools for transforming university education. The widespread adoption of Moodle in Algerian universities demonstrates its potential to enhance accessibility, streamline learning processes, and promote a more interactive learning environment. However, it's important to remain aware of the limitations of LMS platforms. By leveraging them effectively, universities can ease teachers' tasks and enrich the students' learning experience. LMS platforms can become valuable tools that complement, not replace, the role of the teacher.

1.12.2. Bridging the Gap: LMS

The implementation of English as a Medium of Instruction (EMI) in Algerian universities presents exciting opportunities to enhance student communication skills and prepare them for a globalized world. However, this transition also faces challenges. Learning Management Systems (LMS) emerge as a powerful tool in this context, offering solutions to bridge the gap and ensure successful EMI implementation.

One key benefit of LMS lies in its ability to facilitate tailored learning experiences. Unlike traditional lectures, LMS allows professors to upload discipline-specific content like academic articles, audio lectures, and relevant videos. This caters to the specific needs of various fields, such as engineering or literature, providing a more relevant and engaging learning environment for students.

Furthermore, LMS fosters a collaborative learning environment, crucial for successful language acquisition. Discussion forums, online group projects, and other collaboration tools within the LMS platform encourage peer-to-peer

interaction and communication in English. This not only enhances communication skills but also fosters a sense of community and shared learning among students.

Beyond collaboration, LMS offers advantages in terms of content delivery and accessibility. The platform acts as a central hub for all course materials, including lecture notes, assignments, and feedback. Students have easy and consistent online access to these resources, eliminating the risk of lost materials or missed information. Additionally, LMS empowers self-directed learning by offering interactive resources, quizzes, and self-assessment tools. Students can learn at their own pace, track their progress, and identify areas needing improvement, fostering a more independent learning experience.

While the potential of LMS is undeniable, challenges remain. Ensuring reliable internet access for both students and instructors is essential to avoid hindering the platform's effectiveness. Furthermore, providing training on utilizing LMS features effectively, both for instructors and students, is crucial for maximizing its benefits.

In conclusion, LMS offers a powerful toolkit for successful EMI implementation in Algeria. By facilitating tailored learning, promoting collaboration, and fostering self-directedness, LMS empowers students to thrive in an English-language learning environment. This, coupled with proper infrastructure and training, paves the way for a successful EMI experience, equipping students with the necessary language skills to excel in their academic pursuits and future careers.

1.13. Conclusion

This literature review has explored the challenges and opportunities associated with implementing English as a Medium of Instruction (EMI) in Algerian universities. It has highlighted the importance of tailored learning experiences through ESP programme informed by needs analysis and corpus analysis. Additionally, the potential of digital platforms, smart applications, and Learning Management Systems (LMS) has been emphasized as tools for enhancing accessibility, fostering collaboration, and promoting self-directed learning.

Moving forward, a successful EMI implementation hinges on a multifaceted approach that extends beyond curriculum development and technology. Building a collaborative and supportive environment for faculty is equally crucial. This can be achieved by encouraging interdisciplinary collaboration, facilitating knowledge sharing through regular meetings and communities of practice, and organizing EMI-focused professional development opportunities. Additionally, robust institutional support through dedicated resources, incentives, and recognition programme will further motivate and empower faculty to excel in EMI delivery.

By implementing a comprehensive strategy that combines well-designed curricula with technological tools and a supportive faculty environment, Algerian universities can pave the way for a successful and sustainable EMI programme. This will equip students with the necessary English language skills to thrive in a globalized world and enhance their future academic and professional success.

Furthermore, ongoing research and evaluation are essential to continuously refine EMI practices and ensure they remain relevant and effective in the ever-evolving landscape of higher education. Continued exploration of innovative methodologies and best practices, informed by current research and tailored to the Algerian context, will further strengthen the country's EMI initiative.

2. CHAPTER TWO: DATA ANALYSIS AND RECOMMENDATIONS

2.1. Introduction

The transition to English Medium Instruction (EMI) programme presents both opportunities and challenges for students. While EMI fosters exposure to international academic discourse, it can also require significant adjustments for students accustomed to studying in their native language. Understanding the specific needs and learning preferences of EMI students is crucial for designing effective support mechanisms.

This study explores the experiences of first-year Social Sciences students encountering EMI for the first time at the University of Tlemcen, Algeria. It aims to identify the challenges they face in learning English for academic purposes (EAP) and to understand their preferred learning styles and technology use. The study also gathers insights from language trainers involved in EMI-related support programmes at the same university.

The findings aim to inform the development of "CLIL Companion," a web-based platform designed to support EMI students in building and enhancing their English language skills. By understanding the specific needs of students and language trainers in this EMI setting, CLIL Companion can be designed to provide targeted support.

2.2. Research Methodology

This research utilizes an exploratory case study approach, primarily relying on qualitative methods to gather in-depth data on student and language trainer experiences. Exploratory research is particularly valuable in situations where limited research exists on a specific topic, allowing for the identification of key themes and areas for further investigation (Creswell & Creswell, 2018).

2.3. The Sample

This case study focuses on first-year Social Sciences students at the University of Tlemcen, Algeria, who are encountering English-Medium Instruction

(EMI) for the first time. Choosing this specific group offers valuable insights for two reasons:

- 1- **Crucial Stage:** These students are at a critical juncture in their academic journey. Understanding their immediate challenges and support needs associated with the transition to EMI is crucial.
- 2- **Fresh Perspectives:** Examining their experiences allows us to capture unfiltered reactions and difficulties faced by students new to EMI. This provides valuable data on the initial hurdles students encounter in this learning environment.

To gain a more comprehensive perspective, the study also included language trainers involved in English for Specific Purposes (ESP) sessions or preparatory courses for EMI classes at the University of Tlemcen. These instructors play a vital role in supporting students' language acquisition and adaptation to EMI. Their insights into the challenges faced by students and their suggestions for better support mechanisms were crucial in informing the development of CLIL Companion.

2.4. The Research Instrument

Due to time constraints, only online questionnaires distributed through Google Forms served as the primary data collection method. This web-based tool offers several advantages, including lower administration costs, targeted demographics, anonymous participation, and efficient data collection from a geographically dispersed population (Vasanth Raju N., & Harinarayana, N. S., 2016).

The questionnaires employed a variety of question formats, including open-ended, multiple-choice, and Likert scale responses, to capture both qualitative and quantitative data on student and language trainer experiences.

To ensure a representative sample, the questionnaires were disseminated through two channels:

- Email: Targeted emails containing the Google Forms link for the language trainer questionnaire were sent directly to language trainers involved in EMI support programmes at the University of Tlemcen.
- Social Media: The Google Forms link for the student questionnaire was shared within the Facebook group of 1st year Social Sciences students at the University of Tlemcen.

2.5. Analysis of the Questionnaires

2.5.1. Teachers Questionnaire (Language Trainers)

The first questionnaire targeted language trainers involved in preparatory courses or English for Specific Purposes (ESP) sessions at the University of Tlemcen (Appendix A). It consisted of 13 questions divided into five sections:

2.5.1.1. Section of Background Information

The first question in the language trainers questionnaire, a multiple-choice format with five pre-defined options and an "other" option, asked participants about their primary subject areas for training EMI students and/or content educators.

1. *What subject areas do you primarily train EMI students and teachers for?*

A total of 20 responses were collected from the 10 participants:

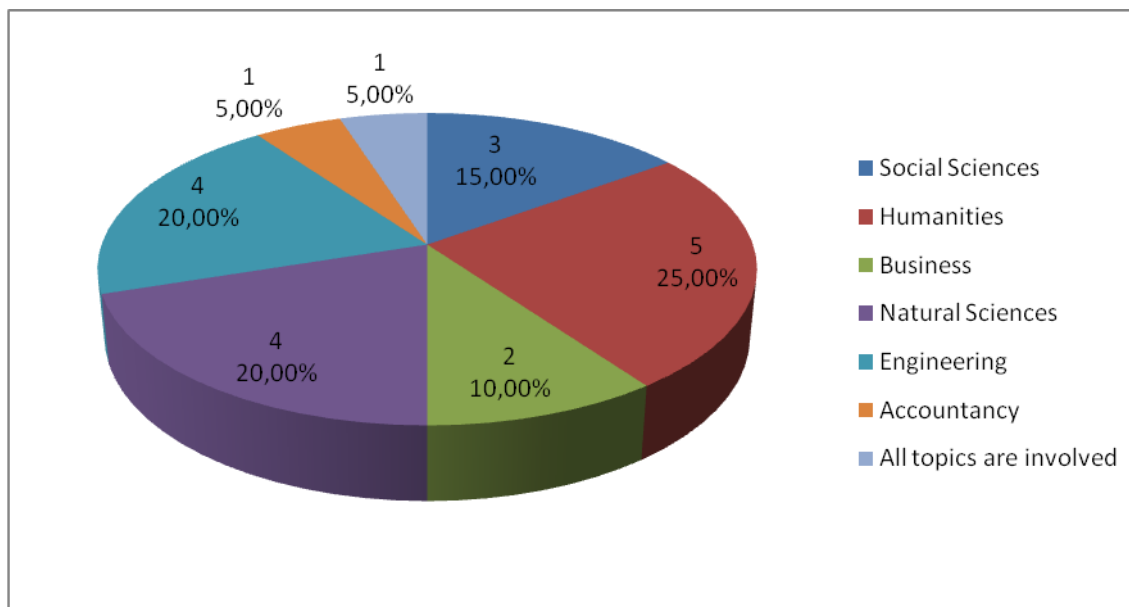


Figure 2.1. Primary Areas of EMI Training Expertise

The pie chart depicts the distribution of responses regarding the participants' primary EMI training expertise. Humanities emerged as the most prominent area, with 5 responses (25%), Natural Sciences and Engineering follow closely with 4 responses each (20%), Social Sciences and Business received 3 and 2 responses, respectively (15% and 10%). "All topics are involved" and "Accountancy" were provided through the « other » option.

Overall, the data suggests that the teachers participating in this survey have a diverse range of EMI training expertise across various academic disciplines. Humanities, Natural Sciences, and Engineering seem to be the most prominent areas.

2.5.1.2. Section of Objectives

The second question in the questionnaire was a multiple-choice format, asking participants about their primary objectives when teaching English to their EMI classes.

2. What are your primary objectives when teaching English to your EMI class?

All the 10 participants responded to this question, providing a total of 24 responses.

Table 2.1. Primary Objectives When Teaching English to EMI classes

<i>Options</i>	<i>Number of Responses</i>
Attending conferences in English speaking countries	1
Developing general English communication skills	7
For academic purposes (e.g., understanding lectures, writing research papers)	8
For communication in the specific subject area	7
Teacher training	1
<i>Total</i>	24

The table above shows that participants prioritized a combination of objectives when teaching English in their EMI classes. “For academic purposes” emerged as the most common objective with 8 responses. This is closely followed by “Developing general English communication skills” and “For communication in the specific subject area”, each receiving 7 responses.

Two participants selected the "Other" option, which allowed them to write in their own objectives. Analysing these responses can provide further insights into potential additional goals.

As shown in the table, 'For academic purposes' emerged as the most common objective with 8 responses. This is closely followed by "Developing general English communication skills" and "For communication in the specific subject area," each receiving 7 responses. Two participants selected the "Other" option, which allowed them to write in their own objectives. Analysing these responses can provide further insights into potential additional goals.

Overall, the data suggests that EMI language trainers prioritize a multifaceted approach, aiming to equip students with both general communication skills and the language proficiency necessary for academic success in their specific disciplines.

2.5.1.3. Section of Student-Teacher Communication Challenges

This section explores the challenges educators face when communicating with EMI students. It's further divided into sub-sections focusing on specific areas of difficulty:

A. Delivering Lessons

This sub-section has a pre-defined options and open-ended questions:

Pre-Defined Options Question:

3. *Briefly describe any challenges you face when delivering lessons to EMI students (use the next field for other challenges and/ or extra insights)*

A total of 16 responses were collected from the 10 participants.

Table 2.2. Challenges Faced When Delivering Lessons to EMI Students

<i>Options</i>	<i>Number of Responses</i>
related to explaining complex concepts	8
related to clarity in explanations	3
related to adapting materials to different proficiency levels	5
<i>Total</i>	16

- **Related to explaining complex concepts** (8 Responses): The high number of responses indicates that explaining complex concepts in a way that is accessible to students with varying English proficiency levels is a major challenge for EMI educators.
- **Related to clarity in explanations** (3 Responses): While fewer respondents selected this option compared to explaining complex concepts, it still highlights the importance of clear and concise explanations for effective communication.
- **Related to adapting materials to different proficiency levels** (5 Responses): Adapting existing materials or creating new ones to cater

to a range of English language abilities is another significant challenge.

Open-Ended Question:

The open-ended question asking for other challenges faced when delivering lessons collected four responses from 3 participants out of 10.

Table 2.3. Other Challenges Faced When Delivering Lessons to EMI classes

<i>Any additional excerpt could help</i>
<p>1- Students may have varying levels of English proficiency, which can lead to difficulties in understanding lectures, participating in discussions, and completing assignments.</p> <p>2- Students may struggle with the specialized vocabulary and terminology used in their academic field, hindering their comprehension and ability to express themselves effectively.</p>
Yes

- **Students' Varying English Proficiency:** This response further emphasizes the difficulty that teachers face in catering to students with diverse language skills.
- **Specialized Vocabulary and Terminology:** This challenge highlights the need for teachers to ensure students understand the specific language used in their academic discipline.

B. Assignments and Feedback

Pre-Defined Options Question:

4. Describe any challenges you encounter when assigning tasks or providing feedback to EMI students. (use the next field for other challenges)

The pre-defined options question on challenges with assignments and feedback gathered 12 responses

Table 2.4. Challenges Encountered When Assigning Tasks or Providing Feedback to EMI Students

<i>Options</i>	<i>Number of Responses</i>
related to ensuring clear instructions	3
related to effectively communicating feedback on written work	6
related to accommodating different learning styles	3
<i>Total</i>	12

- **Related to ensuring clear instructions** (3 Responses): This suggests ensuring instructions are unambiguous and easy to understand for students with varying English proficiency levels.
- **Related to effectively communicating feedback on written work** (6 Responses): Providing clear and actionable feedback that students can understand is a key challenge for EMI educators.
- **Related to accommodating different learning styles** (3 Responses): Catering to diverse learning styles while providing feedback and instruction can be difficult in large EMI classes.

Open-Ended Question:

Table 2.5 .. Other Challenges Faced When Assigning Tasks or Providing Feedback to EMI Students

<i>Reformulate the instructions</i>
1- EMI classes can be large, making it difficult for teachers to provide individualized feedback to all students. 2- EMI students may have difficulty expressing their ideas clearly and organizing their writing logically and coherently. This can make it challenging for teachers to understand the student's thought process and provide targeted feedback.
Students are not adapted
Assignment

- **Large Class Size:** This response highlights the difficulty of providing individualized feedback in large EMI classes.

- **Students' Difficulty in Expressing Ideas & Organizing Writing:** This emphasizes the need for strategies to help students develop their writing skills effectively.

C. Answering Student Questions

Pre-Defined Options Question:

5. *Describe any challenges you face when answering questions from your large EMI classes.*

Table 2.6. Challenges Faced When Answering Questions from Large EMI Classes

<i>Options</i>	<i>Number of Responses</i>
related to limited time for questions	2
related to ensuring all students have the opportunity to ask questions	3
related to addressing questions from students with varying proficiency levels.	8
<i>Total</i>	13

- **Related to limited time for questions** (2 Responses): With a large number of students, dedicating adequate time for questions can be challenging.
- **Related to ensuring all students have the opportunity to ask questions** (3 Responses): Creating a classroom environment where all students feel comfortable asking questions is crucial.
- **Related to addressing questions from students with varying proficiency levels** (8 Responses): This is the most frequently chosen option, indicating a significant challenge in addressing questions from students with diverse English language skills.

D. Other Challenges related to Student-Teacher Communication

Table 2.7. Other Challenges related to Student-Teacher Communication

Anxiety and shyness
1- With a large number of students, there's less time to address each question thoroughly. This can be particularly problematic for complex questions or those from students who may be struggling with the English language. 2- In a large class, there might be several students with questions simultaneously. The teacher needs to manage the flow of questions effectively, ensuring everyone has an opportunity to participate without feeling rushed.
Misunderstanding and mixed level

Figure 2.1. Other Challenges related to Student-Teacher Communication

- **Large Class Size and Question Flow Management:** The teacher acknowledges the difficulty of managing questions effectively due to the large class size.
- **Misunderstanding and Mixed Level:** This response further emphasizes the challenge of addressing questions with varying levels of complexity when students have different English proficiency levels.
- **Anxiety and shyness:** This suggests that student anxiety and shyness can hinder communication in large classes.

