

Sustainable Education. Enhanced CLIL-ing. A Wake-Up Call Transforming English Language Education for Sustainable Learning in the 21st Century. A Case Study From Greece

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The primary aim of this research is to introduce the concept of Sustainable Education by incorporating Content and Language Integrated Learning (CLIL). Sustainable education, in this context, pertains to the process of fulfilling students' educational requirements by facilitating the development of diverse thinking skills, including divergent, convergent, and metacognitive capabilities, to effectively address the intricate global challenges that confront us. To establish a vibrant community of learners engaged in language practice within specific subjects, CLIL must be augmented through the integration of technology, particularly Virtual Reality (VR). This innovative approach seeks to establish a close connection between symbolic and experiential information. Additionally, the incorporation of Question-Based Learning (QBL) into the educational framework aims to enable learners to deepen their comprehension of fundamental content. In synergy, these methods contribute to the cultivation of critical skills and a holistic educational experience that aligns with the principles of Sustainable Education.

Keywords: CLIL, sustainable education, question-based learning, virtual reality

Introduction

More than ever before the traditional paradigm of education in general is no longer in sync with the reality of human systems that provide the foundation for future life. Innovative ideas about education that question long-held beliefs abound and are always most welcomed but in practice they create tremendous opposition. The new era dictates the need for Sustainable Education which will help students, the new human capital, develop high thinking order skills and core values.

Sustainability in the educational field and teaching practices can be achieved with the combination of different teaching practices and approaches. Initially, David Marsh's CLIL is used as an umbrella term since it makes the learner the protagonist of the learning stage. The benefits of CLIL have been highlighted over the years in terms of inclusion, authenticity of purpose and an increase in engagement yet, in practice CLIL remains uncharted in many countries.

Educators, have to realize that they themselves have to develop the skills they want learners to master. Teachers have to use their higher order thinking skills and enhance methodologies which were developed decades ago in order to create educational Utopias which are sustainable.

The Need for Change in Traditional Education: Bridging the Gap Between Theory and Practice

Education, as a cornerstone of societal progress, faces unprecedented challenges in the 21st century since demands of the modern world, characterized by rapid technological advancements, global interconnectedness, and complex environmental issues, necessitate a transformation of traditional educational paradigms. The prevalent model of education, rooted in data retention and exam-oriented learning, no longer suffices to equip students with the skills, competencies, and perspectives they need to navigate the multifaceted challenges of the contemporary era.

While educational theories and methodologies have evolved over time, a conspicuous disconnect exists between these theoretical advancements and their practical implementation within classroom environments. Despite the existence of innovative pedagogical frameworks, the prevailing educational landscape often perpetuates what can be termed “zombie education”. This concept encapsulates an approach characterized by students’ passive accumulation of facts and information, devoid of genuine understanding or critical thinking’ (Robinson, 2006).

The Paradigm of Zombie Education

At the core of zombie education lies a fixation on memorization for the purpose of passing exams. The traditional education system, with its emphasis on rote learning and standardized assessments, encourages students to memorize and regurgitate facts, disconnected from real-world application resulting in a generation of learners who excel in retaining information for a specific moment but lack the ability to synthesize, analyze, and apply knowledge to authentic situations (Neumeier, 2013).

This educational approach inadvertently impedes the development of essential cognitive skills, such as critical thinking, problem-solving, and creativity. The notion of “zombie education” aptly captures the phenomenon where students, while capable of recalling information, lack the capacity to engage in meaningful dialogue, make informed decisions, or address complex challenges. The consequences of this approach extend beyond the classroom, influencing graduates’ readiness for the dynamic and uncertain future that awaits them.

The Critical Role of Critical Thinking

Critical thinking, a fundamental skill in the modern world, hinges on the ability to evaluate information, make reasoned judgments, and develop well-founded solutions to multifaceted problems. However, the prevalent education model, focused on rote memorization, sidelines the cultivation of critical thinking skills. This discrepancy between educational practices and the demands of contemporary society underscores the urgency for educational reform.

Educational revolutionary theorists, including Dewey (Dewey, 1910), Freire (Freire, 1970), and even prior to them Anatole France (France, 1895), have long advocated for a shift from passive information absorption to active engagement in the learning process. “Put there just a spark” the Nobel prize winner, Anatole France urges emphasizing the need to empower students with the skills and mindset necessary for adaptability, innovation, and responsible citizenship in an ever-changing world. In the pursuit of fostering critical thinking skills among students, the acknowledgement that the mere transmission of content knowledge is insufficient and this comprehensive examination of critical thinking approaches is also demonstrated in a meta-analysis conducted by Bangert-Drowns and Bankert (Bangert-Drowns, Robert L.; Bankert, Esther, 1990) underscoring this fundamental

principle. This analysis revealed that the passive exposure of students to disciplines such as literature, history, or logical proofs yielded minimal progress in the development of critical thinking abilities. Rather, the cultivation of critical thinking skills necessitates a deliberate pedagogical approach. It entails instructing students in the methodologies of critical thinking, such as the discernment of correlation from causation, and providing them with opportunities to apply and refine these skills within the context of specific subject areas.

