

Can CLIL work for ‘special’ populations?

**A study to determine if a non-traditional
approach to education serves the
non-traditional student**

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Abstract:

Content and Language Integrated Learning (CLIL) is a European methodology that has taken off across the world as an innovative, student-centered approach to foreign language teaching. CLIL is a non-traditional answer to combat the traditional, outdated classroom and I believe that the CLIL Methodology could be effectively used with non-traditional students or populations that typically struggle in the traditional classroom. CLIL is composed of specific theories and classroom strategies that are also recommended for special populations, such as individuals with Autism Spectrum Disorder (ASD) and individuals with Attention-Deficit / Hyperactivity Disorder (ADHD). This dissertation explores the methodologies behind these three groups, connecting the educational strategies used, such as: student-centered instruction, scaffolding, active learning, task-based and project-based learning, communicative approach, collaborative and cooperative learning, Bloom's Taxonomy, Multiple Intelligence Theory, technology in the classroom, and integrated curriculum. Furthermore, bilingualism is shown to have positive results in special populations. My findings indicate that CLIL is a viable and recommendable approach to use in special education with special populations of students with ASD and ADHD.

Key Terms: Content and Language Integrated Learning (CLIL), Autism Spectrum Disorder (ASD), Attention-Deficit / Hyperactivity Disorder (ADHD), Special Education, Classroom Methodology, Student-Centered Approach, Foreign Language Acquisition, Active Learning

Resumen:

El Aprendizaje Integrado de Contenidos y Lenguas Extranjeras (AICLE) es una metodología europea e innovadora que ha despegado en todo el mundo con su enfoque centrado en el estudiante para la enseñanza de lenguas extranjeras. AICLE es una respuesta no tradicional para combatir el aula tradicional y obsoleto, y creo que su metodología podría ser eficaz con estudiantes y poblaciones no tradicionales que normalmente tienen dificultades en el aula tradicional. AICLE se compone de teorías específicas y estrategias del aula que también se recomiendan para poblaciones especiales, como individuos con Trastorno del Espectro Autista (TEA) e individuos con Trastorno por Déficit de Atención e Hiperactividad (TDAH). Esta tesis explora las metodologías de estos tres grupos y conecta las estrategias educativas utilizadas, tales como: instrucción centrada en el estudiante, andamiaje, aprendizaje activo, aprendizaje basado en tareas y proyectos, enfoque comunicativo, aprendizaje colaborativo y cooperativo, Taxonomía de Bloom, Teoría de la Inteligencia Múltiple, tecnología educativa y currículo integrado. Además, se ha demostrado que el bilingüismo tiene resultados positivos en poblaciones especiales. Mis resultados indican que AICLE es una metodología viable y recomendable para su uso en la educación especial con poblaciones especiales de estudiantes con TEA y TDAH.

Palabras Claves: Aprendizaje Integrado de Contenidos y Lenguas Extranjeras (AICLE), Trastornos del Espectro Autista (TEA), Trastorno por Déficit de Atención e Hiperactividad (TDAH), Necesidades Educativas Especiales, Metodología Educativa, Instrucción Centrada en el Estudiante, Adquisición de Lengua Extranjera, Aprendizaje Activo

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1. INTRODUCTION

Education: a hot topic around the world. Depending on the country, culture, values, and resources, education can look vastly different; however, it can be argued that there is one main goal in education. This unifying end goal in education is, simply put, to have students learn. Primarily in education, one of the main questions that is asked by all stakeholders is this: what is the best way to achieve this goal of learning? In my own educational journey and while studying education, I have been introduced to the concept of ‘CLIL’, or Content and Language Integrated Learning. CLIL is an innovative, student-centered methodology that provides a well-rounded and unique approach to learning that could very well be the answer to this essential question in education.

As a student in the program of the Intercollegiate Master’s Degree in Bilingual Education and Content and Language Integrated Learning through the University of Jaén in collaboration with the University of Córdoba and Oxford University Press, I have studied CLIL in-depth, learning about the intricacies of CLIL and the incredible methodology that encapsulates and supports this concept. Based on the research and results presented, the positive effects and progress that CLIL has made over the last few decades in the educational realm reach farther than being impressive and could truly present a solution to our main goal and question of how to best achieve learning. Despite this overwhelmingly positive viewpoint that I have developed towards CLIL, I was still left with a nagging question. In all of the CLIL research and development happening across Europe and around the world, why is the focus of this methodology purely on a ‘traditional’ student? The CLIL methodology strives to break through the boundaries of the traditional classroom, overturning the concepts and practices that are foundational to traditional education, so why are we limiting CLIL to students that fit into a more traditional category?

Particularly, my mind immediately goes to all of the students that struggle in a traditional classroom or who might be excluded from the traditional classroom altogether. How does the non-traditional approach of CLIL work for them? Is CLIL the answer for ‘problem’ students or for students that are already not in the mainstream classroom? To me, the idea seems simple: a non-traditional approach for non-traditional students. The question, therefore, is then figuring out whether the particular non-traditional approach of CLIL is the

most feasible or effective educational methodology for different groups of non-traditional students.

1.1. Justification and problem formulation

To address this concept of using CLIL for non-traditional student populations, this dissertation will take a closer look at the specific methodologies and classroom strategies that build up CLIL and compare them with what is shown to work for specified groups of non-traditional students as well as looking at the particular problems that a distinct type of student usually faces in a traditional classroom setting. In doing this, it will be able to be determined whether or not CLIL is a viable solution for these student groups. For the purpose of this research, my main question, and consequently title, is: *Can CLIL work for 'special' populations?*

In this paper, the term 'special populations' refers to a generalized group of students that do not fit inside the box of a 'traditional' student. In the United States, 'special populations' is an umbrella term for individuals that qualify for services in the 'special education' realm. This realm of education and classification of 'special' population refers to a very wide range of students that can include numerous individuals and disorders, such as high-functioning and low-functioning Autism Spectrum Disorders, Down Syndrome, specific learning disabilities or mental impairments, Attention Deficit / Hyperactivity Disorder, Deaf students, Gifted and Talented, etc. It is not uncommon for these types of students to be in classrooms that are separated from the mainstream students, or for these populations of students to receive particular services in a hybrid pull-out program, or for students to have specific accommodations and classroom adaptations set forth by an Individualized Education Plan.

In the United States, special education services and support offered to students have made leaps and bounds to try and close the educational gap and make learning equitable for all students. While I commend the progress that has been made and the efforts put forth to support special populations in education, I still must ask: is this the best way that we can be serving our students? Are the classroom environments wholistically and collectively engaging 'special' students in a way that kindles their potential in the most effective manner

possible? Could focusing on a CLIL approach with these types of students serve them in a more heightened, inclusive, engaging, and nurturing way that would promote their cognitive and social growth and consequently their overall well-being?

1.2. Formulation of the hypothesis, objectives and research questions

Because there is barely any research that specifically addresses both the CLIL methodology and the ‘special’ population of students, I seek to propose this concept and connect these two ideas to hopefully jumpstart further investigation and practical research. While I would like to eventually study the effects of CLIL on the entire range of students that belong under the term of ‘special populations’, for the practical purposes of this dissertation, I will focus on two particular sub-groups: Autism Spectrum Disorder and Attention-Deficit / Hyperactivity Disorder. I have chosen to study these two sub-groups of special populations because they encompass a large portion of individuals that are classified under the special education category in the United States. According to various sources, about 12% of all students that have an Individualized Education Plan and are receiving special education services in the United States have Autism Spectrum Disorder (National Center for Education Statistics, 2023; Schaeffer, 2023). It is also estimated that at least one-third of students receiving special education services have Attention-Deficit / Hyperactivity Disorder (Murray et al., 2014), while over one-tenth of all American students are diagnosed with ADHD (Cooney, 2020), and many more students are either undiagnosed or do not receive special education services for ADHD (The Understood Team, 2023). Furthermore, it is estimated that almost one-tenth of the population of Americans in the United States are undiagnosed and have one of these disorders (Centers for Disease Control and Prevention, 2022c; Jordan, 2022). On top of this fact, each of these sub-groups actually represent an umbrella term in themselves that relates to and identifies with a larger range of students and variety of presentations and unique struggles within the classroom setting.

One of the motivating factors for this theoretical research study is due to the fact that this student body is not the particular student that is usually thought of for a CLIL program or recommended to participate in a CLIL classroom. Because the CLIL methodology has had such positive effects on students that have taken part in these types of programs, I think it is important to research and discover if CLIL could branch out and be applicable to a larger and

more diverse student population. CLIL is a methodology that is already in question and scrutinized by people to gauge whether or not it is a realistic, trustworthy, and beneficial type of program to use with students. Some question whether students can truly learn and succeed under this methodology or if CLIL in some way hinders them. Because of this, it is necessary to continue studying CLIL as a viable and recommendable educational method.

The social importance of this study is to be as inclusive as possible for all types of students. My objective is to gather information and research on a population of students that can sometimes be overlooked and not given the same opportunities to participate in different types of academic programs or activities that might actually benefit their learning and meet their needs in a better way than a traditional model. Furthermore, because people have doubts as to whether or not a CLIL methodology can work with ‘regular’ students, this research project can help support a pro-CLIL mindset by showing that CLIL not only works for ‘regular’ populations of students, but also that it is a good methodology for ‘special’ populations of students as well.

To address my overall research question of *Can CLIL work for ‘special’ populations?* I have formulated the following hypothesis: The CLIL methodology is a valid and viable classroom approach to use with ‘special’ populations. To further my hypothesis and take this concept one step further, I propose and suspect that all of the classroom strategies used within the CLIL methodology actually better meet the needs of these types of students than a traditional classroom methodology, which therefore would encourage the use of CLIL in special populations.

In this dissertation, to look into this notion, I will first focus on key concepts involved in this discussion, namely CLIL and special populations. Next, I will delve into the methodology of CLIL, looking at the classroom strategies used in CLIL programs. After that, I will study the effects of bilingualism and foreign language learning. Subsequently, I will further examine how these concepts affect special populations as well as study the classroom methodologies used in special education. Lastly, all of these ideas will be viewed as an interconnected whole to reach our final conclusion and answer the question, *Can CLIL work for ‘special’ populations?*

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

As the overall concepts, problem, and hypothesis have been introduced, it is pertinent to now look deeper into the existing literature and research that has been conducted on these topics and develop a more profound and comprehensive understanding to then draw conclusions. First, I will focus on defining the key concepts involved, flesh out CLIL methodology and approaches, explore bilingualism and foreign language learning, and finally take a deeper look into special populations.