Overall, the data reveals that teachers face numerous challenges in communicating effectively with EMI students. These challenges stem from factors like:

Varying student proficiency levels: This necessitates differentiated instruction and catering to a range of comprehension abilities.

Complex academic content: Making challenging concepts understandable for students with developing English skills requires specific teaching strategies.

Large class sizes: Managing large classes can make it difficult to provide individualized attention, address diverse needs, and ensure all students have opportunities to participate.

2.5.1.4. Section of Content Delivery Challenges

This section explores the use of technology-based tools in delivering EMI content and the limitations educators face with these tools.

6. Do you currently use any technology-based tools to deliver your EMI content (e.g., online learning platforms, educational apps, WordPress, Facebook, WhatsApp, Forums...)?

All the 10 participants confirmed their use of technology-based tools for delivering EMI content.

Pre-Defined Options Question:

7. If you use technology-based tools, what are the biggest limitations you encounter? (use the next field for other limitations)

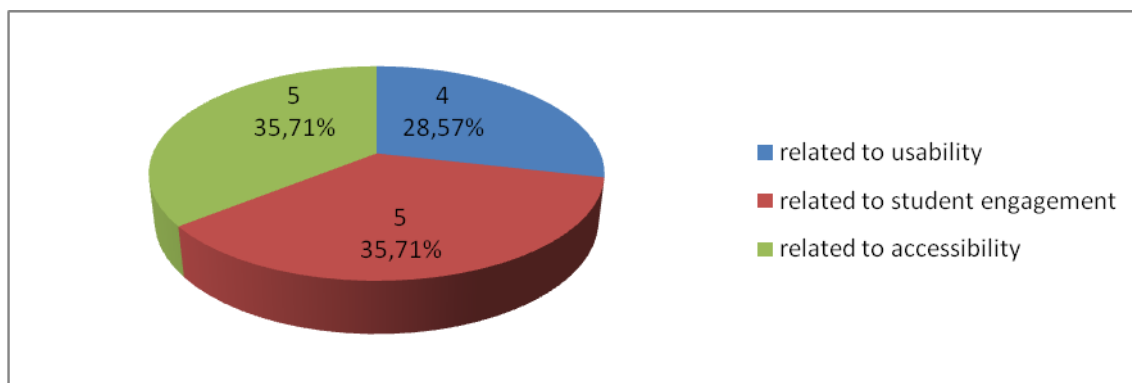


Figure 2.2. Biggest Limitations Faced When Using Technology-Based Tools

- **Related to usability** (4 responses): Usability limitations include difficulties integrating interactive quizzes, customizing content style, or using specific features like images and links.
- **Related to student engagement** (5 responses): Tracking student progress within the technology-based tools seems to be a challenge for some educators.

- **Related to accessibility** (5 responses): Accessibility issues include difficulties for both teachers and students accessing or retrieving content from the platform.

Open-Ended Question:

Table 2.8. Other Limitations Faced When Using Technology-Based Tools

Low connection rates
<p>1- Not all students may have access to reliable internet, computers, or tablets at home. This can create an uneven playing field and leave some students at a disadvantage.</p> <p>2- Technology can be unpredictable. Technical glitches, software malfunctions, or compatibility issues can disrupt lessons and frustrate students and teachers alike.</p> <p>3- Many educational technology tools are designed with native English speakers in mind. Interface language, instructions, and pre-loaded content might not be readily accessible for students with limited English proficiency.</p> <p>4- Some online learning platforms or tools may not provide teachers with a clear picture of how individual students are engaging with the material. This can make it difficult to assess their understanding and identify students who might be struggling. For example, a student might be logged into a class session but not actively participating in discussions or completing tasks.</p>
Low internet access and lack of training
Communication
I haven't

- **Low connection rates:** This highlights the challenge of ensuring all students have reliable internet access for online learning.
- **Low internet access and lack of training:** This response combines accessibility concerns with the potential need for training on using the technology tools.
- **Communication:** This response might indicate a concern about communication within the online learning platform.
- One participant has not experienced any limitations.

The additional limitations provide further insight into the challenges educators face. Unreliable technology, language barriers within the tools, and difficulty in gauging student engagement can all hinder effective content delivery.

Open-Ended Question:



8. *What additional features would you find helpful in a technology-based tools or applications for delivering EMI content? (For example, these features could be related to content delivery, assessment, student collaboration, etc.)*

Table 2.9. Desired Features in Technology-Based Tools for EMI Content Delivery

Most importantly is students engagement
Practicability and easy to manufacture
<p>Among the additional features helpful in technology-based tools or applications for delivering EMI content, I highly recommend:</p> <p>1- Personalized Learning Tools: These tools adapt the learning experience based on individual student needs and proficiency levels. This could involve adjusting content difficulty, and vocabulary level, or offering additional support for struggling students.</p> <p>2- Multilingual Support: This feature integrates native language translations for key terms, concepts, or instructions. This can provide a safety net for EMI students while they develop their English proficiency.</p> <p>3- Peer Review and Feedback Tools: Platforms that allow students to provide constructive feedback on each other's work foster peer-to-peer learning and encourage them to actively engage with the material.</p> <p>4- Gamification Elements: Integrating game-like features like points, badges, or leaderboards can incentivize participation and collaboration in online learning environments for EMI students. Gamification can make learning more engaging and fun for students. This can lead to increased motivation, improved knowledge retention, and a more positive learning experience.</p>
Assessment
Available material
No

- **Most importantly is student engagement*** (1 response): This emphasizes the teachers' desire for features that promote student interaction and participation.
- **Practicability and easy to manufacture** (1 response): This suggests a preference for user-friendly and readily available tools.
- **Personalized Learning Tools:** This suggestion highlights the desire for tools that adapt to individual student needs and proficiency levels.
- **Multilingual Support:** Integrating native language support within the platform would be beneficial for students with developing English skills.
- **Peer Review and Feedback Tools:** Features that facilitate peer-to-peer interaction and feedback can enhance learning.
- **Gamification Elements:** This suggests that incorporating game-like features could increase student motivation and engagement.

The educators' suggestions focus on features that personalize the learning experience, promote student interaction, and facilitate assessment. Tools that adapt content difficulty, provide language support, and encourage collaboration seem to be highly desired. Additionally, gamification elements could be a valuable tool for motivating students in an online learning environment.

Overall, this section reveals that technology-based tools are widely used in EMI content delivery, but limitations exist. Educators value features that enhance usability, accessibility, student engagement, and personalized learning.

The data suggests that while technology is increasingly used for EMI content delivery, there are challenges that need to be addressed. Usability limitations, difficulty in assessing student engagement, and accessibility issues hinder its effectiveness. The desired features highlight the teachers' preference for tools that are student-centric, promote personalized learning, and provide better assessment

capabilities. These insights can be valuable for developers of technology-based tools specifically designed for EMI classrooms.

2.5.1.5. Section of Technology Adoption

This section explores participants' interest in adopting new technology to support EMI language training.

9. Would you be interested in testing and providing feedback on a new technology-based application designed to support EMI language training?

- **High Interest in Testing New Technology:** 9 out of 10 teachers responded "Yes" to participating in testing and providing feedback on a new EMI language training application. This indicates a strong interest among EMI teachers in exploring and potentially adopting new technological tools to support their instruction.

Overall, this data suggests a high level of receptiveness among EMI teachers towards new technology for language training. This aligns with the findings from Part 4, where teachers highlighted the potential of technology but also identified limitations in existing tools. Their willingness to test a new application demonstrates their openness to innovation in this area.

2.5.2. Data Interpretation

The data from the teachers' questionnaire indicates a strong interest and receptiveness among EMI (English as a Medium of Instruction) teachers towards adopting new technology for language training. The survey found that 9 out of 10 teachers responded positively to the prospect of participating in testing and providing feedback on a new EMI language training application. This high level of interest suggests that EMI teachers are eager to explore and potentially incorporate innovative technological tools into their instructional practices.

This finding aligns with the insights gathered in the previous section of the questionnaire (Part 4), where teachers highlighted the potential benefits that

technology could bring to language training, but also identified limitations in the existing tools available to them. The teachers' willingness to test a new application demonstrates their openness to innovation and their desire to find more effective technological solutions to support their EMI language instruction.

Overall, the teachers' enthusiastic response to the prospect of testing a new language training application indicates a general receptiveness among EMI teachers towards integrating new technology into their teaching. This openness to innovation, coupled with the recognition of the value that technology can bring to language instruction, suggests that EMI teachers may be receptive to the adoption of well-designed and user-friendly technological tools that can enhance the quality and effectiveness of their language training efforts.

Based on the additional information provided about the research questions and hypotheses guiding the study, the researcher can confirm that the key finding from the teachers' questionnaire aligns with and supports Hypothesis H2:

H2: Social Sciences EMI students have diverse learning styles and preferences, with a growing demand for technology-based learning solutions.

The high level of interest and receptiveness among EMI teachers towards testing a new language training application demonstrates that there is a demand from teachers for more technological solutions to support language learning in EMI contexts. This aligned with the hypothesis that Social Sciences EMI students (and by extension, their teachers) have a growing preference for technology-based learning options.

The teachers' willingness to provide feedback on a new application also suggests that they recognize the potential benefits that innovative technological tools can bring to language instruction, which further supports the overall hypothesis about the demand for technology-based solutions in EMI settings.

Therefore, the finding from the teachers' questionnaire directly reinforces Hypothesis H2 and indicates that the study's research questions, particularly RQ2 and RQ4, are well-grounded in the experiences and preferences of the key stakeholders, the EMI teachers themselves.

2.5.3. Students Questionnaire

The second questionnaire targeted first-year Social Sciences students at the University of Tlemcen (Appendix B). It consisted of 28 questions divided into five sections. An extra section adapted a need assessment component.

2.5.3.1. Section of General Information

This section aimed to gather baseline data on student demographics, language proficiency, and academic background. It is important to acknowledge that this initial exploration does not attempt to establish causal relationships between these factors and student outcomes.

The first question of this section assessed students' self-reported English proficiency, providing options for beginner, intermediate, advanced, and other.

1. *How would you describe your general English proficiency?*

A total of 11 out of 12 participants responded to this question. The distribution of responses is visualized in the following chart:

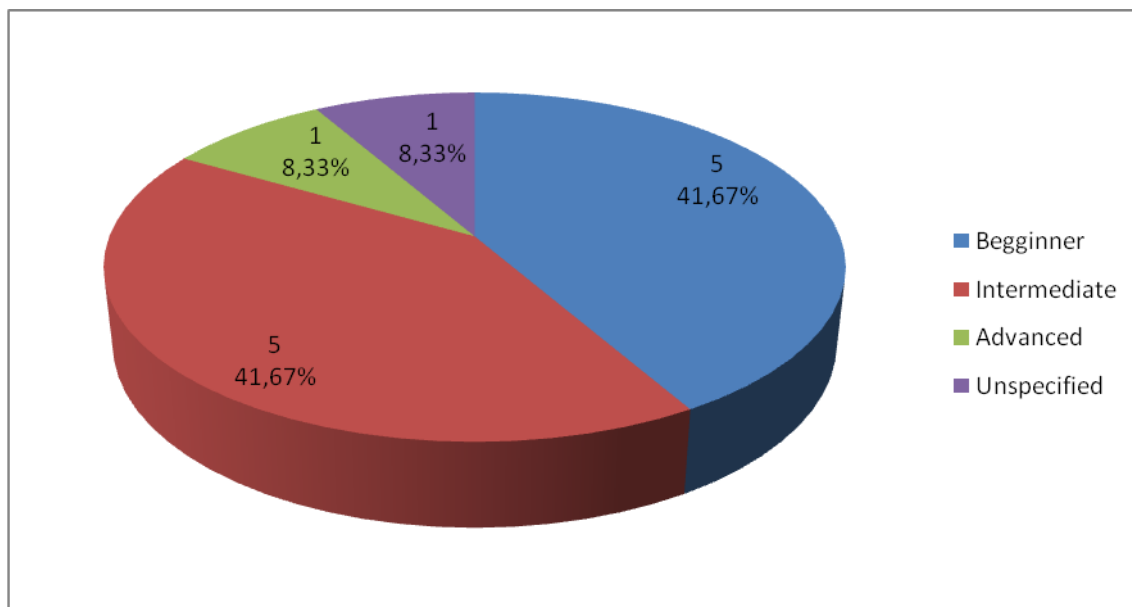


Figure 2.3. Respondents' Self-Reported English Proficiency

Additionally, the questionnaire gathered data on student demographics and academic background. This included questions about gender, age group, year of baccalaureate, years before resuming studies, previous academic major, and current employment status.

It is important to note that the CEIL initiative's timing may not be ideal for students with significant work or family commitments, potentially hindering their participation. Furthermore, the MOOC initiative, discussed in the next section, was specifically designed for recent baccalaureate graduates (2022-2023).

A total of 11 out of 12 participants responded to these questions. The distribution of responses is visualized in the following table:

Table 2.10. Participants' General Information

Gender	Male (4)			Female (8)	
Age group	20-24 (4)			20-24 (6)	35-40 (1)
Year of Baccalaureate	2019 (1)	2020 (1)	2023 (1)	2023 (8)	
Years before resuming	0 years (9)				≥3 years
	Unspecified (1)				

Academic studies							(1)
Other Academic Major	Yes, English (1)	No (1)	Yes (1)	No (1)	Yes (1)	No (5)	No (1)
working hours	Yes (1)	No (1)	Yes (1)	No (1)	No (6)		Yes (1)

2.5.3.2. Section of Interaction with Initiatives to improve English proficiency level

The second section of the questionnaire investigated students' interaction with existing initiatives for improving English proficiency. This section aimed to gauge their awareness of these initiatives and gather information that will inform two key areas: recommendations for improvement and the planning of the CLIL Companion. Ten questions were included, addressing a variety of initiatives. Two questions focused on MOOCs (Massive Open Online Courses), three on the CEIL initiative which provided General and English for Specific Purposes (ESP) courses, and two inquired about other initiatives that students might be interested in. Additionally, three questions explored the availability of content for specific English language needs, encompassing both specialized content and resources for general proficiency enhancement.

The first question in this section investigated student awareness of Massive Open Online Courses (MOOC) as a resource for improving English language proficiency.

9. Have you heard of the initiative of the digital platform for online visual lessons (MOOC, Massive Open Online Courses) to improve the level of new baccalaureate degree holders in the English language?

All the 12 participants responded to this question.

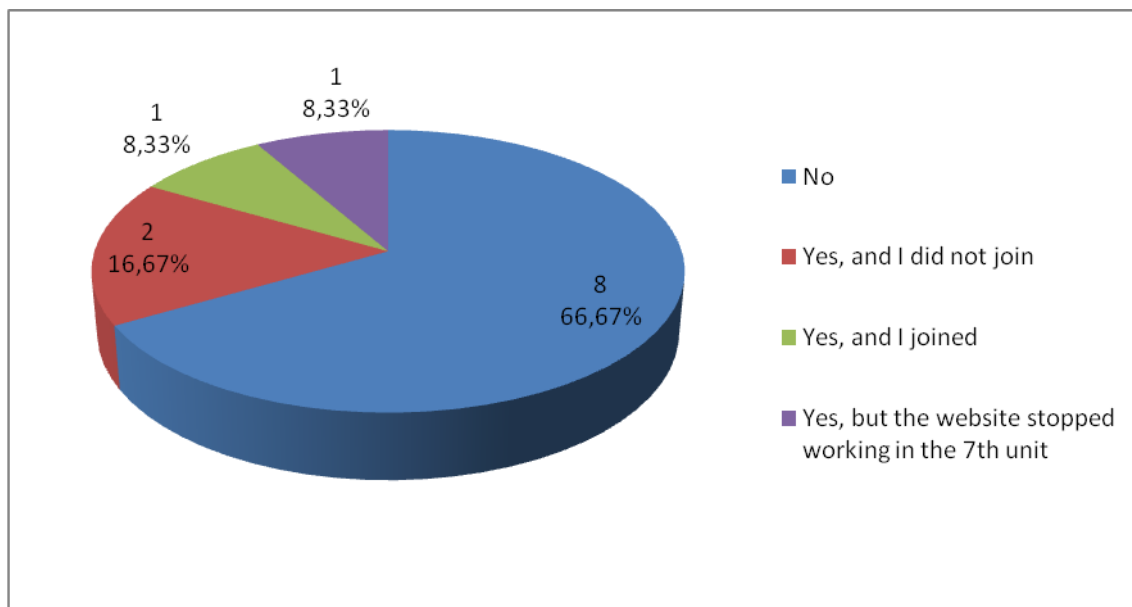


Figure 2.4. Awareness of Online English Language Courses (MOOC)

The second question, an open-ended question, aimed to gather information about experiences with MOOC initiative.