An active and scaffolded approach to critical thinking development within the educational landscape posits that the acquisition of critical thinking skills is not an automatic byproduct of content absorption but a deliberate and nurtured process. Therefore, educators must engage in the explicit instruction of critical thinking techniques and offer students a platform for their practical application within the framework of their respective subjects. In doing so, educators can effectively empower students with the analytical and evaluative competencies essential for navigating the complexities of the modern world or ‘it will be the responsibility of the schools to seek learning conditions that will enable each individual to reach the highest level of learning possible’ (Bloom, 1985), (Lorin Anderson, David Krathwohl, 2001).

Closing the Gap: Theory Into Practice

Addressing the gap between educational theory and practice requires a multifaceted approach. Educators and institutions must recognize the limitations of the traditional model and explore alternative methodologies that foster critical thinking, problem-solving, and experiential learning. Incorporating constructivist theories, such as those proposed by Piaget in 1970 (Piaget, 1970) and Vygotsky in 1978 (Vygotsky, 1978), can serve as a foundation for student-centered learning experiences that prioritize active engagement and profound understanding.

Education for Sustainability in a Changing World: Empowering Future Game-Changers

Along with the aforementioned theories which necessitate the shift from the oppression of traditional education (Freire, 1970) the post-pandemic era is characterized by rapid changes across various domains thus making the limitations of traditional education increasingly evident. The COVID-19 pandemic acted as a catalyst, accelerating the pace of transformation, and highlighting the urgency for a paradigm shift in education. Concurrently, the concept of sustainability has emerged as a critical focal point for global discourse. In 2015, the United Nations introduced the 17 Sustainable Development Goals (SDGs) (Nations, 2015) as a comprehensive framework aimed at steering the world towards sustainable development and averting potential global crises.

Amid these shifts, the term “zombie education” has surfaced, encapsulating the deficiencies of conventional educational approaches that prioritize memorization over comprehension and critical thinking. The pandemic amplified the need to rethink education, prompting educators to reconsider the broader context in which learning takes place.

Understanding the Essence of Sustainability

The term “sustainability” has become pervasive, yet its true essence merits contemplation. At its core, sustainability signifies achieving a delicate equilibrium among the dimensions of people, planet, and profit. This entails fostering resilient systems and considering long-term implications in decision-making processes. The call for sustainability transcends immediate concerns, encompassing a commitment to safeguarding the well-being of

future generations. The interconnectedness of ecological, social, and economic systems underscores the necessity of holistic approaches to education as the latter constitutes an integral component of both sustainability processes (Haan, 2006).

The Imperative for Game-Changers

Sustainability hinges on a call for transformative action across various sectors, with green jobs, improved diets, healthier lifestyles, and inclusive societies emerging as fundamental aspirations. However, reliance solely on businesses to drive these changes is an inherently flawed approach. The pursuit of sustainable solutions necessitates a paradigm shift in educational strategies, empowering students to become active participants in the creation of a more sustainable world (Neumeier, 2013).

The question arises: Are educational institutions fostering the development of the game-changers required for a sustainable future? To achieve this goal, educators must reflect on whether current methodologies align with the objectives of sustainability and equip students with the necessary skills, knowledge, and mindsets. The imperative extends beyond the classroom, advocating for the opening of doors that have remained closed for too long (Neumeier, 2013).

Education's Role in Cultivating Game-Changers

Educational institutions bear a substantial responsibility in cultivating the next generation of game-changers. Integrating sustainability principles into curricula provides students with a profound understanding of the interconnected challenges facing the world today. By incorporating the Sustainable Development Goals (SDGs) into educational frameworks, students gain exposure to the diverse array of issues that underpin global sustainability efforts (Nations, 2015).

The shift towards education for sustainability requires an emphasis on critical thinking, problem-solving, and collaboration. Students must be equipped with the capacity to evaluate complex scenarios, recognize interdependencies, and propose innovative solutions. This necessitates a departure from traditional pedagogies centered around rote memorization, towards experiential learning that instills a sense of agency and purpose.

Revitalizing Language Education Through Eclectic Pedagogy and Content Integration

In the realm of language education, the search for innovative pedagogical approaches is a perpetual endeavor. Teachers are often confronted with the question of whether to wait for the emergence of new groundbreaking theories, or to rediscover and adapt existing methodologies to the evolving educational landscape. While the latter might seem less revolutionary, it holds the potential to yield substantial benefits in the quest for effective language acquisition and communication.