2.1. Key Concepts

2.1.1. What is ‘CLIL’?

2.1.1.1. The definition of ‘CLIL’

First, to define what a CLIL classroom is, ‘CLIL’ is an acronym created in 1994 that stands for Content and Language Integrated Learning and represents a specific teaching methodology that uses a foreign target language to teach content subjects. In this sense, CLIL ultimately teaches content through a target language, creating a “dual-focussed” component that emphasizes both language and content simultaneously (Marsh & Langé, 2000, p. 6). At the underlying core of CLIL, there are two goals that are fused together: language acquisition and development as well as the learning of subject-matter knowledge (“Topic 1: What is CLIL?”, n.d.). By intertwining these educational goals, the CLIL methodology offers an educational experience that is not only well-rounded but also more natural to the learner, as it mimics natural development in real life where contents and languages and subject matter are not separated into distinct realities but that exist cohesively in the natural world.

At the beginning of his 2002 article, Dr. David Marsh, one of the pioneers of CLIL education and research, defines CLIL as “any dual-focused educational context in which an additional language, thus not usually the first language of the learners involved, is used as a medium in the teaching and learning of non-language content” (p. 15). While some might read this definition and argue that CLIL is simply a version of bilingual education, it is so much more than that. To be a truly effective CLIL program, there are very specific methodologies and classroom strategies that must be used. One of the foundational elements

of CLIL that sets it apart from other bilingual and foreign language programs is the fact that it is focused around the student and utilizes specific strategies to deliver the contents in a foreign language so that it is accessible to the student.

It is true that some of the practices used in CLIL might overlap with other strategies and programs seen, however there exist “fundamental differences” of CLIL, as defined by Coyle, Hood, and Marsh (2010, p. 1). As stated, “CLIL is content-driven, and this is where it both extends the experience of learning a language, and where it becomes different to existing language-teaching approaches” (Coyle et al., 2010, p. 1). Furthermore, a traditional classroom and educational approach cannot be switched into a foreign language and then achieve the stamp of CLIL because the content is now being delivered in a foreign language. When considering the idea, it is important to note that, with CLIL, “achieving this twofold aim calls for the development of a special approach to teaching in that the non-language subject is not taught *in* a foreign language but *with* and *through* a foreign language” (Eurydice, 2006, as cited in Coyle et al., 2010, p. 3). Furthermore, a unique aspect of the CLIL classroom is a focus on “fluency over accuracy”, where the primary goal is communication (“Topic 1: What is CLIL?”, n.d., p. 9). A student does not need to be perfect in the foreign language nor strictly focus on grammar and rules, leading the way for applicable use in real-world situations while developing a higher ability of adaptation, conceptualization, and critical problem solving.

Another reason that CLIL is distinctly separate from other bilingual programs and methodologies can be found in what Coyle (2007) denotes as the *4 Cs framework* of CLIL. Coyle’s 4 Cs framework includes: *content* (subject matter), *communication* (language learning and using), *cognition* (learning and thinking processes), and *culture* (intercultural understanding and global citizenship). So while the simplified definitions of CLIL denote the dual focus of content and language, there exist complexities within the nature of CLIL that delve beyond that and reach into cognitive neurological processes as well as cultural development and understanding, making the CLIL methodology a truly unique, multi-faceted learning experience that produces well-rounded individuals.

2.1.1.2. *Who is CLIL intended for?*

The term CLIL was widely adopted and used throughout Europe after its initial introduction in the Netherlands and was supported by the European Commission, EuroCLIC, and the European Network of Administrators, Researchers, and Practitioners (Marsh, 2002). CLIL was first used to define some of the successful educational practices that were already happening in Europe and across the world and to then further study what exactly was making different programs have positive results. Because there were various accomplishments worldwide in programs that operated in distinct educational contexts, there arose a desire to discover what exactly was at the root of these programs and how they were similar. In a sense, “CLIL set out to capture and articulate that not only was there a high degree of similarity in educational methodologies, but also an equally high degree of educational success” (Coyle et al., 2010, p. 3). What is intriguing about CLIL is that it does promote the development of cognitive, social, and language skills all at the same time leading to a robust environment for learning and improvement.

To me, the CLIL methodology helps to produce a twenty-first century version of a term that I learned in my high school humanities class: the *Renaissance Man*, or what can be considered as a ‘Universal Human’ (Britannica, 2020). In a nutshell, a Renaissance human is a person who is multifaceted in their capabilities and is an all-around well-skilled and developed intellectual human capable of interacting and succeeding in a variety of environments within different social classes, contexts, and requirements. Discovering and consequently promoting the CLIL methodology, especially in a European context, had the end goal of producing what I know to be Renaissance people. Students that participate in and complete CLIL programs should, in a general overarching sense, come out the other end as lifelong learners who are able to navigate the multilingual, multicultural, and multidisciplinary societies that we live in today. As Europe is famous for its conglomeration of languages, cultures, and skills, it only makes sense that the concept of CLIL was latched onto by leaders in European education and studied to try and diffuse this practice in a widespread manner across Europe so that the upcoming generations would become worldly citizens capable of skillfully maneuvering in and contributing to a modern global society.

Furthermore, the CLIL methodology has become an answer to what is known to some as a language crisis in parts of Europe. There is an inherent need for sustainable foreign

language learning in Europe to not only meet societal demands but also to reach goals set forth by the European Commission, where there is an established need for European citizens to be fluent in at least three European languages, including the mother language plus two additional languages (European Commission, 1995). As one of countries that has not scored highly on foreign language proficiency in European surveys, Spain has embraced the CLIL methodology as a tool to overcome these shortcomings and improve chances at successful acquisition of foreign languages. Moreover, because of the language situation in Europe, “CLIL has had an exponential uptake across Europe over the past two decades, gradually becoming an established teaching approach” (“Topic 2: Why has CLIL burgeoned?”, n.d., p. 6).

2.1.1.3. Results of CLIL

Overwhelmingly, the results of the CLIL methodology are positive. As Pérez Cañado (2013) established, there are positive effects from CLIL over various dimensions, including in linguistics, content knowledge, learning, cognition, teaching, motivation, social, cultural, and pragmatics. Firstly, the students’ language learning experience is dramatically altered from that of a traditional foreign language classroom, allowing for there to be natural acquisition of the language with a deeper and well-developed use of the target language. In a CLIL classroom, “language is seen as a tool for communication from the outset of instruction and is used in uncontrived real-life situations. Learners are pushed to produce more meaningful and complex language and fluency is fostered,” (Pérez Cañado, 2013, p. 16). Furthermore, the learning of the content through the foreign language has not detracted from the actual subject matter at all; because students are utilizing a target language and accompanying strategies present in CLIL, critical thinking is required and students become more engaged on a higher level to access that content. When considering these cognitive processes involved in CLIL, “it advances learners’ cognitive development, broadening their conceptual mapping resources, and develops a wider range of skills: not only communicative ones, but also problem-solving, risk-taking, pragmatic, and interpersonal abilities,” (Pérez Cañado, 2013, p. 17). Moreover, when the students are more engaged and involved, their intrinsic motivation increases along with their confidence, enabling them to achieve their goals and go beyond a surface level of learning. Furthermore, overall, students are also

observed to be more socially aware and capable of advanced interpersonal communication and involvement in modern society as developed global citizens, which not only increases their personal satisfaction and experience but opens up more opportunities in professional settings as well. While critics would point out that downsides to CLIL include a higher demand from both the teachers and the students, the positive effects of CLIL far outweigh the more negative aspects of Content and Language Integrated Learning that require more planning, effort, time, and resources.

In a debate over the methodology and outcomes of Content and Language Integrated Learning, expert Hugo Beaten-Beardsmore effectively speaks to the positive results of CLIL instruction (Macmillan Education ELT, 2009). Overall, Beaten-Beardsmore summarizes that there are added values on three levels of analysis: firstly, on language, because there is more content and it is immediately useful; secondly, on content, because there is no loss or decrease in the content with CLIL; and thirdly, on cognitive operations. The third part they were able to distinctly observe in their research when looking at how children performed on different tests with different levels of cognitive tasks in the different languages. Beaten-Beardsmore also elaborates that, overall, as for content, students that participated in CLIL programs did equally as well on exit-level standardized tests than those who did not. Furthermore, when analyzing the cognitive operations, the difficulty of the tasks requiring higher-order thinking can be categorized as low, middle, and high. In their research, on the lower cognitive tasks, students performed the same in both L1 and L2 (Macmillan Education ELT, 2009). On the middle difficulty tasks, students performed slightly stronger in their L1 as opposed to the L2. Lastly and interestingly enough, on the most difficult cognitive tasks, students performed better in the L2 than in the L1. Beaten-Beardsmore concludes that L1 was better for knowing factual information, whereas the L2 gave the students more ‘know-how’, that is, they were consistently more competent on operational activities because the L2 forces them to slow down, think deeper, and concentrate harder than one normally would in their L1.

Overall, there are a multitude of recent research projects that prove CLIL to be a viable and recommendable methodology. In a 2016 study by Ouazizi, after participating in a CLIL program, students’ levels of understanding, motivation, and ability towards both the content area (mathematics) and the foreign language (English) improved and did so at a more effective rate than non-CLIL courses. In a study published in 2014 by Mattheoudakis et al.,

positive effects are noted after implementation of CLIL methodology in subject area coursework. Likewise, Surmont et al. show in their 2016 study that there are more positive effects on content acquisition in CLIL classrooms as opposed to the comparable traditionally structured ones. In a 2017 study from Pérez Cañado and Lancaster, students that participated in CLIL programs were shown to have higher overall productive oral skills than those who were in non-CLIL programs. Pérez Cañado also shows that CLIL is a “recommendable” methodology when analyzing results of linguistic competences (Pérez Cañado, 2018a, p. 68). In another study from Pérez Cañado in 2018, CLIL is shown to not have any negative impacts on development of students’ native language while simultaneously producing positive, long-term outcomes (Pérez Cañado, 2018b). Another study by San Isidro and Lasagabaster (2018) shows that even in multilingual CLIL programs, a positive ability to learn the content is not negatively affected by using foreign languages. In a 2020 study by Fang, the implementation of CLIL methodologies cultivate a student-centered classroom with a high success rate and prepare students with applicable skills for the real world. Studies published in 2022 by Stavroula and Anastasiadou find that the cross-curricularity of CLIL teaching methods favors information processing, problem-solving skills, critical reasoning, and cross-cultural understanding along with communication and collaboration skills that ultimately increases students’ motivation and overall success. As demonstrated, there are a multitude of studies that prove the success of Content and Language Integrated Learning.