10. In particular, your participation in the above initiative, please tell us about the most important features and the most important difficulties

No responses were received for the second question.

- **MOOC Awareness:**

A majority of students (8 respondents) were not aware of the MOOC initiative for improving English language skills for new bachelor's degree holders.

However, (4 respondents) had heard of the programme.

- **MOOC Participation:**

Among those aware of the MOOC, only (2 respondents) actively participated in the programme, (1 respondent) stated that the website stopped at the 7th unit.

Another (1 respondent) expressed interest but didn't join.

Insights from MOOC Participation:

The limited participation rate (25%) suggests that the MOOC might not have reached its target audience effectively.

Recommendations for the MOOC Initiative:

- Improve promotion and outreach strategies to ensure new bachelor's degree holders are aware of the MOOC.
- Conduct surveys or gather feedback from students to understand why they might not be joining or continuing the programme.
- Analyse website functionality to identify and address any technical problems that hinder user experience.

The third question in this section investigated student registration in Intensive Language Education Center (CEIL) courses.

11. *Have you registered for the English language courses proposed by the Center for Intensive Education of Languages (CEIL)?*

All the 12 participants provided responses to the question.

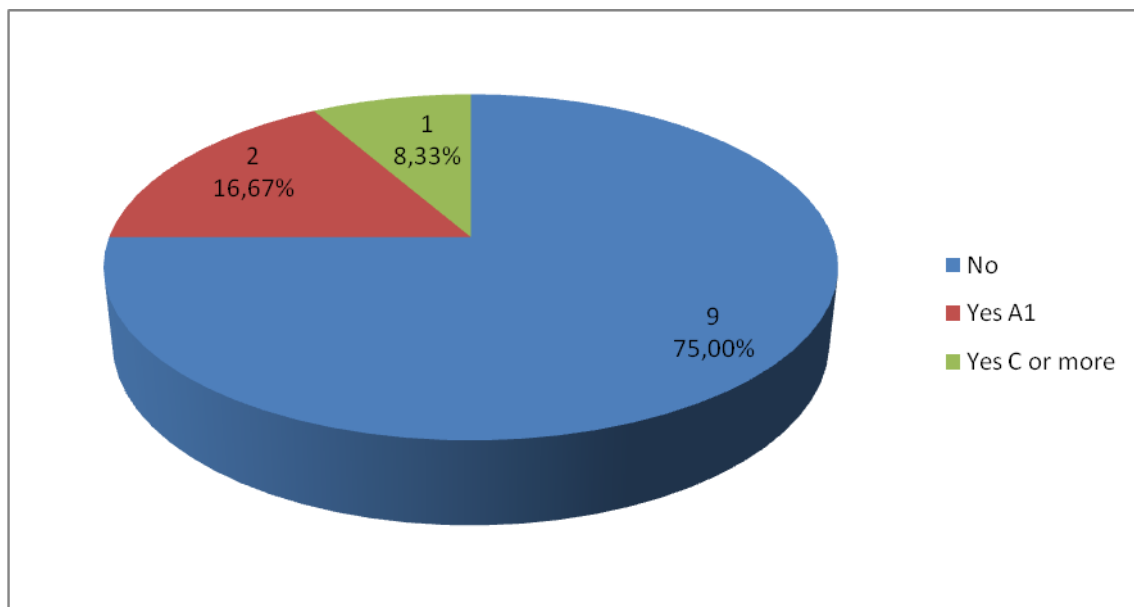


Figure 2.5. Registration in Intensive Language Education Center (CEIL) Courses

12. Regarding your registration in the “Intensive Language Education Center,” please tell us about the features related to linguistic achievement, which are related to your academic achievement in the required units in the English language:

Table 2.11. Perceived Benefits of CEIL Courses

Options ¹	Number of Responses
Diverse and attractive educational materials	2
Provides a supportive learning environment	1

13. Regarding your registration in the “Intensive Language Education Center,” please tell us about the difficulties related to linguistic achievement, which are related to your academic achievement in the required units in the English language:

¹ Two (2) responses were excluded from analysis. These respondents answered "no" to question 11. This question was designed to gather insights from students with CEIL course experience.

Table 2.12. Perceived Difficulties with CEIL Courses

Options ¹	Number of Responses
Difficulty understanding some linguistic concepts	1
Lack of fluent English speaking skills	1
Difficulty dealing with academic materials in English	1
Psychological stress associated with studying English	1
Lack of opportunities to interact with native English speakers	1

14. Other than the two initiatives mentioned above, have you joined other initiatives, platforms or courses to improve your English level?

Table 2.13. Participation in Other English Improvement Initiatives

Options	Number of Responses
Yes	3
No	7
Unspecified	2

15. Please tell us which features attracted you to other improvement initiatives, and which features caught your attention (you can return to the line):

No responses were received for this question

16. Do you find difficulties regarding content knowledge in English in the context of unit topics taught in this language?

¹ Two (2) responses were excluded from analysis. These respondents answered "no" to question 11. This question was designed to gather insights from students with CEIL course experience.

Table 2.14. Difficulties Regarding Content Knowledge in English

Options	Number of Responses
Difficulties related to accessing reliable content	1
Difficulties related to understanding the content	4
Difficulties in comprehending or practicing the content	3

17. Do you find difficulties in accessing educational content to develop your competencies in the English language that meets your needs (the purposes for which you may need English for your university studies) and matches your level ?

Table 2.15. Difficulties Faced When Accessing Content in English

Options	Number of Responses
1) Difficulties related to deciding which vocabulary, words and expressions I need in my life and academic studies and which must be practiced.	4
2) Difficulties in deciding which topics related to grammar and syntax I need or in which I may have gaps	3
3) Difficulties related to correcting and correcting my pronunciation	3
4) Difficulties related to auditory language correction and evaluation	5

2.5.3.3. Section of Challenges and needs (resources and language)

18. To what extent do you face difficulties in the English language in your academic studies?

Table 2.16. Frequency of Facing Difficulties with English in Studies

Options	Number of Responses
Always	3
Mostly	1

Sometimes	3
Scarcely	2
Never	1

19. What specific areas of English do you face the greatest challenges?

Table 2.17. Specific Areas of English Presenting the Most Challenges

Options	Number of Responses
The [Grammar] Rules	6
Vocabulary	3
Reading and comprehension	4
Writing	5
Conversation	6

20. What resources are you currently using to improve your English language skill ?

Table 2.18. Currently Used Resources for English Language Improvement

Options	Number of Responses
Facebook and YouTube	1
Listening to videos	1
Practicing	1
Using the application Duolingo	1
Speaking	1

21. How effective have these resources been for you?

Table 2.19. Effectiveness of Currently Used English Learning Resources

Options ¹	Effectiveness
Facebook and YouTube	Not very effective
Listening to videos	Fairly effective
Practicing	Fairly effective
Using the application Duolingo	Very effective
Speaking	Very effective

22. What features and functionality would you like to see in a technology-based solution for learning English ?

Table 2.20. Desired Features in Technology-Based English Learning Solutions

Studying some modules in English
Reading

2.5.3.4. Section of Learning preferences

23. How do you usually prefer to learn English?

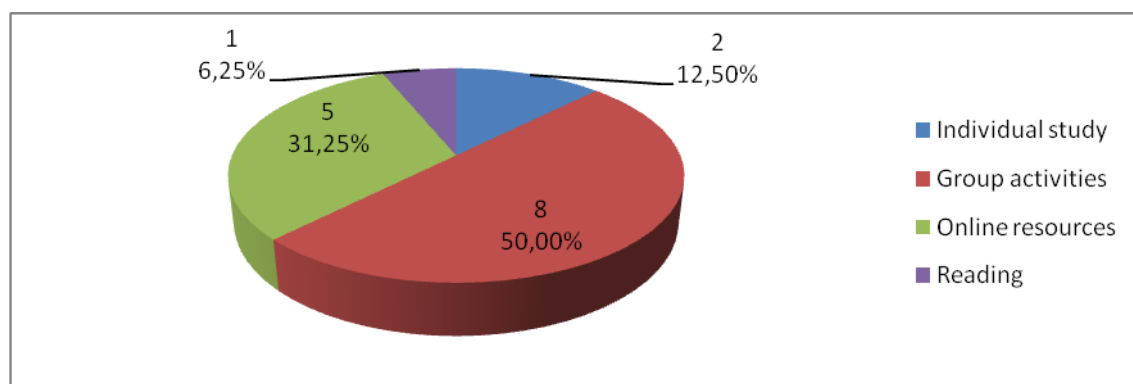


Figure 2.6. Preferred Methods for Learning English

¹ Four (4) responses were skipped: This question was designed to measure the effectiveness of the used resources gathered from the previous question. The respondents did not provide options in the previous questions.

24. What types of technology-based learning activities do you find most engaging?

Table 2.21. Most Engaging Technology-Based Learning Activities

Options	Number of Responses
Interactive exercises	6
Video lessons	8

25. How important is it to integrate technology into your learning process?

Table 2.22. Importance of Technology Integration in Learning

Options	Number of Responses
very important	7
Fairly important	1

2.5.3.5. Section of Difficulties in Language Skills

Spoken language (conversation):

Options	N. of Responses
I have difficulty understanding most words spoken by native speakers (eg British or American) even though I know most written words.	5
I can understand most conversations in familiar situations, but have difficulty with complex or unfamiliar topics.	5
I can generally follow conversations but miss some details or nuances.	4
I can understand most spoken language with some effort and	2

concentration.	
----------------	--

Written language (reading):

Options	N. of Responses
When reading texts, I often have to consult dictionaries or translation tools to find out the meanings of words.	7
I can generally understand written language in familiar situations, but have difficulty with more complex or specialized texts.	7
I can generally follow written instructions and understand the main ideas of texts.	2
I can read and understand most written language with some effort and concentration.	1

Spoken language (expression):

Options	N. of Responses
I cannot engage in fluent conversations.	5
I can participate in basic conversations, but I often make mistakes or have difficulty expressing myself fully.	5
I can generally express myself clearly and coherently in spoken language, but I may hesitate or make occasional mistakes.	3
I can speak fluently and confidently in most situations.	1

Written language (writing):

Options	N. of Responses
I find it difficult to write texts that are linguistically and contextually correct and accurate.	5
I can write simple sentences and paragraphs, but have difficulty with more complex or formal writing.	5
I can generally produce clear and organized written texts, but I may make occasional errors.	2

Translation and transportation

Options	N. of Responses
My linguistic reserve is insufficient to transfer my knowledge from Arabic to English	6
I have difficulty expressing my thoughts and ideas clearly in English.	4
I find it difficult to translate concepts and terminology accurately	2
I make frequent grammatical errors in English.	2
I find it difficult to apply grammar rules correctly in writing and speaking.	2
I need more practice and guidance to improve the accuracy of my grammar.	5

General Information

- **English Proficiency:** The revised data (5 beginners, 5 intermediates, 1 advanced) confirms the need for differentiated instruction catering to a range of skill levels.
- **Demographics:** The data reflects the experiences of recent female (7 students) baccalaureate graduates (20-24 years old) transitioning to EMI programme, with most not currently employed (8 students) and having no significant gap between studies (12 students).

Challenges and Needs in English Language Content

- **Accessibility:** Difficulty accessing reliable content remains a concern (1 respondent).
- **Comprehension:** Understanding content (4 respondents) presents a challenge, highlighting the need for clear explanations and examples.
- **Alignment with Studies:** The emphasis on subject-specific vocabulary (42%) underscores the importance of integrating relevant terminology.

Overall English Language Learning Challenges

- **Frequency of Difficulties:** A high percentage (83%) reported facing difficulties using English for academic studies.
- **Specific Skill Areas:** The most challenging areas are grammar (33%), vocabulary (25%), reading comprehension (25%), writing (17%), and speaking (17%).

Current Resources and Preferences

- **Resource Usage:** Students utilize various resources (reported in Figure 33), but the overall effectiveness was rated as "fair to good."
- **Technology Integration:** The positive response towards technology integration in learning (75%) indicates a receptiveness to technology-based solutions (Figures 36, 37, 38).

Self-Assessment of English Language Skills

- **Spoken and Written Language:** Both areas require improvement, particularly fluency, grammar accuracy, and vocabulary development (Figures 41, 42).
- **Translation and Transfer:** The high number of responses (6 students) regarding difficulties transferring knowledge from Arabic to English necessitates strategies to bridge the gap (Figure 43).

Insights from Additional Data:

- **MOOC Initiative:** Limited participation (25%) suggests the initiative might not have reached its target audience effectively. Website issues and lack of engagement could be reasons for dropping out (1 respondent) (Figure 22).
- **CEIL Courses:** Perceived benefits include diverse learning materials and supportive environments (Figure 24). Difficulties with grammar, vocabulary, and academic materials were reported (Figure 25).
- **Other Initiatives:** While only 3 students participated in other initiatives, a lack of response in Figure 27 limits analysis of their features.

Learning Preferences:

- **Individual vs. Group:** Slightly more students prefer group activities (8 students) to individual study (2 students) (Figure 36).

- **Technology Integration:** Interactive exercises (6 students) and video lessons (8 students) are most engaging (Figure 37). Technology integration is considered very important by the majority (7 students) (Figure 38).

Difficulties in Language Skills:

- **Speaking:** Difficulty understanding native speakers (5 students) and limited fluency (5 students) were reported (Figures 39, 41).
- **Reading:** Difficulty understanding complex texts (7 students) and frequent dictionary use (7 students) were reported (Figure 40).
- **Writing:** Challenges with complex or formal writing (5 students) and frequent grammatical errors (5 students) were reported (Figure 42).
- **Translation:** Insufficient linguistic reserve for transferring knowledge from Arabic (6 students) and difficulty expressing ideas clearly (4 students) were reported (Figure 43).

Overall Considerations:

- While the participation rate (12 respondents) limits generalizability, the data offers valuable insights.
- The lack of responses in some sections (e.g., features of preferred initiatives) restricts further analysis.

2.6. Recommendations

- Conduct future surveys with a larger, more representative sample size.
- Implement strategies to improve promotion and outreach for the MOOC initiative.
- Consider offering incentives for participation in future surveys.
- Include open-ended questions alongside multiple-choice options to capture a wider range of experiences and suggestions.
- Develop targeted interventions and learning activities to address specific skill gaps (grammar, vocabulary, reading comprehension, writing, speaking, and translation).

- Create engaging and interactive online learning tools with features like personalized feedback, video lessons, practice exercises, and opportunities to interact with native speakers.
- Integrate subject-specific language and resources to help students transition to EMI programme effectively.
- Provide strategies and guidance to assist students in transferring knowledge and ideas from Arabic to English.

By addressing these challenges and incorporating student preferences, institutions can create a more supportive and effective learning environment for students transitioning to English-medium instruction.

2.7. Data Interpretation

The distribution of students across beginner, intermediate, and advanced English proficiency levels confirms the need for differentiated instruction to cater to the range of skill levels. This correlates with the hypothesis that the target audience for the CLIL Companion includes students with varying levels of English proficiency, requiring a differentiated approach to language learning support.

Students face difficulties in accessing reliable content, comprehending academic materials, and aligning their English skills with the demands of their subject-specific studies. This highlights the importance of providing clear explanations, relevant examples, and subject-specific vocabulary support, which aligns with the hypothesis for the CLIL Companion.

A majority of students (83%) reported facing frequent challenges in using English for their academic studies, particularly in the areas of grammar, vocabulary, reading comprehension, writing, and speaking. This correlates with the hypothesis that the CLIL Companion should address these most challenging areas through targeted learning activities and support.

While students utilize various resources, the overall effectiveness was rated only as "fair to good," suggesting a need for more targeted and engaging language

support solutions. This hypothesis is supported by the students' perception of the current resources.

The students' receptiveness to technology-based learning, such as interactive exercises and video lessons, aligns with the demand for innovative, technology-integrated language learning tools, as per the hypothesis.

The data reveals specific areas of concern, including difficulties in understanding native speakers, comprehending complex texts, producing formal/complex writing, and transferring knowledge from Arabic to English. These insights can inform the design of targeted interventions, as per the hypothesis.

2.8. Limitations and Recommendations

The relatively small sample size limits the generalizability of the findings, underscoring the need for future surveys with larger, more representative participant pools. Strategies to improve promotion, offer incentives, and incorporate open-ended questions could enhance the quality and depth of the data collected, in line with the recommendations outlined in the hypothesis.

Overall, the student questionnaire results provide valuable insights into the specific challenges, needs, preferences, and skill gaps experienced by Social Sciences EMI students in their English language learning journey. These findings can inform the design and development of a technology-based solution, such as the CLIL Companion, to better address the identified needs and enhance the learning experience and outcomes for this target audience.