In 1980, linguist Stephen Krashen introduced a seminal perspective on second language acquisition—the input hypothesis. This hypothesis underscores the significance of meaningful interaction and content relevance in language learning. Krashen posits that the focus should not solely be on the grammatical form of speech, but rather on the conveyance of messages. Educators, therefore, should prioritize fostering constant communication and exposure to language through diverse avenues to cater to the varied learning needs and profiles of students (Krashen, 1985).

Coinciding with Krashen's perspective, American psychologist David Kolb contributed to the understanding of learning as a comprehensive process of adaptation to the world. He highlighted the integration of cognitive,

emotional, sensory, and behavioral aspects in effective learning. This holistic view of learning resonates with the idea of constructing knowledge through the meaningful connection of cues and experiences (David Kold, 2011).

The essence of education lies in making sense of the world, and this concept serves as a compass guiding pedagogical transformations. To reinvigorate education, personalization is paramount. Creating an engaging learning environment where students are intrinsically motivated to invest in their own learning journey becomes pivotal. The contemporary era necessitates an eclectic approach that aligns with diverse learning objectives, student needs, and the dynamics of the present time.

Content and Language Integrated Learning (CLIL) as an Eclectic Approach

In this quest for a revitalized education, one approach that stands out is Content and Language Integrated Learning (CLIL). Although introduced in the 1990s, the essence of teaching language through meaningful content dates back to ancient times, even to the Roman Empire. CLIL capitalizes on the intrinsic link between language and subject matter, weaving them together to facilitate holistic learning experiences (Do Coyle, Philip Wood, David Marsh, 2010).

Through CLIL, educators can adopt an eclectic pedagogy that harmonizes language proficiency with the exploration of diverse subject areas. By integrating language learning with topics that resonate with students' interests and aspirations, educators leverage the natural curiosity of learners. This approach aligns seamlessly with Krashen's emphasis on content-based interaction and communication (Krashen, 2003).

Expanding the Horizon of CLIL: Moving Beyond Superficial Integration

The concept of Content and Language Integrated Learning (CLIL) has emerged as a promising pedagogical approach, capitalizing on the synergy between language acquisition and subject matter comprehension. While CLIL has made inroads into educational landscapes, the degree of its successful implementation varies. In this context, the notion of superficial CLIL integration and its potential pitfalls warrant consideration.

The Emergence of CLIL Integration and the Greek Reality

CLIL integration has witnessed notable advancements in recent times. Course books often feature CLIL pages and occasional "showers" of content-based activities. These efforts manifest in attempts to merge language learning with subject-related elements. However, these modest endeavors often fall short of the comprehensive integration that CLIL aims to achieve.

In Europe, CLIL has gained traction as a method to enhance both language proficiency and subject knowledge. However, Greece stands as one of the few European countries where CLIL has not transitioned into mainstream pedagogy. While some progress is evident through the inclusion of geographical or scientific content, Greece's educational landscape has yet to fully embrace the transformative potential of CLIL "Only Turkey, Denmark, Iceland, and Greece do not make this kind of provision" (Eurydice, 2012). Many coursebooks used in the Greek ELT have CLIL pages, usually called CLIL showers (Peeter Mehisto, David Marsh, Maria J. Fregols, 2008), which appear as consolidation or revision units.

While some educators might consider including sporadic CLIL elements in lessons as sufficient, a deeper understanding reveals the limitations of this approach. The essence of CLIL lies in the seamless integration of language and content, resulting in a mutually reinforcing learning experience. Superficial CLIL, manifested through "CLIL showers", merely scratches the surface of this integrated paradigm.

The Pitfall of Subject-Based Learning Within CLIL

CLIL, at its core, should transcend subject-based learning. Merging language with subjects like history and geography, while commendable, poses the risk of maintaining subject-driven instruction. The true essence of CLIL, however, involves transcending traditional silos, allowing language and content to complement and enrich each other. Subject-based CLIL can inadvertently perpetuate the very compartmentalization it seeks to overcome.

Embracing the Dual-Focused Educational Paradigm

The true potential of CLIL rests in its dual-focused educational paradigm. The term “dual” inherently signifies the balance between language and non-language aims. This equilibrium fosters a symbiotic relationship, where language acquisition becomes a conduit to exploring and comprehending complex subject matter. The integration of language and content goes beyond the superficial to embrace the transformative potential of CLIL.