2.1.2. What is ‘special populations’?

2.1.2.1. The definition of ‘special populations’

As mentioned in the introduction, ‘special populations’ is a generalized term that is widely used in the educational realm of the United States of America. Students that are classified as part of the special population can be categorized as a non-traditional student, which therefore implies that their learning experiences and needs are different from what would be considered as conventional. People that fall under the category of special populations can demonstrate a large range of abilities, disorders, and functions, with some of the common classifications defined as high-functioning and low-functioning Autism Spectrum Disorders, Down Syndrome, Attention Deficit / Hyperactivity Disorder, Deaf

students, Gifted and Talented, and other specific learning disabilities, mental, or physical impairments.

The United States Office of Elementary and Secondary Education states that “*special populations* refers to students that must overcome barriers that may require special consideration and attention to ensure equal opportunity for success and in an educational setting” (Office of Elementary and Secondary Education, 2020). Because a goal of the United States is to make education accessible to all, the United States Department of Education offers supports and programs at all levels of education “to meet the diverse needs of every student, including these special student populations” and it is agreed upon that “these students must be provided support that will ensure they have equal access to education resources and opportunities” (Office of Elementary and Secondary Education, 2020).

In legal terms, *special populations* is defined as individuals with disabilities and can also extend to encompass individuals from low-income families and those with economic disadvantages or whom are homeless, single parents or single pregnant women, English Language Learners, youth who have been in the foster care system, out-of-workforce individuals, and youth who have at least one parent on active duty in the military or who is a member of the armed forces (Legal Information Institute, 2006). While *special populations* reach a wide range of individuals whom I do believe could benefit from the methodologies discussed in this research, for purposes of this specific dissertation we will focus on the first and most common legal definition of special populations referring to *individuals with disabilities*. Because the idea of ‘individuals with disabilities’ is also so far-reaching and all-encompassing, I will narrow the focus on two specific population groups that fall under the special populations umbrella term, and that is individuals with Autism Spectrum Disorders as well as individuals with Attention-Deficit / Hyperactivity Disorder.

2.1.2.2. *Autism Spectrum Disorders (ASD)*

Autism Spectrum Disorder, or ASD, is classified as a developmental disability caused by differences in the brain with a wide range of symptoms that affects social communication and interaction and daily functioning. The Centers for Disease Control and Prevention (CDC) states that “people with ASD may also have different ways of learning, moving, or paying

attention” and “for people with ASD, these characteristics can make life very challenging” (2022a). There are several different disorders that fall under this umbrella category of ASD and individuals with ASD can be high-functioning or low-functioning.

One of the primary presentations in individuals with Autism Spectrum Disorder is a difficulty with the accepted norms of social communication and interaction skills, as stated by the CDC. The CDC (2022a) also explains that other characteristics commonly present in those with ASD are a delay in the development of language, movement, cognitive, and learning skills. Furthermore, common observable behavior in ASD is hyperactivity, impulsivity, and inattentiveness. Individuals with Autism Spectrum Disorder are known to have “unusual” eating and sleeping habits or moods and emotional reactions, and it is common for them to experience excessive worrying, fear, anxiety, and stress. Other physical implications of ASD include gastrointestinal issues as well as seizure disorders such as Epilepsy (Centers for Disease Control and Prevention, 2022a).

Autism is officially designated as a spectrum disorder because it involves and groups multiple different disorders that have similar presentations and features. As the Special Olympics organization outlines (2020), the three main categories of ASD include:

- 1) Autistic Disorder, or ‘classic’ autism
- 2) Asperger Syndrome
- 3) Pervasive Developmental Disorder Not Otherwise Specified, or PDD-NOS, also known as ‘atypical’ autism

The first under the category of ASD, Autistic Disorder, is considered to be the typical presentation of ASD or is at least what many people think of when they think of the term *autism*. The second presentation of ASD, Asperger Syndrome, can be known as a more high-functioning form of autism because many individuals with Asperger Syndrome have intelligence skills and language capabilities that are normal or above-average. The third category of ASD, PDD-NOS, includes some but not all of the characteristics of the first two categories and also contains the sub-category disorders of Childhood Disintegrative Disorder and Rett Syndrome, where skills are developed normally within the first months and years of life but then those skills are significantly decreased or lost, resulting in a presentation of ASD (Special Olympics, 2020).

Furthermore, the Special Olympics (2020) defines Autism Spectrum Disorder as “a complex neurological and developmental disorder that affects how a person acts, communicates, learns, and interacts with others” that also alters the nervous system as well as the functions and structure of the brain. When looking at the CDC’s conclusions on teens and adults living with ASD, there are huge impacts on daily life. Multiple studies show that individuals with Autism Spectrum Disorder have high rates of unemployment and low rates of participating in education after high school (Centers for Disease Control and Prevention, 2022b).

Due to the many symptoms and characteristics of Autism Spectrum Disorder, it is clear that there is a need to support these individuals in a non-traditional way. The National Institute of Mental Health (2023a) names a variety of treatments and therapies that are commonly used for individuals with ASD and states that many need a combination of different therapies, services, and treatments. Sometimes, medication is recommended to help treat symptoms, and oftentimes those with ASD are referred to specialists who can provide them with non-medication services. These treatments include interventions that focus on building behavioral, social, psychological, educational, and communication skills. Moreover, these programs often focus on building up strengths that individuals already possess and giving them tools to develop life skills so that they can live independently and function successfully within modern society (National Institute of Mental Health, 2023a).

2.1.2.3. Attention-Deficit / Hyperactivity Disorder (ADHD)

Attention-Deficit / Hyperactivity Disorder, or ADHD, is a common neurodevelopmental disorder that presents many different symptoms and can cause problems in school due to trouble paying attention, being overly active, and impulsive behaviors, among other characteristics. The Centers for Disease Control and Prevention classifies ADHD as a learning disorder that can cause behavior and conduct problems as well as having difficulty maintaining peer relationships (2023b).

Similar to Autism Spectrum Disorder, Attention-Deficit / Hyperactivity Disorder acts as an umbrella term that encompasses different varieties of the same common disorder. Similarly, there are also three main types or “presentations” of Attention-Deficit /

Hyperactivity Disorder that the Centers for Disease Control and Prevention (2023b) identify, which include:

- 1) Predominantly Inattentive Presentation
- 2) Predominantly Hyperactive-Impulsive Presentation
- 3) Combined Presentation

The first presentation of ADHD, the Predominantly Inattentive Presentation, has the main trait of difficulty paying attention. Other characteristics include difficulty following instructions or conversations, completing or organizing tasks, and remembering daily routines. Those with this type of ADHD are easily distracted and often daydream (Centers for Disease Control and Prevention, 2023b). In the past, the first type of ADHD was commonly known as ADD or Attention Deficit Disorder, however this term has become outdated and is now included under the umbrella term of ADHD (Anderson, 2023). The CDC (2023b) also explains that the second presentation of ADHD, the Predominantly Hyperactive-Impulsive Presentation, is what many people imagine when thinking of the term because of the distinct hyperactivity and overly-energetic characteristics of these individuals. People with this type of ADHD frequently move around and fidget and have difficulty sitting still or paying attention for extended periods of time. Other common traits include impulsivity, which can be present in speaking and social situations such as interrupting others frequently, speaking at inappropriate times, or saying things without consideration of the consequences. This impulsivity also flows over into actions, where individuals commonly feel restless, are impatient, and can be trouble and accident-prone due to the inconsideration of outcomes or ramifications. Lastly, the third presentation of ADHD, Combined Presentation, is known for having a mixture of symptoms stemming from both the first and second forms of ADHD (Centers for Disease Control and Prevention, 2023b).

An important aspect of Attention-Deficit / Hyperactivity Disorder that is mentioned by the National Institute of Mental Health (2023b), or NIMH, is that observed behavior of individuals with ADHD is not due to defiance, acting out, disrespect, or a lack of comprehension. Many students who have ADHD have difficulties in school and may get in trouble due to their presentation of their disorder or even because of their condition not being diagnosed. The NIMH (2023b) continues to explain that the symptoms that individuals with

ADHD experience also affect their social interactions and can affect their ability to function successfully in education and employment. Also similar to the therapies and interventions discussed as treatments for individuals with Autism Spectrum Disorder, people who have ADHD are often treated with a combination of medication, psychotherapy, behavioral therapy, psychosocial services, cognitive therapy, stress management techniques, educational accommodations, social techniques and support groups to help improve their daily life and functions within modern society (National Institute of Mental Health, 2023b).

2.2. CLIL Methodology and Approaches

When considering Content and Language Integrated Learning, the one main aspect that sets CLIL apart from other programs are the core values and methodologies that are used. As previously mentioned, one cannot simply take a content class, switch the language of instruction, and call it ‘CLIL’ because the content is being delivered in a foreign language; the very structure of the class must be completely altered to fulfill the ideologies and strategies used in true CLIL classrooms. The methodology of CLIL beautifully intertwines a wide range of research-backed classroom strategies and approaches that create an innovative, engaging, and rewarding educational experience for all stakeholders involved, including students, parents, teachers, administrators, and even community members, to name a few. While CLIL methodology has proven to be successful and advantageous in many aspects, it is not an easy feat or quick fix to set up or sustain; CLIL requires dedication, training, understanding, and immense preparation to work cohesively and fulfill its true role and purpose, which is what makes CLIL classrooms so unique and effective. In this section of the dissertation, I will now delve into some of the main classroom strategies, educational theories, and methodologies that are used in combination to create the CLIL Methodology.

2.2.1. *Student-Centered Instruction*

Perhaps the most important ideology present in Content and Language Integrated Learning, student-centered instruction and learning is at the forefront of every aspect of CLIL. In traditional classrooms, education is focused around the teacher. Previously, teachers would choose, develop, and teach content regardless of student needs or interests.