2.9. Conclusion

The comprehensive analysis of the teacher and student questionnaires has provided a holistic understanding of the challenges, needs, and preferences of both educators and learners within the Social Sciences EMI context. By synthesizing the insights gained from these two critical stakeholder groups, the CLIL Companion development team can now forge a path forward that effectively addresses the multifaceted requirements of this educational ecosystem.

From the teacher perspective, the key findings highlight the need for a language learning solution that supports instructors in delivering differentiated, subject-specific content effectively. The teachers' desire for engaging, technology-integrated tools that can streamline lesson planning, enhance student engagement, and provide real-time feedback aligns seamlessly with the CLIL Companion's design goals.

On the student side, the questionnaire results have painted a vivid picture of the diverse proficiency levels, prevalent language difficulties, and skill-specific challenges faced by learners. These insights directly inform the CLIL Companion's targeted interventions, ensuring that the solution can cater to the unique needs of students across the proficiency spectrum and provide the necessary support for comprehending academic content, improving language skills, and achieving better learning outcomes.

By bridging the perspectives of both teachers and students, the CLIL Companion can evolve as a truly collaborative and symbiotic platform. Educators can leverage the tool's functionalities to deliver enriched, language-focused instruction, while students can engage with the tailored learning activities and resources to overcome their language barriers and thrive in their subject-specific studies.

Moving forward, the team will continue to refine the CLIL Companion based on ongoing feedback and evaluation, ensuring that the solution remains responsive to the evolving needs of the Social Sciences EMI community. Through this iterative process, the CLIL Companion aspires to become a transformative catalyst for language learning, empowering both teachers and students to achieve greater academic success and, ultimately, unlocking new horizons of personal and professional growth.

**3. CHAPTER THREE: THE INITIAL
COMPONENTS' CONCEPTION, DESIGN,
AND PROTOTYPING**

3.1. Introduction

"The best prototype is one that, in the simplest and the most efficient way, makes the possibilities and limitations of a design idea visible and measurable" (Lim, Stolterman & Tenenberg, 2008, as cited in "Design prototyping" on Wikipedia).

This quote captures the essence of prototyping in the design process – creating a tangible representation of an idea to assess its potential and identify areas for improvement. A prototype, in software development, is an early, simplified version of the final product. It allows us to experiment with functionalities, user interfaces, and overall usability before investing significant time and resources into full-scale development.

Generally used to evaluate a new design, a prototype, in the context of software design and development, is an early sample, model, or release of a product built to test a concept or process. (« Prototype », In Wikipedia)

Before a prototype is even created, however, lies the crucial stage of conception. This is where the initial spark of an idea ignites, forming the foundation for the future product. In our case, the conception revolved around building a web-based platform, accessible through any standard web browser, to support Content and Language Integrated Learning (CLIL). Leveraging web technology offers several advantages. Because web browsers are ubiquitous across devices and operating systems, the CLIL Companion can be readily accessed by educators and learners regardless of their technical setup.

3.2. The anecdote

The academic year 2023/2024 witnessed a transition to EMI...

Fresh out of his Master's degree in English from the University of Tlemcen, Omar intends to begin his career as a language trainer at the Department of Social Sciences, where he was tasked to deliver 14 lectures per semester.

Omar quickly discovered a significant challenge... A large portion of his students struggled to understand the lectures delivered entirely in English.

If he tries to explain the “alphabets”¹ of the English language to a large portion of them, another large portion will appear bored...

If he tries to make his lesson about uncountable nouns or passive voice, a big majority will look lost...

Trying to contextualize Social Sciences topics with necessary language topics yields a distracting environment especially that Omar is a language trainer rather than sociology content deliverer...

On the other hand, he found himself answering a same question a thousand times, mainly to distracted students or previously absent ones...

3.3. The Conception

Focus: Facilitating teacher-student communication and empowering learners of various levels to acquire basic English language skills for independent learning.

3.4. The components

3.4.1. Content Management System (CMS)

The Content Management System (CMS) component of our web-based English language learning solution serves as the central hub for teachers and administrators, empowering them to create, manage, and deliver learning content effectively.

3.4.1.1. Functionality and Features

Centralized Platform: The CMS provides a central repository for all learning materials, ensuring easy access and organization for both teachers and students.

User Management: Granular user access control allows administrators to assign different roles and permissions to users (teachers, students, admins).

¹ The author does not actually mean the alphabets.

Content Creation and Management: Teachers and admins can leverage the CMS to create a variety of learning materials, including text-based lessons, multimedia presentations, quizzes, and assessments.

Delivery and Scheduling: The CMS facilitates the delivery of learning materials to specific student groups or entire classes. Scheduling functionalities enable teachers to plan and organize their courses efficiently.

Communication Tools: The platform integrates features such as messaging, notifications, and push notifications to facilitate communication between teachers and students.

3.4.1.2. Benefits for Teachers and Administrators

Streamlined Content Management: The CMS offers a user-friendly interface for creating, organizing, and delivering learning materials.

Improved Organization: Centralized storage eliminates the need for scattered files and folders, ensuring easy access and retrieval of learning content.

Enhanced Collaboration: The platform can facilitate collaboration between teachers, allowing them to share resources.¹

Easy Communication: Built-in communication tools that facilitate communication between teachers and students.

3.4.1.3. Integration with Other Components

The CMS acts as the backbone of the platform, seamlessly integrating with other components such as:

Evaluation Tests: Results from evaluation tests conducted through the platform can be stored and analysed within the CMS to track student progress.

Lecture Component: Teachers can utilize the CMS to create and manage lectures, incorporating multimedia elements and integrating real-time text analysis for personalized learning.

¹ Informed from the teachers questionnaire.

Other Components: Future functionalities such as a forum or discussion board can be integrated with the CMS to facilitate communication and knowledge sharing among students.

The CMS plays a crucial role in the overall functionality of the platform. By providing a centralized and user-friendly content management solution, the CMS empowers teachers and administrators to deliver engaging and effective English language learning experiences.

3.4.2. Evaluation-Tests Component

This section delves into the Evaluation-Tests component, a crucial tool for gauging learner proficiency in the English language.



Figure 3.1. Prototype of Evaluation-Tests-Component Interface

Targeted Assessment: The component offers a range of tests tailored to different skill levels, ensuring an accurate assessment of each learner's strengths and weaknesses.

Diverse Question Types: Tests may incorporate various question formats, including multiple-choice, fill-in-the-blank, and open-ended questions, to provide a well-rounded evaluation of knowledge and comprehension.

3.4.2.1. Multiple Interfaces for Efficiency:1

Learner Interface: Students can access and complete evaluation tests in a user-friendly interface that provides clear instructions and immediate feedback.

Teacher/Admin Interface: This interface empowers teachers and administrators to create, edit, and manage evaluation tests, allowing them to customize assessments for specific learning objectives.

Tracking Interface: Detailed results and progress reports are generated, offering valuable insights into individual learner performance. This data informs personalized instruction and learning strategies.

3.4.2.2. Benefits of Evaluation-Tests Component

Accurate Assessment: Provides a clear picture of student proficiency in various English language skills.

Personalized Learning: Data-driven results guide teachers in tailoring instruction to individual needs.

Progress Tracking: Monitors student progress and identifies areas requiring further reinforcement.

Motivational Tool: Successful test completion can motivate students and boost confidence in their learning journey.

3.4.2.3. Integration with Other Components

The Evaluation-Test component seamlessly integrates with other platform features, such as:

Content Management System: Evaluation results can be stored within the CMS for easy access and analysis by teachers.

¹ Each component has multiple interfaces

Grammar Lessons: Data from the tests can be used to identify grammar concepts that require reinforcement, leading to personalized grammar lesson recommendations for students.

Future Developments: Planned functionalities like adaptive learning may utilize evaluation test results to adjust the difficulty level of learning materials based on individual progress.

In conclusion, the Evaluation-Test component serves as a cornerstone for assessing learner proficiency and informing effective teaching strategies within the platform.

3.4.3. Grammar-Lessons Component

This section explores the Grammar-Lessons component, a cornerstone for building strong foundational grammar skills essential for English language fluency.

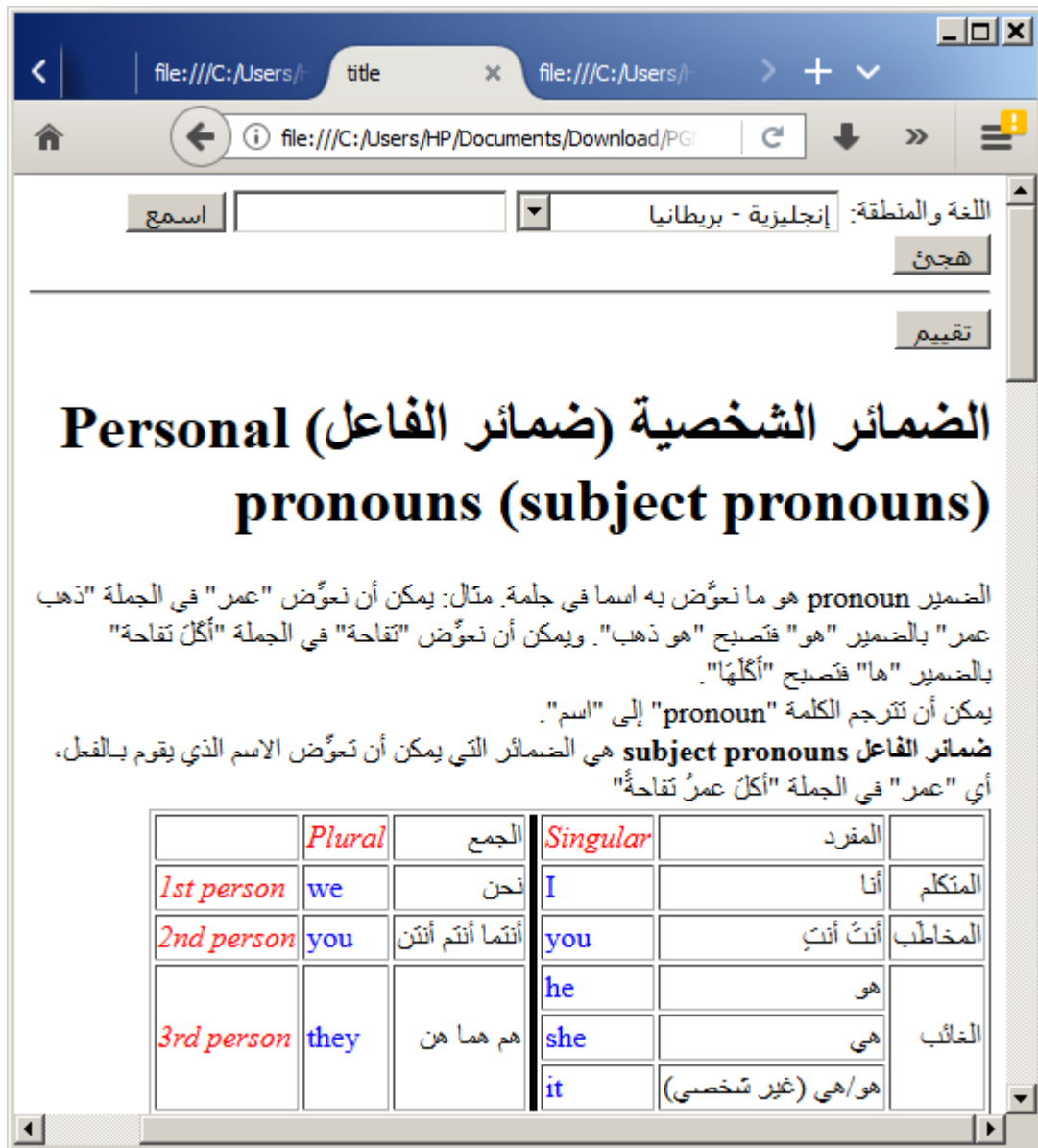


Figure 3.2. Prototype of Grammar-Lessons-Component Interface

Personalized Learning Paths: The component creates personalized learning paths for each student based on their performance in evaluation tests and course progress. This ensures that grammar instruction targets individual needs and knowledge gaps.

Structured Approach: Grammar lessons follow a well-structured curriculum, focusing on key parts of speech (fig 1), sentence structure, and verb conjugations.

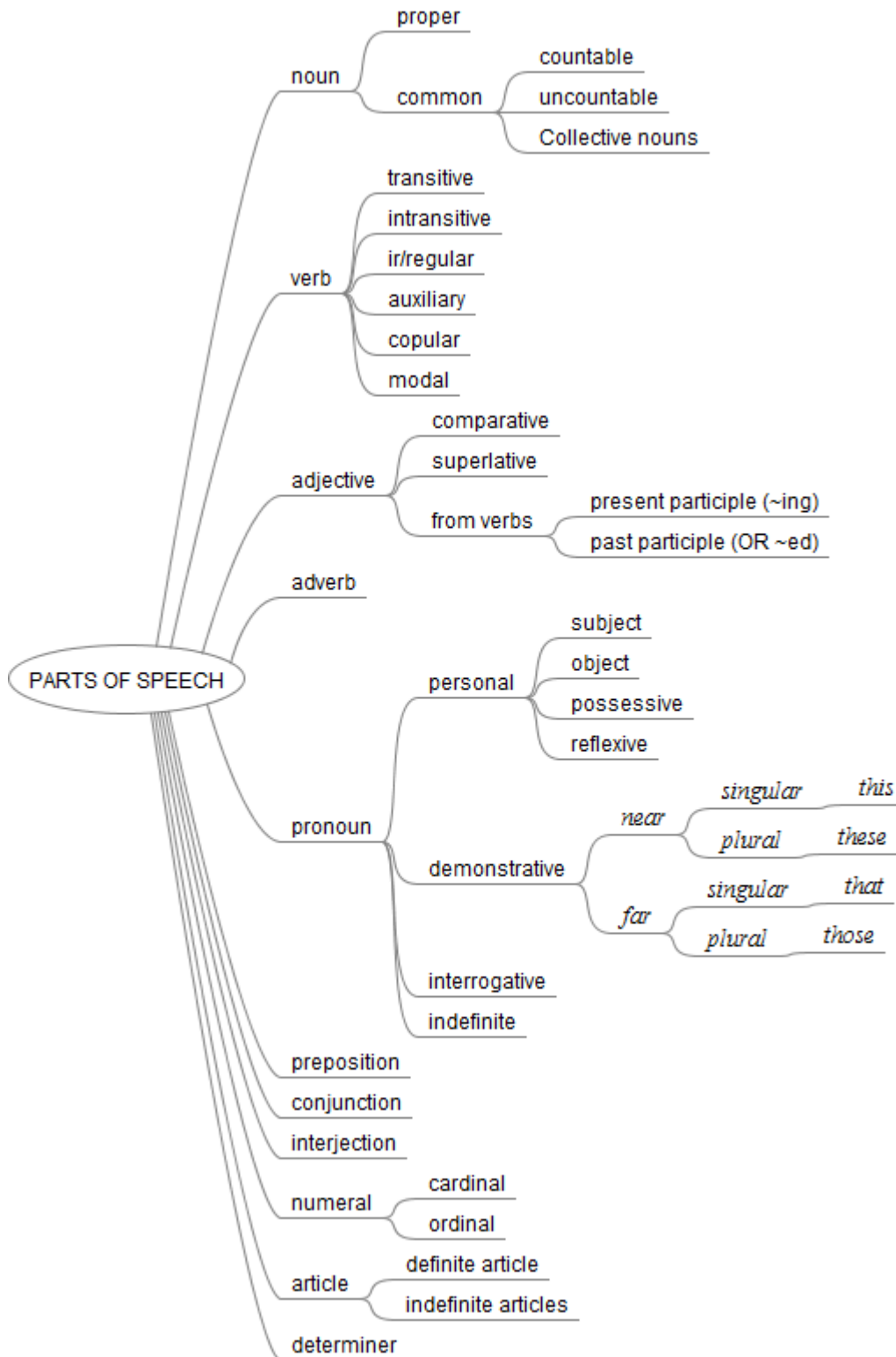


Figure 3.3. A Mind Map of Parts of Speech with Non-Exhaustive Lists of Potential English Grammar Topics

Engaging Activities:

- Interactive exercises reinforce grammar concepts through activities like multiple-choice questions, fill-in-the-blanks, sentence completion, and drag-and-drop exercises.
- Gamification elements can be integrated to enhance motivation and engagement.

Auto-Evaluation Tests: Students can test their comprehension of grammar concepts through built-in auto-evaluation tests, receiving immediate feedback and identifying areas requiring further practice.