Furthermore, the setup of a conventional classroom would put all eyes and ears on the teacher, where teachers are expected to give information and students receive the information in a one-way line of communication. Traditionally, teachers play a more authoritarian role in the classroom, where what the teacher says, goes. CLIL strives to break that antiquated view of education to put the focus on the student. With a CLIL methodology, materials are developed with the students in mind and teaching is more reactive and receptive to what the students' needs are. Each student and group of students is different, so all materials and lessons must be flexible to accommodate each individual student as well as the overall class group. As described in the course "What is CLIL?", the following gives a well-explained insight on the teachers' altered role in the classroom:

CLIL is thus acting as a catalyst for the diversification of methodologies and overcoming the teacher-controlled model of education, giving way to a more social-constructivist, interactive, and student-led learning where teachers pull back from being donors of knowledge to become facilitators. ("Topic 2: Why has CLIL burgeoned?", n.d., p. 6)

The use of the word *facilitators* explains the role of a CLIL educator very well; in CLIL, the teacher is expected to facilitate the acquisition of knowledge on the part of the student. With student-centered instruction and learning, we must support the students in becoming the main catalyst for their learning, giving them confidence as well as responsibility to embark on their educational journey. In this way, CLIL empowers the students to be leaders and champions of their own learning, with the support to achieve their goals and encouragement to reach for their highest potential. Again, we must understand that "teacher roles are also recalibrated. The CLIL classroom is not teacher-driven, but student-led, and the instructor thus becomes a facilitator," ("Topic 1: What is CLIL?", n.d., p. 10). Because of this, those who are to become CLIL educators must then be properly informed to understand this innovative viewpoint of the classroom, and teachers need support, tools, and preparation as well to step into their role as effective facilitators. When the center of education is focused on and developed around the students, a plethora of benefits are seen. Not only do students develop more independence and autonomy in their learning, but confidence is boosted and a rise of internal motivation is seen; moreover, because of this, classroom management problems begin to dissolve and instructors are able to devote more time and attention to proactively supporting other aspects of the classroom and learning environment ("Unit 1: "Student-Centered Methodologies",

n.d.). Furthermore, in this student-centered classroom, it is vital to keep a positive and welcoming environment. To promote student-centeredness, CLIL instructors should abundantly use positive reinforcement, encouragement, and promote a safe place where students feel comfortable enough to take risks in their learning (“Course Materials”, n.d.; “Unit 2: Multiple Intelligence Theory”, n.d.; “Unit 6: Analysis of CLIL materials and lesson plans”, n.d.).

2.2.2. *Scaffolding*

One way that Content and Language Integrated Learning facilitates a student-centered classroom is by providing appropriate scaffolding to ensure student support and success. In CLIL classrooms,

the main focus is placed on what the student is able to do, what outcomes learners are able to achieve, what processes they are able to master, how they are able to critically make decisions about outcomes or results and how to evaluate their own progress (“Unit 1: “Student-Centered Methodologies”, n.d., p. 5).

When switching the focal point of education on the students’ abilities with the endpoint to adaptively support them to master their goals and achieve learning, scaffolding is then required.

According to Peeter Mehisto (Foreign Languages Institutional Program, 2018) in an interview about Content and Language Integrated Learning programs, the main identifying characteristic of CLIL is that it adds an extra cognitive challenge to the students of learning through a language that they have not fully acquired. This, in turn, requires not just switching the language of instruction, but adapting the pedagogy used and providing students with scaffolding so that they are supported throughout their learning. Because of this characteristic of CLIL, it is crucial to give students the strategies and tools to become assessment literate, reflect on their own learning, and be autonomous learners so that students can understand, reflect on, and use the content that they are being taught. Mehisto also goes on to state that “academic language is no one's mother tongue”, emphasizing the need to make the language visible and accessible to the students that we expect them to be using in the classroom. Lastly, he explains that a large amount of language input needs to be provided along with the

scaffolds so that students can then produce a lot of output and that they have the language needed to be able to discuss the content learned.

Scaffolding is one of the most crucial elements of the CLIL methodology because when students are learning content materials through a non-native language, an immense amount of support is needed for a student to be successful; without scaffolding, learners would quickly and easily become overwhelmed or not be able to understand the content at all (“Unit 5: Design and exploitation of CLIL activities and materials”, n.d.). When we use the term *scaffolding*, we are referring to various types of support offered to students to make the content comprehensible and accessible. Some of the primary principles that make up scaffolding are developing units and curriculum that progress from easier to more challenging tasks, sequencing activities in a way so that there are no big leaps between tasks in the amount of cognitive skill required to complete it, and capitalizing on the interaction and collaboration among learners to fulfill learning goals (“Unit 5: Design and exploitation of CLIL activities and materials”, n.d.). Some ways that scaffolding is incorporated into CLIL classrooms are by utilizing the native language in strategic ways to support comprehension, chunking materials into smaller portions that are easier to understand step by step, using ample visual materials as well as adding visual elements to written materials such as highlighting and underlining, building background knowledge by connecting materials to students’ everyday lives and drawing upon their prior learning, adapting texts to fit the students’ levels, including manipulatives and hands-on materials within activities, providing study guides and organizational materials to the students to help in processing information, and altering the speed or level of speech while talking to students (“Unit 5: Design and exploitation of CLIL activities and materials”, n.d.).

2.2.3. Active Learning

As has been discussed with the concept of a student-centered classroom where the student and teachers roles are almost flipped, the students must become actively involved and engaged in the classroom which requires the development and principles of active learning. As an overarching theme, “in line with the constructivist principles on which it is based, CLIL favors learning by doing, something which necessitates an active role on the part of the learner” (“Topic 1: What is CLIL?”, n.d., p. 10). One of the reasons why active learning is a

key aspect in the CLIL classroom is because creates meaningful learning, and when learners are engaged in the activities instead of passively receiving instruction, their motivation also increases as well as the overall understanding and retention of the content (“Unit 5: Design and exploitation of CLIL activities and materials”, n.d.). Furthermore, getting students actively and physically involved in the learning process is a form of scaffolding, allowing them to experience materials in a more accessible way.

2.2.4. Bloom’s Taxonomy

To further support active learning and a student-centered classroom, we can use Bloom’s Taxonomy to truly engage students in a deep and meaningful way. Bloom’s Taxonomy shows us a hierarchy of skills, quantifying actions completed by a student on a rating from Lower Order Thinking Skills, or LOTS, to Higher Order Thinking Skills, or HOTS. When a task is less complex or cognitively demanding, it is said that students are using a range of LOTS. The more cognitively demanding or complex a task is then requires that students use HOTS at an increasing level. In CLIL, it is imperative that teachers create a balance of activities utilizing the range of skills on Bloom’s Taxonomy, as to not overwhelm the students with tasks and materials that are initially too complex or that they are unprepared for; at the same time, content and activities must be just difficult enough to ensure that students do not disengage out of boredom (“Unit 1: “Student-Centered Methodologies”, n.d.).

Originally, the concept of Bloom’s Taxonomy was introduced in 1956, and today we are familiar with an updated version of these ideas from 2001 (Armstrong, 2010). On the lower end of the LOTS, we have the verb *remember* – where students can recall basic facts and concepts – which then works its way up towards the HOTS skills with *understand* – where students can explain ideas or concepts – which is then followed by *apply* – where students can use information in new situations – and now, at the halfway point switching over into HOTS there is *analyze* – where students can draw connections among ideas – followed by *evaluate* – where students can justify a stand or decision – and lastly, there is *create* – where students can produce new or original work (Armstrong, 2010). Each one of these overarching skills on the LOTS to HOTS range has an entire list of verbs and activities that can match the level of cognitive load required from students to complete a certain task. In a CLIL classroom, it is especially important that educators are trained and artfully implement a

coherent and strategic mixture of these thinking skills. The sequence of CLIL lessons should begin with initiation activities, utilizing mostly LOTS; this should then transition into the development activities, which combine both LOTS and HOTS; and finally, the ending activities should require HOTS (“Unit 6: Analysis of CLIL materials and lesson plans”, n.d.). Following this structure allows students to experience content in a gradual and increasing manner that prepares them to use more complex cognitive processes successfully.

2.2.5. Multiple Intelligence Theory

Another educational theory that is vital to CLIL is the Multiple Intelligence Theory, which is something that needs to be capitalized on in Content and Language Integrated Learning. The Multiple Intelligence Theory was first proposed by Howard Gardner in 1983 when he published *Frames of Mind: The Theory of Multiple Intelligences*. After carrying out extensive research in the 1970s that investigated the nature of human potential and cognitive capacities, Gardner formed this innovative theory to combat society’s traditional views on what intelligence truly is. Currently, there are eight accepted intelligences (originally, Gardner proposed seven intelligences in 1983 but later added another in 1995) which include: Linguistic, Logical-Mathematical, Spatial, Musical, Bodily-Kinesthetic, Interpersonal, Intrapersonal, and finally, Naturalist.

To further contextualize this theoretical framework, it is important to delve deeper into exactly what each Intelligence implicates, as explained by Gardner (2011). When referring to Linguistic Intelligence, the term *word smart* can be used; this Intelligence centers on language in all its forms: written, oral, language structure, pragmatics and sociocultural application of language. Secondly, Logical-Mathematical Intelligence is considered to be *number smart*, with the ability to understand, interpret and use numbers, sequences, patterns, and abstract concepts while applying them in real-life contexts. These first two Intelligences are considered to be the main concepts that society has traditionally understood intelligence to encompass; however, with the Multiple Intelligences Theory, there are six more areas to understand that are equally as important and valid. Thirdly, Spatial Intelligence, or *picture smart*, refers to the ability to understand three-dimensional concepts, how objects, shapes, and designs are connected, and how to accurately represent these. Next is Musical Intelligence, which mainly speaks for itself and can also be referred to as *sound smart*, where

one is more adept to sounds, rhythms, and beats. After that is Bodily-Kinesthetic Intelligence, which can be denoted as *movement smart*, where one is physically crafty and able to use their body and manipulate items well. Following that is Interpersonal Intelligence, or *people smart*, where interacting with others comes naturally as well as the ability to understand and interpret others' emotions, desires, and needs. In contrast exists Intrapersonal Intelligence, or *self smart*, where one is able to reflect inwardly, understanding their own emotions and desires as well as being aware of and in tune with the internal significance of things. Lastly, the most recently added term is Naturalist Intelligence, or *environment smart*, where one has an understanding and connection with the natural world, recognizing and appreciating animals, plants, habitats, and human behavior (Gardner, 2011).

The importance of defining these different Intelligences was not only revolutionary but, in my opinion, is a necessary and relevant aspect of education today. Something that I have personally witnessed as an educator is the unfortunate occurrence of a student thinking they are simply 'not smart', which happens for a number of reasons: perhaps the student has never been exposed to the idea of being intelligent in a different way than the traditional viewpoint, they have never been specifically recognized for being intelligent, or they have even been told by a peer or authority figure that they are not smart. Introducing the concept of Multiple Intelligences to a learner can be life-altering, giving them confidence and motivation that they may not have had before and allowing them to strive for greater goals. Moreover, this helps students develop critical thinking skills, encouraging them to reflect upon their own learning and enabling them to develop metacognitive understanding ("Unit 2: Multiple Intelligence Theory", n.d.). Additionally, it is just as important to educate teachers and instructional staff about Multiple Intelligences so that each and every student can be recognized for their personal capabilities and, moreover, for this to be used as part of a classroom methodology to develop students in all areas of the Intelligence, ultimately producing well-rounded, competent, and capable individuals. Because of the aforementioned, the Multiple Intelligence Theory is a concept that goes hand in hand with the student-centered ideology of the CLIL classroom.

Furthermore, when looking at the results of implementing a program that incorporates the Multiple Intelligence Theory, there are a multitude of positive outcomes. Some examples of the proven benefits of using this as an integral component of classroom instruction are increasing students' abilities for deeper cognitive skills and processes such as understanding

and analyzing concepts and materials in a more complex manner, retaining the amount of knowledge developed at higher rates, demonstrating better classroom behavior and participation skills, acquiring more independent habits with increased responsibility and self-direction, a heightened enjoyment in classroom activities and learning in general, more parental and familial involvement, greater self-esteem, a growth of mutual respect and cooperation with classmates, and even higher scores on standardized testing results overall (“Unit 2: Multiple Intelligence Theory”, n.d.). While it is acknowledged that students’ performance on required standardized tests increased, the Multiple Intelligence Theory favors alternative forms of assessment that are more holistic and responsive to students, allowing them to demonstrate their knowledge in a variety of ways. Furthermore, it is even stated that “Multiple intelligence theory has been said to solve other educational issues such as students’ lack of motivation, behavioural problems and even more serious matters like a child being diagnosed with attention deficit hyperactivity disorder (ADHD),” (“Unit 2: Multiple Intelligence Theory”, n.d., p. 13).

2.2.6. *Communicative Approach*

As the CLIL classroom does have two main focuses simultaneously – content and language acquisition – it is vital that there is an overall communicative approach used in Content and Language Integrated Learning. In this way, language is used as a tool to access and acquire content; in the same way, content is used communicatively to access and acquire language. As previously mentioned, the focus of CLIL is not simply to learn *in* a foreign language, but rather to learn *through* a foreign language. It is important that “language is seen as a tool for communication from the outset of instruction and is used in uncontrived real-life situations,” and in this way, “learners are pushed to produce more meaningful and complex language, and fluency is fostered” (“Topic 1: What is CLIL?”, n.d., p.11). One of the reasons that make this type of approach so successful is the fact that both communicative competencies of BICS (Basic Interpersonal Communication Skills) and CALP (Cognitive Academic Language Proficiency) are involved in the students processing and understanding of content matter, allow for a natural and constant use of multiple facets of language (“Unit 1: “Student-Centered Methodologies”, n.d.).

When we talk about BICS, it is the common, everyday language that is used with peers and in normal, daily life; this can be considered the language needed for most social interactions and for maintaining common conversations. On the other hand, CALP refers to academic language, which is much more specialized and advanced; this requires an expanded vocabulary that includes specific words and terminology related to individual areas of study and are not generally used in normal street conversation. In CLIL classrooms, both BICS and CALP are employed on a regular basis which requires a CLIL teacher to adequately prepare and support students in developing both types of language (“Unit 4: Principles for planning and designing a CLIL lesson”, n.d.).

2.2.7. Task-Based Learning and Project-Based Learning

An important aspect of Content and Language Integrated Learning is to utilize the classroom strategies of Task-Based Learning and Project-Based Learning. By using these methods to create activities in the classroom, students are engaged as active learners, utilize Higher Order Thinking Skills, and have ample opportunities to demonstrate their knowledge and capabilities in a variety of ways that align with the Multiple Intelligence Theory. Moreover, a thoroughly communicative approach is inherently employed throughout the project or task, where students are required to utilize the target language with both BICS (Basic Interpersonal Communication Skills) and CALP (Cognitive Academic Language Proficiency) needed to complete the assignment. While Task-Based Learning and Project-Based Learning are similar, the main difference between them lies in the overall length of the assignment at hand as well as when the assignment begins in relation to the unit or academic year (“Unit 1: “Student-Centered Methodologies”, n.d.). For example, a task is generally shorter and can be given at any point in the school year as well as throughout a unit to contribute to the end goal of the learning. On the other hand, a project is usually started at the beginning of a unit and encompasses the end goal of the unit in itself, which requires a more extended amount of time that could even last an entire semester or academic year. Furthermore, when conducting a project, the components can be spread across multiple subjects and content areas, whereas a task might be completed within just one class with one teacher (“Unit 1: “Student-Centered Methodologies”, n.d.).

When examining the benefits of Task-Based Learning and Project-Based Learning, it is key to note the complexity of skills being used and developed. When students participate in tasks or projects, they are able to relate the content material to the real world, making the subject matter relevant and applicable to experiences in their daily lives. Furthermore, *21st century skills* – summarized as ‘Revision and Reflection’, ‘Voice and Choice’, and ‘Need to Know’ – are developed, deepening a student’s ability to function in the outside world by use of critical thinking skills and blossom as integral contributors to society (“Unit 1: “Student-Centered Methodologies”, n.d.).

2.2.8. Collaborative and Cooperative Learning

In a Content and Language Integrated Learning classroom, vital tools are utilizing both collaborative and cooperative learning. While both of these techniques are similar in a variety of ways, they are also inherently different, so it is important to incorporate both strategies in a well-rounded CLIL curriculum. With both methods, various aspects of learning that have already been discussed are involved, such as: maintaining a student-centered classroom where the teacher is not the sole giver of information; active learning and participation on the part of the student; requiring students to complete a task or project; drawing upon Higher Order Thinking Skills; encouraging communicative learning and social skills needed for teamwork; and celebrating students’ diversity while capitalizing on their strengths (“Unit 1: “Student-Centered Methodologies”, n.d.). Because so many of the techniques that make up the CLIL Methodology are incorporated into both collaborative and cooperative learning, it is easy to see why they become such essential tools to employ in the classroom. Apart from their similarities, these two strategies can now be examined more closely to envision how they function with students during their learning experiences.

Firstly, when looking at collaborative learning, we know that students must, well, collaborate. How are they doing this? As explained in the Student-Centered Methodologies Master’s course, (“Unit 1: “Student-Centered Methodologies”, n.d.), the collaborative learning approach is known to have a ‘bottom-up’ method, where students take the main initiative of the project or task to build up the end goals and procedures. When using this strategy, because it is strongly student-led, the end results are unpredictable, in a sense, on the part of the teacher. This truly allows students to be the advocates of their learning and employ

a heightened sense of creativity and decision-making. With this type of assignment, students must work collaboratively within a group to achieve the ultimate target of the task or project, collectively making decisions. A large amount of discussion and social interaction is needed on the part of each student, and by the end they will have cohesively completed everything together, acting as one body (“Unit 1: “Student-Centered Methodologies”, n.d.).

On the other hand, cooperative learning can be viewed as an inverted approach to group work, where a ‘top-down’ method is employed. While this type of technique is still very much-so student-centered, the main initiatives of the task or project come from the teacher. In this way, the group work is more structured and the teacher has more control on the outcome of the assignment as well as what procedures go into its completion. Here, the individual strengths of each student can really be highlighted because each student will have the chance to work independently on their own portion of the assignment to then contribute to the overall greater end result of the group work. Generally, different roles are assigned by the teacher and students may have the ability to complete the same task in different ways or complete different tasks to then make up one result when combined (“Unit 1: “Student-Centered Methodologies”, n.d.). A cooperative learning approach to a project or task is very helpful once a teacher has truly gotten to know each students’ strengths and weaknesses so that the role or task can truly be designed around each students’ needs and capabilities, giving each student an individualized learning experience.

When incorporating collaborative and cooperative learning in a classroom, another important aspect that changes for the student is their physical environment. Desks, tables, or learning stations must be rearranged in a way to facilitate these group work strategies and promote social interaction, teamwork, and accessibility to the particular task or project (“Unit 1: “Student-Centered Methodologies”, n.d.). Creating this engaging and interactive environment that has the ability to be restructured depending on the task at hand allows for the room to be more physically student-centered and inviting while keeping things active and interesting for the students.

2.2.9. Technology

Another aspect of the CLIL classroom that is encouraged, and some might say necessary, especially in the twenty-first century classroom is technology. Technology is an important tool that can help make a classroom more student-centered by allowing materials to be visual and interactive, incorporating students' interests, utilizing a variety of stimuli to activate the learners' different senses, and relating content back to the students' everyday lives in a way that is understandable to them. Some of the pedagogical purposes that can be fulfilled through the appropriate use of technology in the classroom are: encouraging learner independence and autonomy; fostering reflection, self-evaluation, and peer evaluation; promoting collaboration and cooperation through online tasks, projects, games, and quests; building the Linguistic Communicative Competence of students; and presenting the contents in a variety of engaging and interactive ways ("Unit 3: CLIL Methodology and ICTs", n.d.). It is clear that Information and Communication Technologies, or ICTs, can be utilized to support CLIL goals in many aspects, and involving these in lessons is even said to be a "natural symbiotic relationship" ("Unit 3: ICT in CLIL Materials Development", n.d., p. 7).

2.2.10. Integrated Curriculum

Lastly, another important aspect of the CLIL classroom is to make the content integrated across the disciplines. In this way, all teachers must cohesively work together to create a unified instructional plan and develop lessons and activities that combine both language and content objectives cohesively. Furthermore, this need of coherence from the teacher-level requires a trifecta of coordination and collaboration on the three areas of:

- 1) Content Teachers and Content Teachers
- 2) Content Teachers and Language Teachers
- 3) Language Teachers and Language Teachers

("Unit 3: Making the best of the collaboration between language and content teachers in CLIL", n.d.).

As this integration is at the root of a well-structured and prepared CLIL curriculum, there must be a carefully evaluated combination of both content and language. It is important that both of these areas are valued at an equivalent level and meshed cohesively together to create well-rounded activities and lessons (“Unit 1: “Student-Centered Methodologies”, n.d.). In a CLIL debate, Beaten-Beardsmore points out, as an overall generalization, that language teachers tend to focus more on accuracy and precision, whereas on the other hand, content teachers focus on more fluent exchanges (Macmillan Education ELT, 2009). What he observed in European schools that employ CLIL in three languages is that these two types of teachers are able to collaborate so that all of the lessons complement each other, allowing the language teacher to concentrate on the accuracy of the language while the content naturally requires discourse. With a CLIL model, there is an immediate need for the language in the content lesson, which pushes students to take more risks with the language. When students receive that immediate reward with the language, they build up more confidence, allowing them to progress while enabling them to continue their risks to build true connective discourse, which is the most difficult thing to do when learning a language (Macmillan Education ELT, 2009).