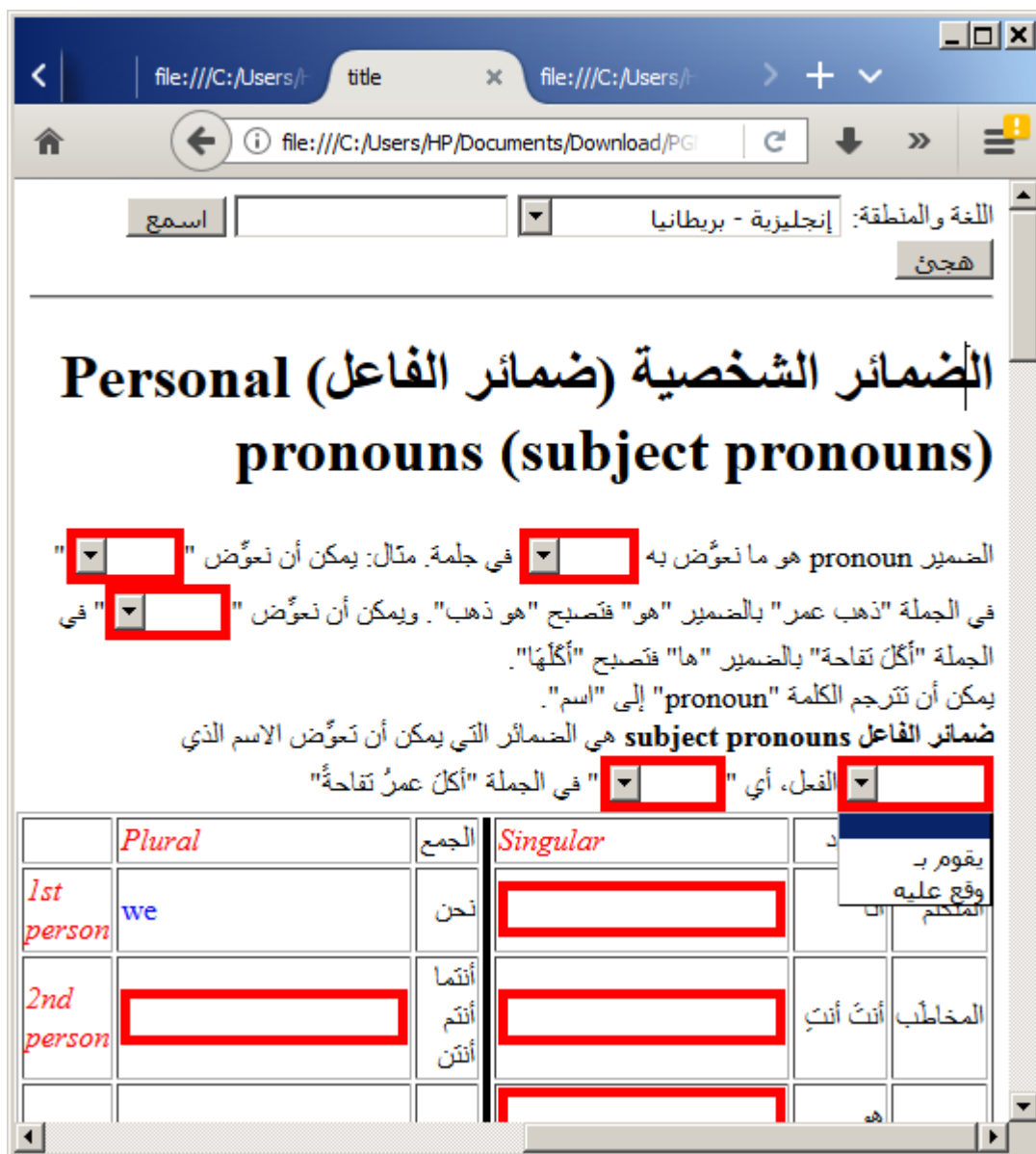


Figure 3.4. Prototype of Grammar-Lessons-Component Interface (Interactive Assessment)

3.4.3.1. Integration with Other Components

Corpus Analysis: Links are provided to relevant sections within the Corpus Analysis component, offering detailed explanations and examples related to the grammar concept being studied.

Evaluation Tests: Performance on auto-evaluation tests and practice exercises can inform future personalized learning recommendations and highlight areas for review.

3.4.3.2. Benefits of Grammar Lessons

Strong Foundation: Develops a solid understanding of core grammar principles.

Targeted Instruction: Personalized learning paths ensure students focus on areas requiring the most improvement.

Interactive Learning: Engaging activities make learning grammar enjoyable and effective.

Self-Assessment: Auto-evaluation tests empower students to monitor their progress and identify areas for improvement.

The Grammar Lessons component plays a vital role in equipping students with the essential grammar skills needed for effective communication and confident language use. By offering a personalized, interactive, and self-assessment-driven approach, this component empowers learners to master *foundational grammar concepts* and progress towards fluency.

3.4.4. Flashcards

This section dives into the Flashcards component, a powerful tool for fostering self-directed vocabulary acquisition and knowledge retention.

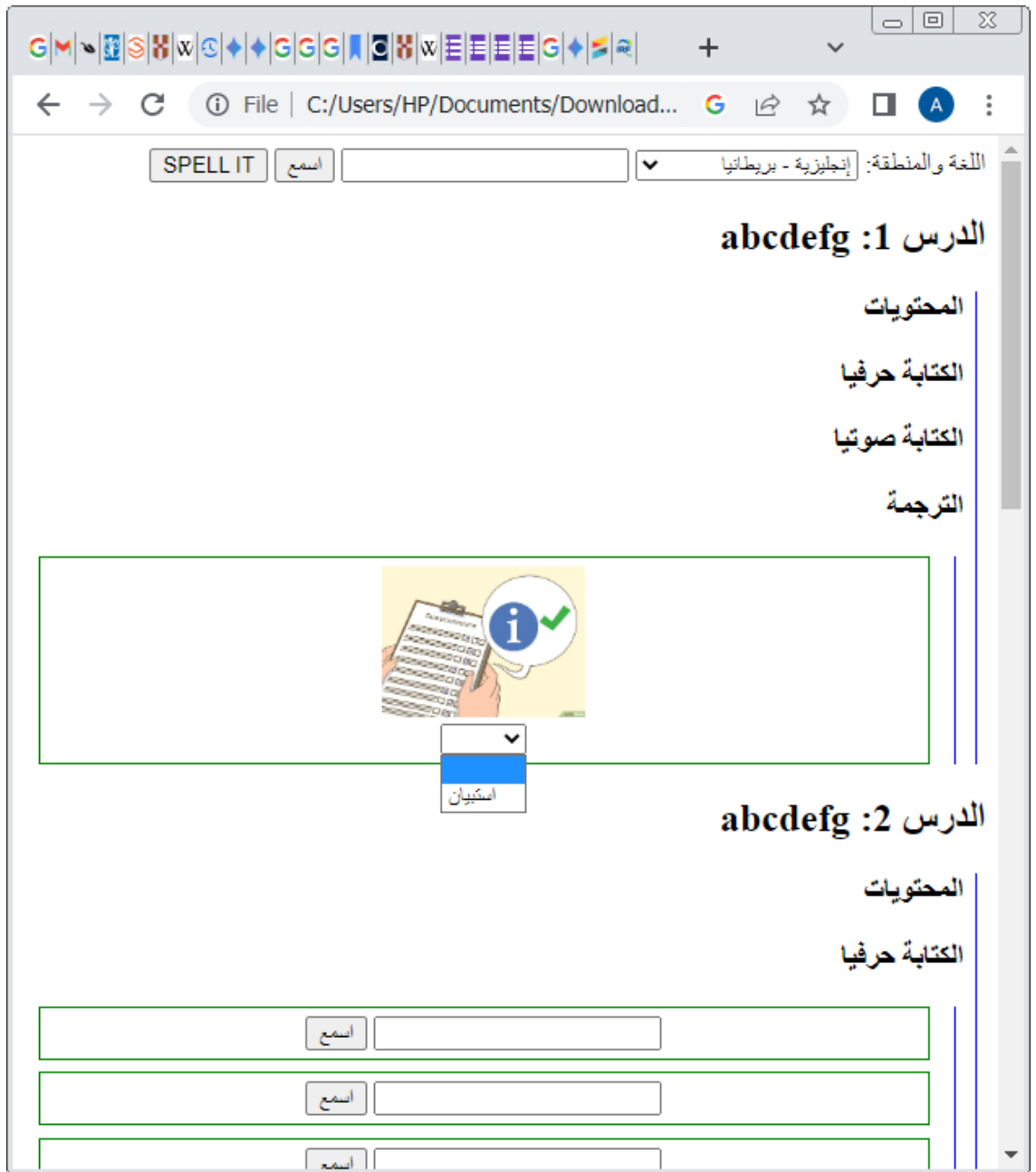


Figure 3.5. Prototype of Flashcards Interface

Self-Paced Learning: Students can create and manage their own personalized flashcard sets, allowing them to study at their own pace and focus on specific vocabulary areas based on their interests or needs.

Multiple Features:

- **Importing and Exporting:** Flashcards can be imported or exported in various formats, enabling students to utilize external resources and share their creations with others for collaborative learning.
- **Customization Options:** Students can tailor flashcards with text, images, and audio recordings to cater to their preferred learning styles.

Active Learning Activities:

- **Practice Modes:** Flashcards can be practiced through various modes such as "view definition," "view word," and "match definition to word," ensuring active recall and knowledge reinforcement.
- **Gamification Elements:** Integration of gamification elements, like points and leaderboards, can enhance motivation and engagement.¹

3.4.4.1. Integration with Other Components

Corpus Analysis: Flashcards can link to the Corpus Analysis component, providing students with additional information and usage examples for each vocabulary term.

Evaluation Tests: Words included in flashcards can be incorporated into future evaluation tests, allowing students to assess their progress in a practical context.

3.4.4.2. Benefits of Flashcards

Self-Directed Learning: Empowers students to take ownership of their vocabulary learning journey.

Enhanced Retention: Practice activities promote active recall and long-term memory retention.

Versatility and Customization: Caters to diverse learning styles and allows for personalization.

¹ Further studies will be piloted to measure the effectiveness of this feature.

Collaboration Potential: Sharing flashcard sets fosters collaborative learning among students.

The Flashcards component provides a valuable tool for students to actively expand their vocabulary and solidify knowledge retention. The self-directed and adaptable nature of this component empowers learners to manage their learning journeys effectively and build a strong foundation for successful communication in English.

3.4.5. Corpus Analysis

This section explores the Corpus Analysis component, a powerful tool designed to unlock the mysteries of the English language and empower students with deeper understanding.

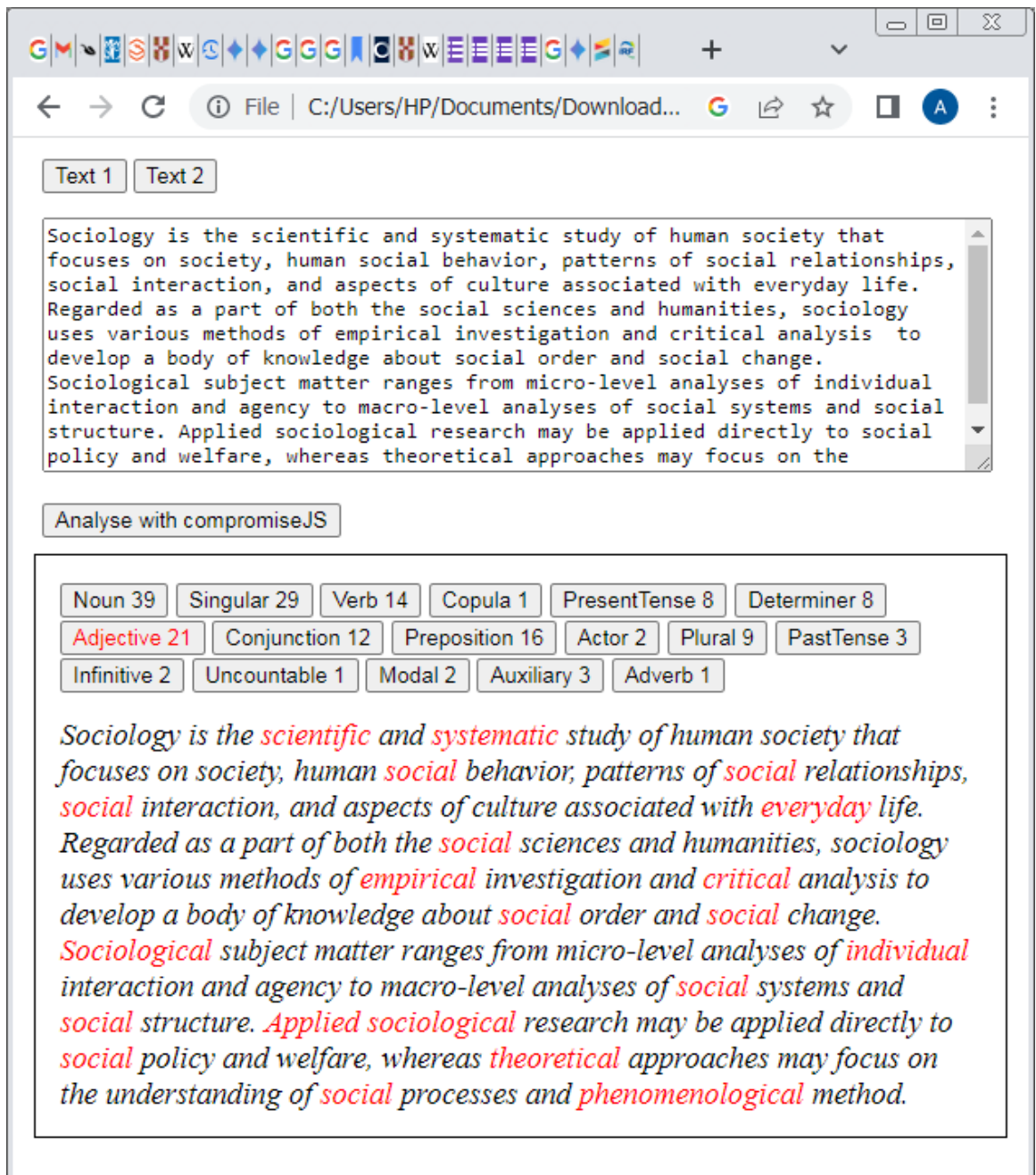


Figure 3.6. Prototype of Front-End Text Analysis Interface

Text Analysis Engine: At its core lies a sophisticated text analysis engine that processes text from various sources within the platform, such as lectures, grammar lessons, and student-generated content.

Data-Driven Insights: The engine extracts valuable data from the analysed text, including word frequency, grammatical patterns, and thematic associations. This allows students to:

- **Gain Context:** Explore how words are used in real-world contexts and understand their nuances.
- **Discover Synonyms and Antonyms:** Identify alternative vocabulary options to enhance their expressive abilities.
- **Uncover Grammar Rules:** Observe how grammar rules are applied in actual usage, reinforcing their comprehension.

Interactive Interface: The component presents its findings in a user-friendly, interactive interface. Students can:

- **Click on Words:** Clicking on a word triggers a wealth of information, including definitions, translations (if applicable), pronunciations (audio playback possible), personalized word list suggestions based on learning progress, word classification (e.g., noun, verb), thematic associations (related concepts), and relevant grammar lessons.
- **Explore Visualizations:** Data may be presented visually through charts and graphs for enhanced comprehension.

3.4.5.1. Integration with Other Components

Flashcards: Students can easily add words encountered in the Corpus Analysis to their personalized flashcard sets for further learning and practice.

Grammar Lessons: The component can highlight relevant grammar lessons based on the analysed text, directing students to targeted instruction for identified knowledge gaps.

Lectures: Real-time text analysis of lectures can inform personalized learning paths by pinpointing potential vocabulary or grammar challenges for individual students.