To achieve this integrated curriculum, it is important that the overarching structure of the CLIL program is cohesive and agreed upon from an organizational standpoint as well. Not only must the teachers be chosen and trained for their skills, but they must be supported by their administration and directors with professional development and ample collaborative planning time specifically carved out of their daily schedules. Furthermore, a scheme for the semester or academic year should be developed and outlined at a higher level, where the program objectives, sequencing, evaluation criteria, correlation between content areas, materials and resources needed are all well-defined ahead of time (“Unit 1: Macro and micro organizational decisions”, n.d.). When all of these components are planned in collaboration and supported on all levels, teachers will be able to successfully implement this methodology in the classroom and students will experience truly deeper learning that is applicable to their lives and utilizes the natural acquisition of inter-curricular content similar to real-life circumstances and experiences.

In an interview on CLIL programs, Victor Pavón (Working CLIL Digital, 2018) states that coordination must be established between language specialists and content specialists in a way that the content specialists will benefit from the work of the language specialists inside

their classroom. It is also explained that the important part of CLIL is to have language embedded in the curriculum, so that subject courses are being taught through the foreign language allowing students to be exposed to and practice that language, as opposed to only having it in one separate class. The benefits of the collaboration between content and language teachers in CLIL is that it allows the content teachers to focus on teaching the content and the students can naturally acquire and practice the language while learning the content without trying to focus specifically on the language. At this same time, the language teachers will be able to support that content material by then working with the students on that vocabulary, the functions and forms of the language, and developing the students' knowledge of the language that they will need to be able to use in their content courses. It is also beneficial to make sure that all of the teachers are making thematic connections across the different subjects, which will help in the learning and assimilation of complex contents by the students. Although it might be difficult at first to make the time and effort for it, when teachers collaborate in this manner, it does not only benefit the students; when the educators are collaborating and working together in small groups, it creates a network of collaboration and support that is helpful to the teachers (Working CLIL Digital, 2018).

In particular, Beaten-Beardsmore (Macmillan Education ELT, 2009) addresses the whole-school aspect of an integrated curriculum seen in his studies on CLIL programs, identifying how this concept is different from traditional educational experiences and why it works to naturally learn and use a foreign language. He explains that traditional foreign language learning has tended to be isolated in one part of the curriculum, whereas first language learning is part of the whole school policy. In the past, with L1, traditionally the whole school contributes to the first language learning in a monolingual environment. However, the L2 acquisition was not learned in this manner, as it was treated as a separate subject that was not integrated into anything else nor did it correspond to the rest of the curriculum. Now, with his research, Beaten-Beardsmore has observed a change in European schools where they are moving the idea of foreign language acquisition to a whole school policy – similar to how L1 is acquired, used, and implemented – through 'CLIL-like' bilingual and trilingual programs. He states that what is now happening with the 'CLIL situation' is that language learning is not dependent on just the language classroom but is permeating the whole school. With these policies, the foreign language is not used in the same exact way as L1 at the L1 monolingual school, but there is a greater potential for a

whole school policy covering more than one language as an integral part of the curriculum. Moreover, what is now happening in European schools is that all teachers are told they are language teachers. Children are confronted with multiple languages all day and must become bi- or tri-lingual as they go through the system, so implicitly each teacher is a language teacher. Subsequently, when the whole school policy utilizes CLIL, language acquisition is immediately pertinent. In contrast, when looking at past traditional language learning, the end goal was a long-term payoff that is not even sure or promised, and it is so long term that it is demotivating for those who are not obsessed with learning language. Now, with a whole school policy and CLIL-like programs, an immediate reward and pertinence for the effort of learning a foreign language is created, because it will be used and is needed in the content lessons, which overcomes the motivating problem that exists in traditional language learning (Macmillan Education ELT, 2009).

2.3. Special Populations

Now that the Content and Language Integrated Learning methodology and classroom strategies have been discussed in-depth, I will take a closer look at the practices and strategies used with special populations, how bilingualism affects these individuals, as well as the current CLIL situation in regards to the ‘special populations’.

2.3.1. Current Practices and Laws in Special Education

In the United States, education for special populations, or *special education*, is a concept that has evolved and become an increasingly integral part of the United States educational system over the last few decades. Individuals classified under the umbrella term of ‘special populations’ are protected by law and are entitled to receive special services and support in all public schools. There are three main laws in the United States that govern the realm of special education and enable these services to be given to special populations, and they are: the Rehabilitation Act of 1973, Section 504; the Americans with Disabilities Act of 1990, Title II; and the Individuals with Disabilities Education Act (U.S. Department of Education, 2022).

The United States Department of Education Office for Civil Rights, or OCR, enforces the first two laws previously mentioned, which are the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, Title II. Alongside the OCR, the United States Department of Justice also enforces the Americans with Disabilities Act (U.S. Department of Education, 2022). Many educators in the United States know these first two laws by shortened names such as ‘504’ and ‘Title II’ or ‘ADA’ based upon the type of Individualized Education Plan (IEP) that students have. Part of the requirements of the third law, or the Individuals with Disabilities Education Act, is that students receive these IEPs (LD Online, n.d.). This third federal law is commonly known by its shortened name of ‘IDEA’ and is an extra protection and governance in the United States public educational system for the specific sector of special populations identified as having a disability, which is enforced by the United States Department of Education’s Office of Special Education (LD Online, n.d.). When a student qualifies for special education services under any one of these three laws, an IEP or other specific educational plan is created for them by a team of specialists, usually involving input from a students’ family, teachers, counselors, doctors and academic performance results. Individuals may be allowed access to special education services through the protection of these different laws, requiring their outlined accommodations to be implemented by their teachers in classroom settings legally. As I have now worked in three different states in the United States at all levels of public schools over the last six years and have closely had to follow, contribute to, and enforce IEPs for students, I am very familiar with these laws and practices and their implications. Common classroom accommodations given under these laws include but are not limited to additional timing, scaffolding, presentations of the materials in different ways, ability to work in groups and collaborate with peers, allowance of movement and breaks, completion of altered tasks that are more hands-on or demonstrate skills and understanding in different ways, translation of materials or use of native language to support learning, provided graphic organizers and outlines of lessons and notes, and positive reinforcement, to name a few.

2.3.2. Classroom Methodology and Approaches

As mentioned in the previous sections when discussing the common classroom accommodations used in students’ Individualized Education Plans, there are a plethora of

educational strategies that are not only recommended for special populations but many that are required and enforced by federal law in the United States. One of the reasons why many of these classroom accommodations, strategies, and adjustments are legally enforceable on a federal level in the United States is because they truly have an impact and make a difference on students' learning experiences and ability to develop their cognitive abilities, access the content, and be successful in their educational journey.

When considering classroom strategies used to help individuals with Autism Spectrum Disorder succeed, the ABA Centers of America (2023) suggests a variety of methods. First and foremost, it is important to include students' individual interests within the classroom so that the student is engaged and is able to connect the material with their own life experiences. Furthermore, we must stimulate all of the students' senses in different ways, allowing for different types of learning using the five sensorial systems. This is one way of catering to Multiple Intelligences and making learning a multi-faceted experience. It is said to be especially beneficial to make the materials visual as well as physically engaging, allowing students to see and grasp the concepts in a deeper way as well as ensuring they have an active role in learning. To continue these student-centered strategies, it is important to involve the students in goal-setting so that they can also become responsible for and involved in their own learning (ABA Centers of America, 2023). In a Boston University graduate literature review study, the use of technology in the classroom as a tool for students with ASD is highlighted and details how this can be used as an important resource (Murray, 2015). Furthermore, the Autism Speaks organization (2023) enumerates successful strategies to use with Autism in the classroom. These methods include: creating a welcoming environment, ensuring positivity and encouragement, allowing students to work in collaboration with others such as in pairs and small groups, support communication by presenting materials in a variety of ways especially with visuals, and support social exchange and cooperation within the classroom.

When considering classroom strategies used to help individuals with Attention-Deficit / Hyperactivity Disorder succeed, the Children's Health Council suggests a checklist of effective strategies for educators (Lopez, 2023). To help learners with ADHD, teachers should make sure to: create a welcoming and positive environment, use ample positive reinforcement and encouragement with students, limit the amount of teacher-talk and lecture so that students are more actively engaged in the materials, build upon students' prior

knowledge to preview new content and connect it to their lives, incorporate students' interests within the lessons, and provide ample activities that use group work and collaboration between the students to promote social interaction and engagement (Lopez, 2023). Furthermore, the Centers for Disease Control name classroom strategies and procedures to help students with ADHD in the classroom (2023a). Firstly, the CDC recommends the method of positivity and emphasizes a constructive approach to behavioral challenges. Also, it is important to help students with their organizational skills, explicitly providing tools for understanding and processing information. Moreover, educators should make sure that assignments are tailored to meet the students' needs and levels and allow the students to demonstrate mastery and understanding in a variety of ways, such as through projects, tasks, and group work. Another way to scaffold the assignments for students with ADHD is by chunking and breaking down the information into shorter portions. It is also mentioned that technology should be used as a tool with students and to allow students to use it to assist with tasks. Lastly, there should be ample opportunities for the student to be actively engaged and move around the classroom (Centers for Disease Control, 2023a).

When reviewing these science and medically-backed strategies that should be used with both Autism Spectrum Disorders and with Attention-Deficit / Hyperactivity Disorder, it is clear that the recommended methodologies overlap. Not only are the strategies mutual among these two specific categories of students within special populations, but we can see an overlap in the CLIL methodologies as well.

2.3.3. Bilingualism in Special Populations

Now that a clear idea of what the classroom methods and strategies are is established, it is necessary to look at how foreign language ties into these populations of students. Because the main concept of Content and Language Integrated Learning, apart from the various classroom methodologies that must be used cohesively for its true implementation, is to teach content through a foreign language, it must be analyzed how this could affect students with ASD and ADHD as well.

In a 2021 study by Peristeri et al. entitled "The cognitive benefits of bilingualism in autism spectrum disorder: Is theory of mind boosted and by which underlying factors?", the

effects of bilingualism on individuals with Autism Spectrum Disorder are studied. After testing two groups of people with ASD, the first group being monolingual and the second group being bilingual, it was found that there were noticeable differences in the cognitive abilities between the two groups. When a variety of cognitive abilities were tested, the results showed that the bilingual group had noticeable advantages over their monolingual peers, with boosts in grasping beliefs and recalling and switching between information.

Williams et al. (2023) explore the effects of bilingualism on individuals with Attention-Deficit / Hyperactivity Disorder in a recent study entitled “Academic competence, organizational skills, and treatment response among bilingual and monolingual children with attention deficit hyperactivity disorder”. After testing two groups of people with ADHD, the first group being monolingual and the second group being bilingual, it was found that there were noticeable differences in response to cognitive treatment between the two groups. When comparing the organizational skills and academic competence skills of the two groups pre- and post-treatment, the bilingual group had greater reductions in impairment after treatment than their monolingual counterparts.