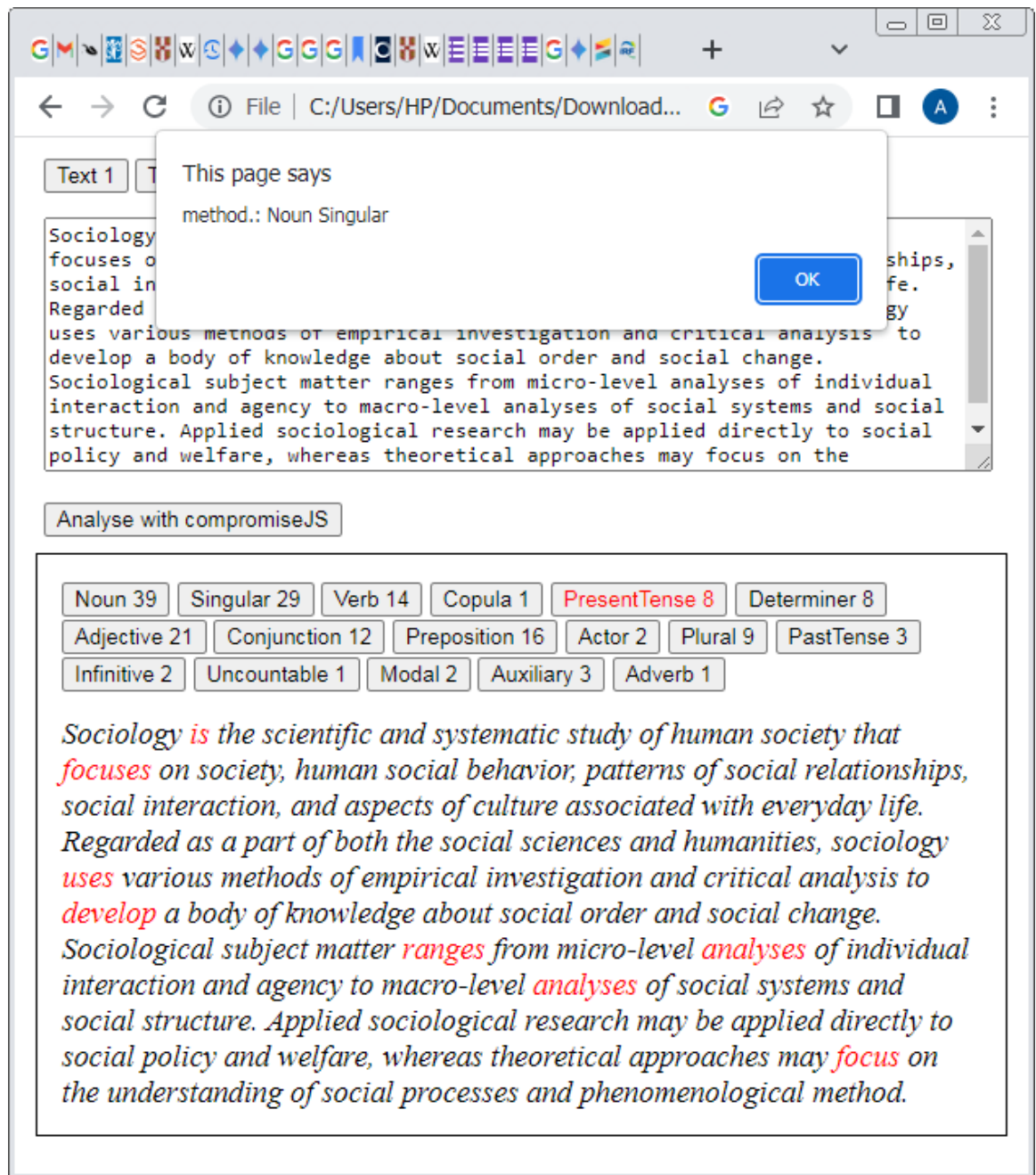


Figure 3.7. Prototype of Front-End Text Analysis Interface (Click Events)

3.4.5.2. Benefits of Corpus Analysis

Deeper Understanding: Provides insights into how language is used in real-life contexts, fostering a deeper understanding of English.

Vocabulary Expansion: Helps students discover new words and understand their appropriate use.

Grammar Reinforcement: Strengthens grammar comprehension through observation of practical usage.

Personalized Learning: Suggests relevant learning resources based on individual student needs.

The Corpus Analysis component empowers students to become independent learners by unlocking the secrets of the English language. By providing data-driven insights and interactive exploration, this component fosters a deeper understanding of vocabulary, grammar, and real-world language usage.

3.4.6. Editors-Component

This section delves into the Editors component, a versatile suite of tools designed to empower users of all technical skill levels to create and manage engaging learning content.

Differentiated Approach: The platform offers multiple editors, each catering to users with varying computer proficiency:

- **Novice Editor:** A user-friendly drag-and-drop interface with pre-formatted templates simplifies content creation for beginners.
- **Intermediate Editor:** Provides additional features for formatting and customization, allowing users with some experience to create more complex content.
- **Advanced Editor:** Offers a comprehensive set of editing tools for experienced users, supporting fine-grained control over content structure and advanced formatting options.

Intuitive Interface: Each editor boasts an intuitive and user-friendly interface, minimizing the learning curve and ensuring a smooth content creation experience for all users.

3.4.6.1. Integration with Other Components

The Editors component seamlessly integrates with other platform features, such as:

Content Management System: Created content is stored within the CMS, ensuring easy access and organization for both teachers and students.

Lectures: Teachers can leverage editors to create dynamic and engaging lecture presentations, incorporating multimedia elements like images, videos, or audio recordings.

Grammar Lessons: Additionally, the editors can be used to develop interactive grammar lessons with explanations, practice exercises, and embedded multimedia resources.

3.4.6.2. Benefits of Editors

Accessibility: Caters to users of all technical skill levels, fostering inclusive content creation.

Simplified Content Creation: User-friendly interfaces streamline the process of creating engaging learning materials.

Flexibility and Customization: Different levels of editors offer flexibility and cater to diverse content creation needs.

The Editors component empowers users to become active participants in the learning process by enabling content creation tailored to specific needs. This fosters a more engaging and interactive learning environment while catering to the diverse technical skill levels of the platform's users.

3.4.7. Lectures-Component

This is the interface where the teacher can deliver his text-based and/ or multimedia-based lectures.

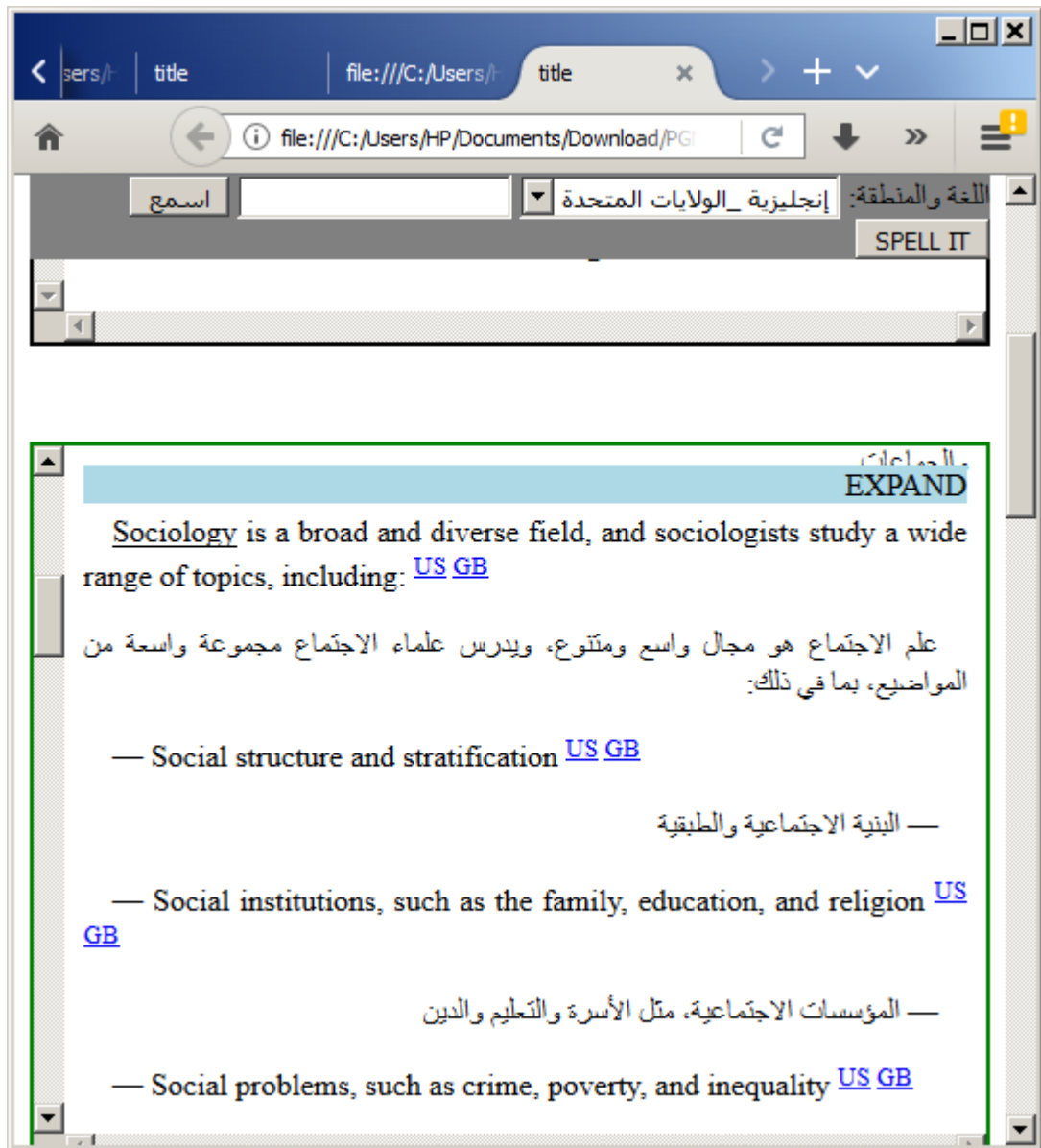


Figure 3.8. Prototype of Lecture Interface

Supports multimedia integration (videos, audio clips, images, tables, links...) for diverse learning styles.

Integrated text-to-speech engine enhances accessibility and comprehension.

Real-time text analysis through the Corpus Analysis component identifies potential language gaps for individual students, informing personalized instruction.

Lectures can be exported in various formats (native, pdf, html) and include student comments for collaborative learning.

3.4.8. Spoken Language Training: (Future Development)

This section provides a glimpse into the envisioned Spoken Language Training component, a planned future development designed to equip students with essential spoken language skills.

Targeted Approach: The component will utilize a fragment-based learning approach, breaking down spoken language into digestible audio segments tailored to student progress.

Interactive Activities:

- **Written Responses:** Students will be able to practice comprehension by responding to audio prompts with written answers.
- **Missing Word Fills:** Interactive exercises will involve filling in missing words in audio segments, reinforcing listening and vocabulary comprehension.
- **Fragment Navigation:** Students can navigate through audio segments to revisit challenging sections or focus on specific aspects of pronunciation or intonation.

3.4.8.1. Integration with Other Components

Evaluation Tests: Performance data from spoken language training modules can be incorporated into overall evaluation to assess progress in spoken communication skills.

Corpus Analysis: The component may leverage the Corpus Analysis engine to provide contextual information and pronunciation examples for specific vocabulary items encountered in the training modules.

3.4.8.2. Benefits of Spoken Language Training

Enhanced Speaking Skills: Focuses on developing spoken language fluency and confidence.

Active Listening Practice: Interactive activities hone listening comprehension skills.

Pronunciation Improvement: Exposure to native speaker audio aids in pronunciation development.

Personalized Learning Path: Tailored training promotes targeted skill improvement.

3.5. Conclusion

The introduction and anecdote have painted a vivid picture of the challenges faced by both educators and students navigating the complexities of English-Medium Instruction (EMI) programmes. At the heart of this issue lies the critical need to bridge the gap between content mastery and language proficiency, a challenge that the CLIL Companion platform aims to address.

The conception of this web-based solution was driven by the recognition that a one-size-fits-all approach to language learning in EMI settings is inherently flawed. Instead, the CLIL Companion platform embraces the heterogeneity of learner needs and preferences, offering a personalized and adaptive learning experience.

By integrating subject-specific content analysis, tailored language support, and engaging interactive features, the CLIL Companion empowers both educators and students to navigate the EMI landscape with greater ease and effectiveness. Language trainers, like the protagonist Omar, can leverage the platform to seamlessly incorporate language learning within their content-focused lessons, addressing the diverse linguistic abilities of their students.

Equally important, the CLIL Companion empowers learners to take ownership of their language development, fostering autonomous learning pathways that are closely aligned with their academic pursuits. This synergistic approach not only enhances students' comprehension of subject-matter but also bolsters their confidence and self-efficacy in using English as the medium of instruction.

The transition to EMI programmes, as exemplified in the anecdote, presents a myriad of challenges that require innovative, technology-driven solutions. The CLIL Companion platform stands as a transformative response, poised to redefine the EMI learning experience and pave the way for greater academic success among Algerian university students.

As this research progresses, further exploration of the CLIL Companion's efficacy, scalability, and adaptability to diverse academic disciplines will be crucial. Continuous engagement with stakeholders, including students, educators, and policymakers, will ensure that the platform remains responsive to evolving needs and maintains its relevance in the ever-changing landscape of higher education.

Ultimately, the CLIL Companion represents a pivotal step towards empowering EMI learners and fostering a more inclusive, technology-enhanced educational ecosystem. By seamlessly integrating content and language instruction, this platform has the potential to unlock new frontiers of academic excellence and drive forward the transformative agenda of Algerian universities.

**4. CHAPTER FOUR: BUSINESS MODEL
RATIONALES AND BRAINSTORMING**

4.1. Introduction

The use of English as a Medium of Instruction (EMI) is rapidly expanding in universities around the world. In Algeria, for instance, the Ministry of Higher Education's decision to transition to English-based instruction creates a significant demand for new educational tools.

4.2. CLIL Companion: A Platform Designed for EMI Programme

CLIL Companion is a web-based platform specifically designed to address the challenges faced by students and teachers in EMI programme. It goes beyond traditional Learning Management Systems (LMS) or Content Management Systems (CMS) by focusing on:

Building Basic Language Skills: The platform provides tools and resources to help students develop the essential vocabulary and grammar needed to succeed in EMI programme.

Supporting Content Delivery and Creation: CLIL Companion empowers teachers to create engaging and effective contents, incorporating multimedia and interactive elements, to target diverse learning styles and different levels.

4.3. Key Features of CLIL Companion

The platform offers a suite of integrated tools that directly target the needs of EMI programme:

Content Management System (CMS): This central hub allows teachers to create, manage, and deliver a variety of learning materials, including text-based lessons, multimedia presentations, quizzes, and assessments.

Evaluation Tests: These tests assess student proficiency in various English language skills, providing valuable data to inform personalized instruction.

Grammar Lessons: A structured curriculum with interactive exercises focuses on key grammar concepts essential for effective communication.

Flashcards: Students can create and manage personalized flashcard sets to actively expand their vocabulary and solidify knowledge retention.

Corpus Analysis: A powerful tool that analyses text within the platform, helping students' gain deeper understanding of vocabulary usage, grammar rules in context, and thematic associations.

Editors: User-friendly editing tools cater to users of all technical skill levels, empowering both teachers and students to create engaging learning content.

Lectures (with future enhancements): This interface allows teachers to deliver lectures with multimedia integration and real-time text analysis to identify potential language gaps for individual students.

4.4. Market Analysis for CLIL Companion

This section analyses the market for CLIL Companion, focusing on the growing demand for EMI programme in Arab countries, particularly Algeria.

4.4.1. Rising Demand for EMI Programme

The Algerian Ministry of Higher Education's decision to transition to EMI creates a significant market opportunity. This shift requires both students and educators to develop strong English language skills for effective learning and teaching.

4.4.2. Challenges Faced by Students and Teachers

Pilot studies conducted at the University of Tlemcen revealed key challenges faced by EMI programme participants:

- **Limited English Proficiency:** Many students lack the basic language skills required to comprehend and participate in English-based courses.
- **Teacher Difficulties:** Language teachers reported challenges in:
 - Addressing diverse student proficiency levels within a single class.
 - Managing time constraints to answer student questions and prepare effective content.
 - Finding suitable resources; existing options are often:

- Complicated and outdated.
- Lacking features to meet specific EMI programme needs.

4.4.3. CLIL Companion as a Solution:

CLIL Companion addresses these challenges by providing:

- **Targeted Support for Building Basic Language Skills:** The platform focuses on foundational language skills crucial for EMI programme success.
- **Engaging Learning Materials and Activities:** Content is aligned with EMI programme and caters to various proficiency levels, keeping learners engaged.
- **Centralized Platform with Integrated Tools and Resources:** CLIL Companion offers a user-friendly platform with:
 - Communication and interaction tools (text, audio, video, forums, Q&A).
 - Content creation and delivery features.
 - Progress tracking functionalities.

4.4.4. Market Size and Potential:

CLIL Companion's impact extends beyond Algeria. The platform can serve EMI programme in other Arab countries and potentially adapt to different languages of instruction, including Arabic for foreign learners. This broadens the potential user base significantly.

4.5. Competitive Landscape for CLIL Companion

4.5.1. Unique Value Proposition

CLIL Companion goes beyond traditional Learning Management Systems (LMS) or Content Management Systems (CMS) by:

- Focusing on basic language acquisition within EMI programme.
- Identifying student needs and suggesting personalized learning paths.

- Offering integrated tools specifically designed for EMI learners:
 - Flashcards.
 - Grammar resources.
 - Progress tracking.

4.5.2. Differentiation from Competitors

While similar functionalities might exist on other platforms, CLIL Companion offers a distinct advantage:

- **Targeted User Interface:** Features are integrated within a user-friendly interface designed specifically for EMI learners.

4.5.3. Competitive Advantages

- **Addressing Specific Challenges:** CLIL Companion addresses the unique challenges of EMI programme, not simply replicating existing tools.
- **Rich Learning Environment:** The platform facilitates communication, interaction, and content creation, fostering a richer learning environment.
- **Customization and Interoperability:**
 - A team of instructors creates content aligned with EMI programme.
 - Algorithms assess learner proficiency and suggest personalized learning paths.
 - CLIL Companion allows import/export of content in various formats, enabling collaboration with other platforms.

The market analysis demonstrates a clear need for CLIL Companion in the growing EMI education sector. Its unique focus on supporting basic language acquisition within EMI programme positions it as a valuable solution for students, educators, and institutions. The competitive landscape analysis highlights CLIL Companion's distinct advantages, paving the way for its success in the marketplace.

4.6. Business Model

This section outlines the proposed business model for CLIL Companion and explains how revenue will be generated. The platform is designed to serve a diverse user base, including:

- **Institutions delivering EMI-programme:** Schools and educational institutions offering EMI programme can subscribe to CLIL Companion for their faculty and students.
- **Teachers:** Both teachers employed by EMI institutions and independent language instructors can leverage CLIL Companion for lesson planning, content creation, and student progress tracking.
- **Self-directed learners:** Individual learners can subscribe to access the platform's resources for independent language learning.

4.6.1. Subscription-Based Revenue Model

CLIL Companion will primarily generate revenue through a tiered subscription model. This model offers different subscription plans with varying features and pricing structures to cater to the diverse needs of its user base. Here are some potential tiers:

- **Free Trial:** A limited-time free trial plan can be offered to new users. This allows them to explore the platform's core functionalities and assess its value before committing to a paid subscription. The free trial plan might have limitations on features, storage space, or content access. Additionally, the free tier can display non-intrusive domestic advertisements to generate some revenue and promote premium features.
- **Basic Plan:** This entry-level plan can offer basic features such as access to pre-built content libraries, vocabulary building tools, and basic progress tracking.
- **Standard Plan:** This mid-tier plan can expand on the basic features by providing functionalities like interactive content creation tools, student progress reports, and communication tools for teachers and students.

- **Premium Plan:** The premium plan can offer the most advanced features, including custom content creation tools, advanced analytics, and integration capabilities with other learning management systems (LMS) used by EMI institutions.

4.6.2. Pricing Considerations

The specific pricing for each subscription plan will depend on factors such as:

- **Target audience:** Pricing for institutional subscriptions might be higher than individual user plans.
- **Features included:** Plans with more advanced features will have a higher price point.
- **Number of users:** Subscriptions for multiple users (e.g., schools) might have tiered pricing based on the number of users allowed.
- **Disk space:** Subscriptions might offer different storage capacities for content creation and resource management.

4.6.3. Deployment and Integration

- **Deployable Version:** CLIL Companion will offer a deployable version for private or group customers who prefer to host the platform on their own servers. This could be attractive to institutions with specific security or data privacy requirements.
- **API Integration:** The platform will provide APIs (Application Programming Interfaces) allowing its core functionalities to be integrated with other learning management systems or educational platforms used by EMI institutions. This can offer additional revenue streams through licensing agreements or partnerships.

Overall, the tiered subscription model with a limited free trial, combined with deployable options and API integration, provides a flexible and scalable approach to generating revenue for CLIL Companion.

4.7. Development and Implementation Plan

This section outlines the development and implementation plan for CLIL Companion, including key phases, milestones, and technologies.

4.7.1. Development Phases

CLIL Companion's development will be phased, focusing on initial validation and then continuous improvement based on user feedback.

4.7.1.1. Phase 1: Minimum Viable Product (MVP) Launch and Validation (3-4 Months)

- **Technical Finalization of Interfaces:** This stage will focus on building functional and user-friendly interfaces for core functionalities like user registration, content access, and basic learning activities.
- **Integration of Core Components:** The core components of the platform, such as flashcards, vocabulary lists, grammar resources, and evaluation tests, will be integrated and tested for functionality.
- **Basic Resource Population:** This involves populating the platform with essential learning materials, including vocabulary lists, grammar explanations, and basic evaluation tests.

4.7.1.1.1. Milestones

- Completion of user interface mockups and prototypes.
- Successful integration of core functionalities.
- Launch of a limited MVP for internal testing and initial user feedback.

4.7.1.2. Phase 2: User Testing, Enhanced Features, and Iteration (3-4 Months)

- **User Testing and Feedback Analysis:** The MVP will be released to a limited group of users for testing. Feedback from users will be collected and analysed to identify areas for improvement.

- **Enhanced Features and Refinements:** Based on user feedback, core functionalities will be refined and additional features may be incorporated (e.g., communication tools, content creation tools).
- **Iterative Development:** This ongoing process involves refining the platform based on user feedback and data analysis.

4.7.1.2.1. Milestones

- Completion of user testing with initial user group.
- Implementation of key enhancements based on user feedback.
- Release of an improved version of the platform with new features.

4.7.2. Technology Stack

- **Front-End Development:** CLIL Companion will leverage web technologies like HTML, CSS, and JavaScript to create user-friendly interfaces.
- **Back-End Development:** PHP will be used for server-side scripting and interacting with relational databases to manage user data and content.
- **Future Integration:** Python integration is planned for potential future features involving advanced functionalities or data analysis.
- **Artificial Intelligence (AI):** The initial development will not involve extensive AI integration. However, the plan acknowledges the potential for using AI in the future for features like personalized learning or automated content creation.

4.7.3. Deployment Strategy

- **Website Launch:** Initially, CLIL Companion will be launched as a web-based platform accessible through a website.
- **Private Servers:** The platform will be hosted on private servers to ensure security and data control.

- **Future Expansion:** Future plans may explore mobile app development or integration with existing learning management systems (LMS) used by EMI institutions.

4.7.4. Long-Term Growth and Sustainability

This is an ongoing process that involves continuous improvement, feature expansion based on user needs, and potential revenue generation through the chosen business model (e.g., subscriptions, partnerships).

GENERAL CONCLUSION

The proliferation of English-Medium Instruction (EMI) programme in Algerian universities has ushered in a new era of academic opportunities, but also presented a multitude of challenges for both students and educators. This dissertation delved deep into the lived experiences of Social Sciences EMI students and language trainers, uncovering invaluable insights that inform the development of tailored solutions to address the language learning needs within this dynamic educational landscape.

The research findings paint a complex picture of the EMI environment. On one hand, the study confirmed the persistent difficulties faced by students in grappling with academic English, particularly in the domains of grammar, vocabulary, and writing. These language barriers often impede their ability to fully comprehend subject-specific content and thrive in their studies. However, the data also revealed the diverse learning preferences and technological aptitude of EMI students, highlighting their strong inclination towards technology-driven learning solutions.

Juxtaposing the student experiences with the perspectives of language trainers provided a well-rounded understanding of the EMI ecosystem. Educators recognized the pressing need for targeted language support that is closely aligned with the subject-specific requirements of their courses. Yet, they also expressed concerns about the adequacy of existing resources in meeting the unique needs of their linguistically diverse learners.

These insights underscored the critical importance of bridging the gap between language learning and content mastery within the EMI context. The proposed CLIL Companion platform emerges as a transformative response, integrating subject-specific content analysis, personalized feedback mechanisms, and engaging technology-based features to empower both students and teachers.

General Conclusion

By leveraging the findings from this study, the CLIL Companion aims to redefine the EMI learning experience, providing a tailored solution that addresses the multifaceted language challenges faced by Social Sciences students. Through its innovative approach, the platform has the potential to enhance student engagement, foster autonomous learning, and ultimately, improve academic achievement.

While the current research employed a sample population from a single university in Algeria, future studies can build upon this foundation by exploring a larger, geographically diverse pool of participants. Longitudinal investigations tracking student progress over time will also shed light on the long-term impact of technology-driven language learning solutions like the CLIL Companion.

This dissertation lays the groundwork for further exploration of the intersection between language learning and content-based instruction in EMI programme. Avenues for future research include investigating the effectiveness of different platform functionalities, exploring the integration of artificial intelligence for personalized learning pathways, and examining the scalability and transferability of the CLIL Companion model to other academic disciplines and contexts.

Ultimately, the successful implementation of EMI programme requires a multi-pronged approach that addresses the unique needs and preferences of all stakeholders. By centring the voices of students and educators, this study has unveiled a pathway towards empowering EMI learners and fostering their academic success. Through continued research and development in this domain, we can unlock the full potential of EMI programme and ensure that Algerian universities remain at the forefront of inclusive, technology-driven educational transformation.

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APPENDICES

Appendix A. Teachers Questionnaire (Language Trainers)

Thank you for taking the time to participate in this research study.

We are interested in understanding the challenges and preferences of English Medium Instruction (EMI) students.

Your insights as a teacher are crucial to this research.

We really appreciate your tolerance, support, and valuable contribution.

Part 1: Background Information

1. What subject areas do you primarily train EMI students and teachers for?

(Select all that apply)

- Social Sciences
- Natural Sciences
- Humanities
- Engineering
- Business
- Other:

Part 2: Objectives

2. What are your primary objectives when teaching English to your EMI class? (Select all that apply)

- For academic purposes (e.g., understanding lectures, writing research papers)
- For communication in the specific subject area
- Developing general English communication skills
- Other:

Part 3: Student-Teacher Communication Challenges

A. Delivering Lessons

3. Briefly describe any challenges you face when delivering lessons to EMI students (use the next field for other challenges and/ or extra insights)

- related to explaining complex concepts,
- related to adapting materials to different proficiency levels,
- related to clarity in explanations.

A. Delivering Lessons (other)

4. You may insert line breaks

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.....

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.....

B. Assignments and Feedback

5. Describe any challenges you encounter when assigning tasks or providing feedback to EMI students. (use the next field for other challenges)

- related to ensuring clear instructions
- related to effectively communicating feedback on written work
- related to accommodating different learning styles

B. Assignments and Feedback

6. other

.....

.....

.....

.....

C. Answering Student Questions

7. Describe any challenges you face when answering questions from your large EMI classes.

- related to limited time for questions,
- related to ensuring all students have the opportunity to ask questions,
- related to addressing questions from students with varying proficiency levels.

D. Other Challenges related to Student-Teacher Communication

8.

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.....
.....
.....

Part 4: Content Delivery Challenges

9. Do you currently use any technology-based tools to deliver your EMI content (e.g., online learning platforms, educational apps, WordPress, Facebook, WhatsApp, Forums...)?

- yes
- No

10. If you use technology-based tools, what are the biggest limitations you encounter? (use the next field for other limitations)

- related to accessibility (e.g. students or I find difficulties accessing it or retrieving previous posts),
- related to usability (e.g. I cannot deliver/ integrate interactive quizzes, style my content, or use specific features such as images, links...),
- related to student engagement (e.g. I cannot track their progress)

11. Other limitations:

.....
.....
.....
.....

12. What additional features would you find helpful in a technology-based tools or applications for delivering EMI content? (For example, these features could be related to content delivery, assessment, student collaboration, etc.)

.....
.....

.....
.....

Part 5: Technology Adoption

13. Would you be interested in testing and providing feedback on a new technology-based application designed to support EMI language training?

- Yes
- No
- Other:

Thank you for your collaboration

Appendix B. Students Questionnaire

مرحبًا!

هذا الاستبيان جزء من بحث أجريه لفهم احتياجات طلاب البرامج الأكاديمية التي تستخدم اللغة الإنجليزية كأداة للتدريس.

يهدف البحث إلى استكشاف التحديات التي تواجهها في تعلم اللغة الإنجليزية لأغراض أكاديمية، وتحديد بعض الحلول والتوصيات المناسبة لتحسين تجربة تعلمك.

أراؤك مهمة للغاية في تحسين تجربة التعلم لجميع طلاب برامج "اللغة الإنجليزية كأداة تدريس". نشكرك جزيل الشكر على وقتك الثمين ومشاركاتك الفعالة، ونقدّر صبرك وتعاونك.

* *Indicates required question*

Check all that apply

Mark only one oval

1. *

أنا سنة أولى ليسانس في كلية العلوم الاجتماعية ولم أملأ هذا الاستبيان من قبل

معلومات عامة (اختيارية إلا أنها قد تعيننا في تحليل البيانات)

2. كيف تصف كفاءتك العامة في اللغة الإنجليزية؟

مبتدئ

متوسط

متقدم

آخر

3. أنت

ذكر

أنثى

4. الفئة العمرية

أقل من 20 سنة

24-20

29-25

34-30

40-35

أكثر من 40 سنة

5. هل لديك دوام عمل؟

نعم

لا

6. سنة الحصول على البكالوريا:

7. هل مضى وقت طويل بينك وبين مقاعد الدراسة قبل استئنافها هذا العام (2023-2024)؟

0 سنة

1 سنة

2 سنتان

3 أو أكثر من 3 سنوات

8. هل درست اختصاصا أكاديميا آخر من قبل؟

لا

نعم

نعم لغة إنجليزية

مبادرات تحسين المستوى في اللغة الإنجليزية

9. هل سمعت بمبادرة المنصة الرقمية للدروس المرئية عبر الخط (*MOOC, Massive Open Online*)

Courses) لتحسين مستوى حاملي شهادة البكالوريا الجدد في اللغة الإنجليزية؟

لا

نعم، ولم ألتحق

نعم، والتحقْتُ

نعم، والتحقْتُ، ثم إنقطعْتُ

آخر

10. في خصوص، مشاركتك في المبادرة أعلاه، الرجاء إخبارنا عن أهم الميزات وأهم الصعوبات (يمكن العودة

إلى السطر):

.....
.....
.....
.....

11. هل سجلت في دورات اللغة الإنجليزية المقترحة من طرف مركز التعليم المكثف للغات (*CEIL*)؟

لا

نعم A1

- نعم A2
- نعم B1
- نعم B2
- نعم C أو أكثر

12. في خصوص تسجيلك في "مركز التعليم المكثف للغات", الرجاء إخبارنا عن الميزات المتعلقة بالتحصيل اللغوي, والتي لها علاقة بتحصيلك الأكاديمي في الوحدات المطلوبة باللغة الإنجليزية:

- توفر بيئة تعليمية داعمة
- مواد تعليمية متنوعة وجذابة
- معلمون أكفاء وذوو خبرة
- فرص للتفاعل والممارسة مع متحدثين أصليين للغة الإنجليزية
- سهولة الوصول إلى الدعم اللغوي
- توفر فرص لمعرفة ثقافات مختلفة
- آخر

13. في خصوص تسجيلك في "مركز التعليم المكثف للغات", الرجاء إخبارنا عن الصعوبات المتعلقة بالتحصيل اللغوي, والتي لها علاقة بتحصيلك الأكاديمي في الوحدات المطلوبة باللغة الإنجليزية:

- صعوبة فهم بعض المفاهيم اللغوية
- الافتقار إلى مهارات التحدث باللغة الإنجليزية بطلاقة
- صعوبة في التعامل مع المواد الدراسية باللغة الإنجليزية
- الضغط النفسي المرتبط بدراسة اللغة الإنجليزية
- قلة فرص التفاعل مع المتحدثين الأصليين للغة الإنجليزية
- آخر

14. عدا المبادرتين المذكورتين أعلاه، هل التحقت بمبادرات أو منصات أو دورات أخرى لتحسين مستوى اللغة الإنجليزية؟

- نعم
- لا

15. الرجاء إخبارنا عن الميزات التي جذبتك إلى مبادرات تحسين المستوى الأخرى, والميزات التي أثارت انتباهك فيها (يمكن العودة إلى السطر):

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.....

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16. هل تجد صعوبات في خصوص المحتوى المعرفي بالإنجليزية في سياق موضوعات الوحدات التي تُدرّس بهذه اللغة؟

- صعوبات متعلقة بالوصول إلى محتوى موثوق
- صعوبات متعلقة بفهم المحتوى
- صعوبات متعلقة باستيعاب المحتوى أو التمرن عليه
- آخر

17. هل تجد صعوبات في الوصول إلى محتوى تعليمي لتنمية كفاءاتك في اللغة الإنجليزية يوافق حاجياتك (الأغراض التي لأجلها قد تحتاج الإنجليزية لدراستك الجامعية) ويساير مستواك؟ (استخدم الحقل الموالي لصعوبات أخرى وللتعليق أكثر)

- 1) صعوبات متعلقة في تقرير المفردات والكلمات والتعبير التي أحتاجها في حياتي ودراستي الأكاديمية والتي يجب التمرن عليها
- 2) صعوبات متعلقة في تقرير المواضيع ذات الصلة بقواعد اللغة والبناء التي أحتاجها أو التي قد تكون عندي ثغرات فيها
- 3) صعوبات متعلقة بتصحيح نطقي وتقويمه
- 4) صعوبات متعلقة بتصحيح سمعي للغة وتقويمه
- آخر

18. حقل إضافي للسؤال السابق

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.....