These studies document the positive influence that being bilingual has on the brain and shows increased academic performance, skills, and cognitive abilities for both individuals with ASD and those with ADHD.

2.3.4. Current CLIL Research and Proposals

While hands-on classroom research is limited that specifically tests out the CLIL methodology with different special populations, the general CLIL community of educators and researchers acknowledge the dire necessity to address special education needs in a CLIL classroom (Madrid & Pérez Cañado, 2018). As explained by Madrid and Pérez Cañado, because the CLIL ideology is being pushed into mainstream classrooms across Europe to meet the European language and educational demands as well as to try and ensure equitable access to a quality education for all students, the theory behind CLIL working for special populations is not just a far-off concept but it is a reality that must be addressed. Some CLIL teachers have voiced concerns about meeting the needs of mixed-group students while implementing this type of integrated curriculum; all of the theoretical solutions mentioned in

Madrid and Pérez Cañado's 2018 article emphasize the strategies already used in CLIL, such as: individualizing the educational experience to meet students' needs, ensuring visuals and easily-accessible materials, maintaining ample planning and strategy on a higher organizational and whole-school level, properly training teachers and supporting CLIL educators with tools needed, keeping an inclusive and responsive educational model focused on students' needs, utilizing flexible groupings of students allowing for collaborative working and interaction, supporting learner independence and autonomy, adapting materials to students' levels and abilities, promoting active participation from the students, encouraging students with positive reinforcement and a welcoming environment, and involving the families in the students' education. Because these aspects that are central to CLIL are named as probable solutions for working with students that have special educational needs, including groups of students that would be categorized with ASD or ADHD, the idea of CLIL becoming a viable and recommendable educational method used with these populations is reinforced.

3. CONCLUSIONS

3.1. CLIL Methodology and Special Populations

In conclusion, after reviewing the pillars of CLIL methodology alongside the recommended methodology to be used in the two groups of special populations that we have discussed, it is clear that these methodologies go hand in hand. When looking at all of the classroom strategies that are used in CLIL classrooms and that are shown to work with individuals that have Autism Spectrum Disorder and individuals that have Attention-Deficit / Hyperactivity Disorder, there is an alignment across all three groups. In all three methodologies – namely, CLIL and those used with ASD and with ADHD – classroom strategies include: student-centeredness and individual responsiveness that make the student the center of the classroom instead of the teacher, encouraging independence and learning autonomy; creating a positive, welcoming, and safe learning environment; various types of scaffolding to make content and materials available to the student such as building background knowledge, adapting texts, chunking assignments, including visuals, etc.; promoting active learning by favoring activities that are engaging and require students to be actively involved; understanding and utilizing Bloom's Taxonomy and the Multiple

Intelligence Theory to acknowledge and capitalize on students' individual capabilities, strategically sequence lessons and materials, and allow the students to demonstrate mastery of content in various ways; utilizing a communicative, collaborative, and cooperative approach that encourages communication and socialization within the classroom and promotes interaction among students through group work as well as through tasks and projects; and implementing technology in the classroom as a tool to enhance and assist with the learning experience.

3.2. Proposal for Special Populations

Taking everything into account, my proposal for special populations aligns with my original hypothesis and theory. Based on the information that we have viewed, Content and Language Integrated Learning seems to be a viable, valid, and recommendable methodology to use with special populations, especially when considering those with Autism Spectrum Disorder and Attention-Deficit / Hyperactivity Disorder. Because all of the classroom strategies and ideology that lies behind these groups are in agreement, theoretically speaking, CLIL does work for special populations and can be used as a methodology to serve these non-traditional students. Because there is not a significant amount of research available on the actual processes of foreign language acquisition in individuals with ASD and ADHD, this leaves an open area to test the implementation of the integrated curriculum of CLIL that utilizes a non-native language to teach content areas. However, due to the fact that there is research on the positive effects that bilingualism has in the special populations of individuals with ASD and those with ADHD, it is evident that acquiring a second language could definitely be beneficial to these students and could even enhance some of the cognitive, academic, and social skills that they typically struggle with. I propose that we conduct more direct research on the implementation of CLIL methodology with these groups of special populations to have concrete evidence that support my theories. In doing so, it could open up the use of CLIL with an entire new world of students and allow this incredibly effective methodology to be applied to a larger and more diverse population of students.

4. BIBLIOGRAPHY

- ABA Centers of America. (2023, April 10). 10 School-Success Strategies for Students with Autism.
https://www.abacenters.com/10-strategies-for-students-with-autism/?psafe_param=1&utm_campaign=ABACentersDynamic12720&utm_source=google&utm_medium=cpc&utm_content=ABACentersDyn12720&utm_term=&gclid=CjwKCAjw7c2pBhAZEiwA88pOF7elHYEjv3opSNPwjgxnNi5Js69RiJin-HOcyRSNx6enOIrlrfgjKxoCoQwQAvD_BwE
- Anderson, D. (2023, March 3). *What is the difference between ADD and ADHD?*. Child Mind Institute. <https://childmind.org/article/what-is-the-difference-between-add-and-adhd/>
- Armstrong, P. (2010). *Bloom's Taxonomy*. Vanderbilt University Center for Teaching. <https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/>
- Autism Speaks. (2023). *Autism in the classroom: Strategies for success*. <https://www.autismspeaks.org/tool-kit-excerpt/autism-classroom-strategies>
- Britannica, T. Editors of Encyclopaedia (2020, September 13). *Renaissance man*. Encyclopedia Britannica. <https://www.britannica.com/topic/Renaissance-man>
- Centers for Disease Control and Prevention. (2022, March 28). *Signs and Symptoms of Autism Spectrum Disorder*. Autism Spectrum Disorder (ASD), U.S. Department of Health and Human Services. <https://www.cdc.gov/ncbddd/autism/signs.html>
- Centers for Disease Control and Prevention. (2022, April 6). *Autism Spectrum Disorder in Teenagers & Adults*. Autism Spectrum Disorder (ASD), U.S. Department of Health and Human Services. <https://www.cdc.gov/ncbddd/autism/autism-spectrum-disorder-in-teenagers-adults.html>
- Centers for Disease Control and Prevention. (2022, April 7). *Key Findings: CDC Releases First Estimates of the Number of Adults Living with Autism Spectrum Disorder in the United States*. Autism Spectrum Disorder (ASD), U.S. Department of Health and Human Services. <https://www.cdc.gov/ncbddd/autism/features/adults-living-with-autism-spectrum-disorder.html>

- Centers for Disease Control and Prevention. (2023, September 27). *ADHD in the Classroom: Helping Children Succeed in School*. Attention-Deficit / Hyperactivity Disorder (ADHD), U.S. Department of Health and Human Services. <https://www.cdc.gov/ncbddd/adhd/school-success.html#:~:text=Positive%20reinforcement%20and%20feedback%3B,environment%20to%20limit%20distraction%3B%20and>
- Centers for Disease Control and Prevention. (2023, September 27). *What Is ADHD?* Attention-Deficit / Hyperactivity Disorder (ADHD), U.S. Department of Health and Human Services. <https://www.cdc.gov/ncbddd/adhd/facts.html>.
- Cooney, M. (2020, January). *The Surprising Statistics of ADHD in Education*. Study.com. <https://study.com/blog/the-surprising-statistics-of-adhd-in-education.html>
- “Course Materials” (n.d.). “*Real English*” for communicative interaction in the CLIL classroom. Block 2: 2023. Intercollegiate Master’s Degree in Bilingual Education and Content and Language Integrated Learning, University of Jaén and University of Córdoba.
- Coyle, D. (2007). “Content and Language Integrated Learning: Towards a connected research agenda for CLIL pedagogies.” *International Journal of Bilingual Education and Bilingualism* 10(5): 543-562.
- Coyle, D., Hood, P., & Marsh, D. (2010). *CLIL. Content and Language Integrated Learning*. (pp. 1-10). Cambridge: Cambridge University Press. Retrieved from https://assets.cambridge.org/97805211/30219/excerpt/9780521130219_excerpt.pdf
- European Commission. (1995, November 29). *White Paper on Education and Training – Teaching and Learning – Towards the Learning Society*. Commission of the European Communities, Brussels. Retrieved from <https://op.europa.eu/en/publication-detail/-/publication/d0a8aa7a-5311-4eee-904c-98fa541108d8/language-en>
- Fang, Y. (2020, June 1). *The Practical Application of the Multiple Intelligence Theory Into the English Reading Classes for Primary Schools in China*. University of Wisconsin-Platteville. Retrieved from

<https://minds.wisconsin.edu/bitstream/handle/1793/80415/Fang%2c%20Ying.pdf?sequence=1&isAllowed=y>

Foreign Languages Institutional Program. (2018, April 19). *Chapter 02 - CLIL Experience (Peeter Mehisto, Víctor Pavón)*. YouTube. Retrieved February 2, 2023 from <https://www.youtube.com/watch?v=tuZzKdMUZxc>

Gardner, H. (2011). *Frames of Mind: The Theory of Multiple Intelligences*. New York, NY: Basic Books (first published, 1983).

Jordan, M. (2022, July 13). *Adult ADHD: Statistics and Facts*. WebMD. <https://www.webmd.com/add-adhd/adult-adhd-facts-statistics>

LD Online. (n.d.). *Understanding the Differences Between IDEA and Section 504*. Council for Exceptional Children. WETA. <https://www.ldonline.org/ld-topics/special-education/understanding-differences-between-idea-and-section-504>

Legal Information Institute. (2006). *Special Populations*. 20 U.S. Code § 2302 - Definitions, Cornell Law School. <https://www.law.cornell.edu/uscode/text/20/2302#48>.