التحديات والاحتياجات (الموارد واللغة)

19. ما مدى مواجهتك لصعوبات في اللغة الإنجليزية في دراستك الأكاديمية؟

- دائما
- غالبا
- أحيانا
- نادرا
- أبدا

20. ما هي المجالات المحددة في اللغة الإنجليزية التي تواجه فيها أكبر التحديات؟

- القواعد
- المفردات

القراءة والفهم

الكتابة

المحادثة

آخر

21. ما هي الموارد التي تستخدمها حاليا لتحسين مهارتك في اللغة الإنجليزية؟ (يمكن العودة إلى السطر)

.....
.....
.....
.....

22. ما مدى فعالية هذه الموارد بالنسبة إليك؟

فعالة جدا

فعالة إلى حد ما

غير فعالة جدا

غير فعالة على الإطلاق

23. ما هي الميزات والوظائف التي ترغب في رؤيتها في حل قائم على التكنولوجيا لتعلم اللغة الإنجليزية؟ (يمكن

العودة إلى السطر)

.....
.....
.....
.....

تفضيلات التعلم

24. كيف تفضل عادة تعلم اللغة الإنجليزية؟

دراسة فردية

أنشطة جماعية

موارد عبر الإنترنت

آخر

25. ما هي أنواع أنشطة التعلم القائمة على التكنولوجيا التي تجدها أكثر جاذبية؟

تمارين تفاعلية

دروس فيديو

آخر

26. ما مدى أهمية دمج التكنولوجيا في عملية التعلم الخاصة بك؟

- مهمة جدا
- مهمة إلى حد ما
- غير مهمة جدا
- غير مهمة إطلاقاً

صعوبات المهارات اللغوية

اللغة المنطوقة (المحادثة):

- أجد صعوبة في فهم معظم الكلمات التي ينطقها المتحدثون الأصليون (مثل البريطانيين أو الأمريكيين) بالرغم من معرفتي بمعظم الكلمات المكتوبة.
- أستطيع فهم معظم المحادثات في المواقف المألوفة، لكنني أواجه صعوبة في المواضيع المعقدة أو غير المألوفة.
- يمكنني بشكل عام متابعة المحادثات لكنني أفوت بعض التفاصيل أو الفروق الدقيقة.
- أستطيع فهم معظم اللغة المنطوقة مع بعض الجهد والتركيز.
- آخر

اللغة المكتوبة (القراءة):

- عند قراءة النصوص، أضطر غالباً إلى الرجوع إلى القواميس أو أدوات الترجمة لمعرفة معاني الكلمات.
- أستطيع بشكل عام فهم اللغة المكتوبة في المواقف المألوفة، لكنني أواجه صعوبة في النصوص الأكثر تعقيداً أو التخصصية.
- يمكنني بشكل عام متابعة التعليمات المكتوبة وفهم الأفكار الرئيسية للنصوص.
- أستطيع قراءة وفهم معظم اللغة المكتوبة مع بعض الجهد والتركيز.
- آخر

اللغة المنطوقة (التعبير):

- لا أستطيع المشاركة في محادثات بطلاقة.
- أستطيع المشاركة في المحادثات الأساسية، لكنني أرتكب أخطاءً في كثير من الأحيان أو أواجه صعوبة في التعبير عن نفسي بشكل كامل.
- أستطيع بشكل عام التعبير عن نفسي بوضوح وتماسك في اللغة المنطوقة، لكن قد أتردد أو أرتكب أخطاءً عرضية.
- أستطيع التحدث بطلاقة وثقة في معظم المواقف.
- آخر

اللغة المكتوبة (الكتابة):

- أجد صعوبة في كتابة نصوص صحيحة لغويًا وسياقيًا ودقيقة.
- أستطيع كتابة جمل وفقرات بسيطة، لكنني أواجه صعوبة في الكتابة الأكثر تعقيدًا أو الرسمية.
- أستطيع بشكل عام إنتاج نصوص مكتوبة واضحة ومنظمة، لكن قد أرتكب أخطاءً عرضية.
- أستطيع الكتابة بطلاقة وفعالية في معظم المواقف.
- آخر

الترجمة والنقل

- خزينتي اللغوية غير كافية لنقل معارفي من العربية إلى الإنجليزية
- أواجه صعوبة في التعبير عن أفكارتي وخواطري بوضوح بالإنجليزية.
- أجد صعوبة في ترجمة المفاهيم والمصطلحات بدقة
- أرتكب أخطاءً نحوية متكررة في اللغة الإنجليزية.
- أجد صعوبة في تطبيق القواعد النحوية بشكل صحيح في الكتابة والتحدث.
- أحتاج إلى المزيد من الممارسة والتوجيه لتحسين دقة قواعدي.
- آخر

Appendix C. Business Model Canvas (BMC)

The following pages will present the BMC (Business Model Canvas) related to the project:

Project ID: FDLDL-051

Candidate: Mr. TROUZINE Abderrezzaq

Supervisor: Professor Azzoug Omar

Faculty: Letters and Languages

Department: English

Project's Name: CLIL¹ Companion [A Deployable E-Learning Platform Featuring Content-Driven Language Support]

The Project's Idea:

The project was informed from the recent shift to EMI² in Algerian universities.

A shift to EMI has its impact on students, content educators, and language trainers.

- **Students** are supposed to develop stronger *English language proficiency*.
- **Content** Instructors need to have a high level of *English language proficiency*.
- **Language Trainers** may need to develop specialized curricula and *teaching materials* to cater to the *specific language needs* of students and instructors

Value Propositions:

¹ Content and language integrated learning (CLIL) is an *approach* for learning content through an additional language (foreign or second), thus teaching both the subject and the language (Wikipedia).

² English-medium instruction (EMI) is a *system* that uses English as the primary medium of instruction in non-English speaking countries

The project aims at

- Providing tools and resources to help students develop the essential vocabulary and grammar needed to succeed in EMI programme.
- Empowering teachers to create engaging and effective contents, incorporating multimedia and interactive elements.
- Facilitating members communication, interaction, collaboration, and content administration.

[Initial] Team Members: Mr. TROUZINE Abderrezzaq (CTO) and Prof. Azzoug Omar, co-founder and CEO.

Nature of Innovations: Primarily technological innovation, the main innovation is:

Imported English-language texts automatically pass through advanced language processing engine and instantly – based on the end user’s level and progress – generate dynamic and interactive language support.

Customer Segments: Primarily Algerian and/or Arab institutions delivering EMI programmes, English-language institutions, self-directed learners aiming at enhancing English language proficiency through specialised content, and teachers delivering English-language content for Arabic-speaking learners.

Marketing Strategies:

Different plans (free, basic, standard and premium) with different prices based on the number of users, disk space, and period of use.

Minimal Viable Product:

The platform will initially provide for each user (institution’s members), (teacher and his students):

- A content management system (CMS) where members can sign up, login...
- A bank of standard evaluation tests.

- A bank of basic grammar resources.
- A set of language processing/ analysis tools.
- A set of language training tools.
- A set of rich-interactive-content creation tools.

Cost Structure:

Cost Category	Estimated Cost	Explanation
Development Cost	408,000.00	<ul style="list-style-type: none"> * Based on the developer's reported time spent developing the app: * Approximately 6 months of development at 6 hours per day and 5-6 days per week. * Assuming an hourly rate of 200 DZD, this translates to (6 months x 20-25 working days/month x 6 hours/day x 200 DZD/hour).
- Content Management System	198,000.00	* Allocated portion of the total development cost considering the complexity of building core functionalities (e.g., PHP, HTML, JS, CSS, and SQL).
- Lectures, Grammar, Evaluation	54,000.00	* Allocated portion of the total development cost based on the developer's estimated time spent on these specific functionalities (e.g., 3 months at 3 hours/day x 200 DZD/hour).
- Grammar Lesson Development	Variable ¹	<ul style="list-style-type: none"> * The cost will vary depending on the complexity of the lesson and the chosen pricing model (e.g., 200 DZD - 1,000 DZD per lesson). * At least 40 lessons are planned for the MVP. Extra lessons may be added later.

¹ The cost of Grammar Lesson Development and Evaluation Test Development will depend on:

- Pricing model:
 - A fixed fee per lesson (e.g., 500 DZD)
 - A royalty structure based on lesson usage/downloads
 - Tiered options combining fixed fees and royalties
- Complexity of the lessons/tests:
 - Simpler lessons with basic grammar/vocabulary might cost less (e.g., 200 DZD).
 - Advanced lessons with multimedia components could cost more (e.g., 1,000 DZD).

- Evaluation Test Development	Variable	* The cost will vary depending on the complexity of the test and the chosen pricing model (e.g., estimated cost per hour x estimated hours per test). * The developer plans to develop at least 10 standard evaluation tests.
- Text & Corpus Analysis	48,000.00	* Based on the developer's estimated time spent developing this component (e.g., 1 month at approximately 20 working days x full-time hours/day x 200 DZD/hour).
- Components Integration	48,000.00	* Based on the developer's estimated time spent integrating various components (e.g., 1 month at approximately 20 working days x full-time hours/day x 200 DZD/hour).
Maintenance Cost	To be Determined	* The cost will depend on the actual time spent fixing bugs and releasing updates (hourly rate × hours spent).
Hosting Cost (Previous)	7,500.00	* Actual cost paid for the previous low-quality hosting service.
Hosting Cost (Monthly Range)	1,250.00 - 3,125.00	* Converted range (10€ - 25€) per month based on research for better hosting solutions.

Revenue Streams:

Revenue Stream	Description	Minimum Expected Revenue (Year 1)	Explanation
Student Subscriptions	Tiered subscriptions with varying features (Basic - Free, Standard - Paid, Premium - Paid).	2,000,000	* Estimated based on assumptions of: * 10,000 student users in year 1 * 20% conversion rate to paid plans (2,000 users) * Average Revenue Per User (ARPU) of 500 DZD/year for Standard plan users * Assumptions will be validated through market research and user acquisition strategies.

Teacher Group Monetization	Teachers create private groups with student enrolment fees. CLIL Companion receives a platform fee (e.g., 10%) on these fees.	1,000,000	* Estimated based on assumptions of: * 500 active teacher groups in year 1 * Average of 10 students per group * Average student fee of 200 DZD/month (teachers keep 90%) * 10% platform fee on student fees collected * These are conservative estimates; actual revenue could be higher depending on teacher adoption and student enrolment rates.
In-App Advertising	Display unobtrusive domestic advertisements in the free student plan.	500,000	* Estimated based on industry averages for similar apps in Algeria (Cost Per Mille - CPM rates). * This is a potential additional revenue stream, and the actual amount will depend on the number of free plan users and ad impressions served.

The Prototype:

A chapter dealing with the prototype conception, design, and development was included within the dissertation.

A video was prepared and presented.¹

¹ <https://youtube.com/playlist?list=PLVdmXMnaNgCmof8zuJM29yf7sfhfM4F8v>

<p>Key Partners</p> <p>Educational institutions: EMI programmes providers to offer CLIL Companion as a recommended platform.</p> <p>Content providers: Educational content creators to expand the platform's resource library.</p> <p>Technology companies: Companies specializing in AI and language learning technologies to advance CLIL Companion's capabilities.</p>	<p>Key Activities</p> <p>Platform development and maintenance: Improving the platform based on user feedback and market trends.</p> <p>Content creation: Developing engaging content aligned with customer's needs.</p> <p>Marketing and user acquisition: Implementing strategies to attract teachers, students, and language trainers.</p> <p>Customer support: Providing timely support.</p>	<p>Value Propositions</p> <p>Targeted Support for Building Basic Language Skills</p> <p>Engaging Learning Materials and Activities.</p> <p>Centralized Platform with Integrated Tools and Resources</p> <hr/> <p>Channels</p> <p>Deployable platform.</p> <p>Website.</p> <p>Subdomain access.</p> <p>API integration.</p>	<p>Customers</p> <p>Relationship</p> <p>Video tutorials.</p> <p>Online support.</p> <hr/> <p>Key Resources</p> <p>Remote and local servers.</p> <p>Web development team.</p> <p>Content creators</p>	<p>Customer Segments</p> <p>Primarily institutions delivering EMI programmes</p> <p>English-language institutions</p> <p>Self-directed learners</p> <p>Teachers</p> <hr/> <p>Revenue Streams</p> <p>Different subscription models</p> <p>Free trial plans including domestic ads.</p> <p>API integrations and license agreements.</p>
<p>Cost Structure</p> <p>Development and maintenance: Development, content creation, as well as platform maintenance fees.</p> <p>Servers' costs.</p> <p>Educational resources: Acquiring or creating educational content for the platform.</p> <p>Formations: Training the [future] team on web development, educational technologies, and/ or pedagogical approaches.</p>				

RÉSUMÉ

L'adoption croissante de l'enseignement en anglais (EMI) dans les universités algériennes présente des défis pour les étudiants, les enseignants de contenu et les formateurs en langues. Cette étude explore les besoins des étudiants de l'EMI et propose une plateforme Web interactive, « CLIL Companion », comme solution conçue pour combler le fossé entre l'apprentissage des langues et le contenu spécifique à une matière. Une étude de cas exploratoire avec une composante d'évaluation des besoins a utilisé des questionnaires distribués via Google Forms aux étudiants de première année en sciences sociales et aux formateurs en langues de l'Université de Tlemcen. Les étudiants en sciences sociales sont confrontés à des défis avec l'anglais académique, en particulier la grammaire, le vocabulaire et l'écriture. Ils démontrent des styles d'apprentissage diversifiés et une préférence pour les solutions basées sur la technologie. Les ressources existantes peuvent ne pas répondre adéquatement à leurs besoins spécifiques. CLIL Companion est conçu pour répondre à ces résultats. La plateforme s'adresse à différents niveaux de compétence en analysant des textes spécifiques à une matière et en proposant des cours de grammaire intégrés. Il offre des fonctionnalités telles que des tests d'évaluation, des ressources personnalisées, des activités interactives et la mise en évidence du vocabulaire. Ces fonctionnalités, combinées à d'autres composants (système de gestion de contenu, fiches de vocabulaire, outils d'édition, et outils de création de cours), créent une suite complète pour une mise en œuvre EMI réussie. CLIL Companion a le potentiel de responsabiliser toutes les parties prenantes de l'environnement EMI en fournissant un support linguistique ciblé et une diffusion de contenu engageante. Des recherches supplémentaires sont nécessaires pour évaluer son efficacité à améliorer les résultats d'apprentissage des étudiants.

ملخص

يمثل الاعتماد المتزايد لاستخدام اللغة الإنجليزية كأداة تعليم (EMI) في الجامعات الجزائرية تحديات لكل من الطلاب، ومعلمي المحتوى، ومدربي اللغة. تستكشف هذه الدراسة احتياجات طلاب EMI وتقترح منصة ويب تفاعلية، "*CLIL Companion*"، كحل مصمم لسد الفجوة بين تعلم اللغة والمحتوى المتخصص. استخدمت دراسة حالة استكشافية مع عنصر تقييم الاحتياجات من خلال استبيانين تم توزيعهما عبر Google Forms على طلاب السنة الأولى في العلوم الاجتماعية ومدربي اللغة في جامعة تلمسان. يواجه طلاب العلوم الاجتماعية تحديات في اللغة الإنجليزية الأكاديمية، وخاصة القواعد والمفردات والكتابة. يُظهرون أساليب تعليمية متنوعة ويفضلون الحلول القائمة على التكنولوجيا. وقد لا تلبى الموارد المتاحة احتياجاتهم المحددة بشكل كاف. تم تصميم *CLIL Companion* لمعالجة هذه النتائج. تلبى المنصة مستويات الكفاءة المختلفة من خلال تحليل النصوص الخاصة بموضوع معين وتوفير دروس قواعد متكاملة. فهو يوفر وظائف مثل اختبارات التقييم والموارد الشخصية والأنشطة التفاعلية وإبراز المفردات. تعمل هذه الميزات، جنبًا إلى جنب مع المكونات الأخرى (نظام إدارة المحتوى، والبطاقات التعليمية، وأدوات التحرير، وأدوات بناء المحاضرات)، على إنشاء مجموعة شاملة لتنفيذ EMI بنجاح. يتمتع *CLIL Companion* بالقدرة على تمكين جميع أصحاب المصلحة في بيئة EMI من خلال توفير الدعم اللغوي المستهدف وتقديم المحتوى الجذاب. هناك حاجة إلى مزيد من البحث لتقييم مدى فعاليته في تحسين نتائج تعلم الطلاب.