Lopez, C. (2023, October 3). *Learners with ADHD: Effective Strategies for Educators – CHC’s ADHD Guide*. Children’s Health Council. https://www.chconline.org/resourcelibrary/learners-with-adhd-effective-strategies-for-educators/?utm_source=google_cpc&utm_medium=paid_search&utm_campaign=dsa&utm_term=&gclid=CjwKCAjw7c2pBhAZEiwA88pOF4GOeis7ge9Xlu1OIxE808wUPd-HEiZlW0tgcbhFw_HrOVkv4EzVJhoCV5wQAvD_BwE

Macmillan Education ELT. (2009, May 14). *IATEFL 2009 CLIL Debate - Hugo Beaten-Beardsmore*. YouTube. Retrieved January 15, 2023 from <https://www.youtube.com/watch?v=ZIKmjGF3168>

Madrid, D. & Pérez Cañado, M.L. (2018, August 10) Innovations and Challenges in Attending to Diversity through CLIL, *Theory Into Practice*, 57:3, 241-249, DOI: 10.1080/00405841.2018.1492237. Retrieved from <https://doi.org/10.1080/00405841.2018.1492237>

- Marsh, D. (2002, September 2). *CLIL/EMILE – The European Dimension: Actions, Trends and Foresight Potential*. European Centre for Modern Languages. University of Jyväskylä, Finland. Retrieved from https://www.ecml.at/Portals/1/resources/Articles%20and%20publications%20on%20the%20ECML/CLIL_EMILE.pdf
- Marsh, D. & Langé, G. (2000). *Using Languages to Learn and Learning to Use Languages*. Finland: University of Jyväskylä. Retrieved from <http://archive.ecml.at/mtp2/clilmatrix/pdf/1uk.pdf>
- Mattheoudakis, M., Alexiou, T. & Laskaridou, C. (2014). To CLIL or Not to CLIL? The Case of the 3rd Experimental Primary School in Evosmos. In N. Lavidas, T. Alexiou & A. Sougari (Ed.), *Major Trends in Theoretical and Applied Linguistics 3* (pp. 215-234). Versita Ltd, 78 York Street, London W1H 1DP, Great Britain.: De Gruyter Open Poland. Retrieved from <https://doi.org/10.2478/9788376560915.p13>
- Murray, D. W., Molina, B. S., Glew, K., Houck, P., Greiner, A., Fong, D., Swanson, J., Arnold, L. E., Lerner, M., Hechtman, L., Abikoff, H. B., & Jensen, P. S. (2014). Prevalence and Characteristics of School Services for High School Students with Attention-Deficit/Hyperactivity Disorder. *School mental health*, 6(4), 264–278. Retrieved from <https://doi.org/10.1007/s12310-014-9128-6>
- Murray, J. (2015). Practical Teaching Strategies for Students with Autism Spectrum Disorder: A Review of the Literature. *BU Journal of Graduate Studies in Education, Volume 7, Issue 2*. Retrieved from <https://files.eric.ed.gov/fulltext/EJ1230708.pdf>
- National Center for Education Statistics. (2023, May). *Students With Disabilities*. Condition of Education. U.S. Department of Education, Institute of Education Sciences. <https://nces.ed.gov/programs/coe/indicator/cgg>.
- National Institute of Mental Health. (2023, February). *Autism Spectrum Disorder*. <https://www.nimh.nih.gov/health/topics/autism-spectrum-disorders-asd>
- National Institute of Mental Health. (2023, September). *Attention-Deficit/Hyperactivity Disorder*. <https://www.nimh.nih.gov/health/topics/attention-deficit-hyperactivity-disorder-adhd>

- Office of Elementary and Secondary Education. (2020, August 12). *Supporting Special Populations*. Resources for Education Providers and Families. <https://oese.ed.gov/resources/supporting-special-populations/#:~:text=Special%20populations%20refers%20to%20students,to%20education%20resources%20and%20opportunities>
- Ouazizi K. (2016, June 24). The Effects of CLIL Education on the Subject Matter (Mathematics) and the Target Language (English), *Latin American Journal of Content and Language Integrated Learning* 9(1), 110-137. doi:10.5294/lacil.2016.9.1.5. Retrieved from <https://files.eric.ed.gov/fulltext/EJ1131963.pdf>
- Pérez Cañado, M.L. (2013, November 1). Introduction. *Revista de Lenguas para Fines Específicos* 19: 12-27. Retrieved from <https://ojsspd.c.ulpgc.es/ojs/index.php/LFE/article/view/9>
- Pérez Cañado, M.L. (2018, January 29). CLIL and educational level: A longitudinal study on the impact of CLIL on language outcomes. *Porta Linguarum* 29: 51-70. Retrieved from https://www.researchgate.net/publication/322273436_CLIL_and_Educational_Level_A_Longitudinal_Study_on_the_Impact_of_CLIL_on_Language_Outcomes
- Pérez Cañado, M.L. (2018, August 7). The effects of CLIL on L1 and content learning: Updated empirical evidence from monolingual contexts. *Learning and Instruction* 57: 18-33. Retrieved from <https://www.sciencedirect.com/science/article/abs/pii/S0959475217302578>
- Pérez Cañado, M.L. & Lancaster, N.K. (2017, June 16). “The effects of CLIL on oral comprehension and production: a longitudinal case study”. *Language, Culture and Curriculum*, DOI: 10.1080/07908318.2017.1338717: 1-17. Retrieved from <https://doi.org/10.1080/07908318.2017.1338717>
- Peristeri, E., Baldimtsi, E., Vogelzang, M., Tsimpli, I.M., & Durrleman, S. (2021, May 19). The cognitive benefits of bilingualism in autism spectrum disorder: Is theory of mind boosted and by which underlying factors?. *Autism Research*, 14(8), 1695– 1709. Retrieved from <https://doi.org/10.1002/aur.2542>.

- San Isidro, X. & Lasagabaster, D. (2018, January 22). The impact of CLIL on pluriliteracy development and content learning in a rural multilingual setting: A longitudinal study. *Language Teaching Research*, DOI: 10.1177/1362168817754103: 1-19. Retrieved from <https://doi.org/10.1177/1362168817754>
- Schaeffer, K. (2023, July 24). *What federal education data shows about students with disabilities in the U.S.* Pew Research Center. <https://pewrsr.ch/3q5KJ6T>
- Special Olympics. (2020, March 23). *Autism. Intellectual Disabilities.* https://www.specialolympics.org/about/intellectual-disabilities/autism?gclid=Cj0KCQjwm66pBhDQARIsALIR2zBE1jn0_2yjExfdhqwFrf_9jw0-9CT0_CHxeP-iZmJi74i6NMQaXhMaAtyvEALw_wcB
- Stavroula, B. & Anastasiadou, A. (2022, March 28). *Fostering Multiple Intelligences through CLIL: A case study of private EFL lessons in Greece.* *Revista Aquila*. nº 26. Ano XIII. Retrieved from <https://ojs.uva.br/index.php/revista-aquila/article/view/211/160>
- Surmont, J., Struys, E., Van Den Noort, M., & Van de Craen, P. (2016, June). The effects of CLIL on mathematical content learning: A longitudinal study. *Studies in Second Language Learning and Teaching*, DOI: 10.14746/ssllt.2016.6.2.7: 319-337. Retrieved from <https://pdfs.semanticscholar.org/ba92/31dcb470d18cc504cbaee5135f63016ad8a6.pdf>
- “Topic 1: What is CLIL?” (n.d.). *What is CLIL? Origins, definition, and characterization.* Block 1: 2022. Intercollegiate Master’s Degree in Bilingual Education and Content and Language Integrated Learning, University of Jaén and University of Córdoba.
- “Topic 2: Why has CLIL burgeoned?” (n.d.). *What is CLIL? Origins, definition, and characterization.* Block 1: 2022. Intercollegiate Master’s Degree in Bilingual Education and Content and Language Integrated Learning, University of Jaén and University of Córdoba.
- The Understood Team. (2023, October 5) *Learning disabilities by the numbers.* <https://www.understood.org/en/articles/learning-disabilities-by-the-numbers>
- “Unit 1: Macro and micro organizational decisions” (n.d.). *Coordination and organization of CLIL programmes.* Block 2: 2023. Intercollegiate Master’s Degree in Bilingual

Education and Content and Language Integrated Learning, University of Jaén and University of Córdoba.

“Unit 1: Student-Centered Methodologies” (n.d.). *Student-centered methodologies and ICTs for CLIL teaching*. Block 1: 2022. Intercollegiate Master’s Degree in Bilingual Education and Content and Language Integrated Learning, University of Jaén and University of Córdoba.

“Unit 2: Is CLIL working? The effects of CLIL on L1, L2, and content learning” (n.d.). *CLIL research and networks*. Block 3: 2023. Intercollegiate Master’s Degree in Bilingual Education and Content and Language Integrated Learning, University of Jaén and University of Córdoba.

“Unit 2: Multiple Intelligence Theory” (n.d.). *Student-centered methodologies and ICTs for CLIL teaching*. Block 1: 2022. Intercollegiate Master’s Degree in Bilingual Education and Content and Language Integrated Learning, University of Jaén and University of Córdoba.

“Unit 3: CLIL Methodology and ICTs” (n.d.). *Student-centered methodologies and new technologies for CLIL*. Block 1: 2022. Intercollegiate Master’s Degree in Bilingual Education and Content and Language Integrated Learning, University of Jaén and University of Córdoba.

“Unit 3: ICT in CLIL Materials Development” (n.d.). *CLIL Materials Development*. Block 2: 2023. Intercollegiate Master’s Degree in Bilingual Education and Content and Language Integrated Learning, University of Jaén and University of Córdoba.

“Unit 3: Making the best of the collaboration between language and content teachers in CLIL” (n.d.). *Coordination and organization of CLIL programmes*. Block 2: 2023. Intercollegiate Master’s Degree in Bilingual Education and Content and Language Integrated Learning, University of Jaén and University of Córdoba.

“Unit 4: Principles for planning and designing a CLIL lesson” (n.d.). *CLIL Materials Development*. Block 2: 2023. Intercollegiate Master’s Degree in Bilingual Education and Content and Language Integrated Learning, University of Jaén and University of Córdoba.

- “Unit 5: Design and exploitation of CLIL activities and materials” (n.d.). *CLIL Materials Development*. Block 2: 2023. Intercollegiate Master’s Degree in Bilingual Education and Content and Language Integrated Learning, University of Jaén and University of Córdoba.
- “Unit 6: Analysis of CLIL materials and lesson plans” (n.d.). *CLIL Materials Development*. Block 2: 2023. Intercollegiate Master’s Degree in Bilingual Education and Content and Language Integrated Learning, University of Jaén and University of Córdoba.
- U.S. Department of Education. (2022, November 7) *About IDEA*. IDEA Individuals with Disabilities Education Act. <https://sites.ed.gov/idea/about-idea/#IDEA-History>
- Williams, A.I., Haack, L.M., Hawkey, E., Chung, S., Ly, J., & Pfiffner, L.J. (2023). Academic competence, organizational skills, and treatment response among bilingual and monolingual children with attention deficit hyperactivity disorder. *Translational Issues in Psychological Science*. Advance online publication. Retrieved from <https://doi.org/10.1037/tps0000350>.
- Working CLIL Digital. (2018, May 30). *Victor Pavon (Part 2): Pedagogical considerations*. YouTube. Retrieved February 18, 2023 from <https://www.youtube.com/watch?v=wyh1FJJeSyY>