To fully harness the transformative power of CLIL, a shift from fact-based instruction to process-oriented learning is imperative as CLIL should not be confined to the acquisition of factual information; instead, it should prioritize the development of critical thinking, problem-solving, and communication skills. Such a shift aligns with the broader goals of education in the 21st century, where students must be equipped with the tools to navigate an ever-changing world.

Revolutionizing Education: Innovative CLIL Courses for Holistic Learning and Transformation

To enhance the Content and Language Integrated Learning (CLIL) approach and transform the educational experience, a shift towards introducing new subjects becomes imperative. The primary objective should revolve around prioritizing skill-based knowledge that empowers learners to not only accumulate information but also to experience, envision, create, and learn. Skill sets such as applied imagination, empathy, systemic thinking, and social intelligence demand a more holistic framework to flourish within the educational context. It is crucial to remember that the essence of CLIL lies in enabling students to learn content not merely in the target language but through it, fostering a deeper level of engagement and understanding (Peeter Mehisto, David Marsh, Maria J. Fregols, 2008).

The contemporary educational landscape no longer celebrates the commonplace notion of “thinking differently” as front-page news. Instead, what truly garners attention is the notion of being radically different (Neumeier, 2007). While thinking skills undoubtedly hold significance, the key lies in enabling students to frequently apply these skills across diverse and novel contexts. This necessitates profound and radical changes within our classrooms to facilitate this transformative process.

The Greek Case Study

Approximately four years ago, our school embarked on a journey to embrace CLIL courses that deviate from conventional subjects such as history or geography. Instead, the courses were meticulously designed based on what we, as educators, would wish to learn and be taught if we were students. This initiative also involved seeking the input of the students themselves, wherein their voices were considered and integrated into the curriculum design.

The first of these innovative courses, “Myths and Tales”, was tailored for A1 learners. This course ingeniously employed storytelling as a medium to introduce language in a comprehensible and meaningful

manner. Storytelling, with its roots in the original form of teaching, has proven potential in fostering emotional intelligence and aiding children in gaining insights into human behavior. Furthermore, storytelling serves as a catalyst for language learning by enriching vocabulary and facilitating the acquisition of new language structures. Importantly, the context of storytelling provides a motivating and low-anxiety environment for language acquisition (Krashen, 1985). It is noteworthy that the approach went beyond mere story reading; instead, strategies were employed to explore the entirety of the narrative, including before, during, and after phases.

Expanding on this innovative approach, we introduced a second course for A1+ learners titled “We... the Animals.” This course aimed at not just teaching about animals but also learning from animals. By delving into aspects such as animal species, habits, habitats, predators, hunting, and the circle of life, students not only acquired language skills but also imbibed values of compassion and empathy, promoting a sense of connectedness, and understanding of otherness.

For A2 level learners, a new course was introduced, titled “We... the Earth”, merging natural disasters and natural wonders to unravel the world's complexities before the students' eyes. This course was devised to raise environmental awareness among students, fostering a proactive attitude and a strong commitment to addressing contemporary environmental challenges. Notably, a study conducted by Stanford University in 2017 (Ardoinhttps, 2018) demonstrated the positive impact of such courses, with schoolchildren improving their ecological behavior and achieving better scores in other subjects such as maths.

The multidimensional nature of these lessons was further enhanced through multimodality, where a diverse range of resources and creativity were integrated to extract language learning opportunities. The subsequent focus was on art education, exemplified by the “Artful Diaries” course for B1 level students. Here, art served as a vehicle for cultivating soft skills, enabling students to express themselves, appreciate artistic works, and engage in reasoning routines.

Continuing this trajectory, the “Food-for-Thought” course was designed for B1+ students, emphasizing optimal nutrition and the mind-body connection. This course aimed to empower children to take ownership of their health by making informed food choices, thereby fostering holistic well-being.

For B2 learners, the “Busi-Teens” course was recently introduced, providing foundational insights into basic business concepts such as needs analysis, marketing analysis, strategic planning, entrepreneurship, and design thinking. The curriculum is aimed at enhancing problem-solving skills through activities that encourage critical examination, analysis, and logical thinking. By engaging students in creative activities such as devising effective advertising campaigns and presenting business plans, authentic projects stimulate enthusiasm and active engagement in the learning process.

Incorporating innovative subjects and pedagogical approaches within the CLIL framework demonstrates the potential to reshape the educational landscape, aligning it with the demands of the 21st century. By nurturing not only linguistic competence but also critical thinking, creativity, empathy, and practical skills, this transformative approach equips students to thrive in a rapidly changing world.

Cultivating Learning Environments: The Role of Educational Gardens and Technology in CLIL-based Transformation

The transformation of traditional classrooms into dynamic learning environments represents a pivotal shift in modern education. The conventional notion of education confined within four walls has given way to a paradigm that seeks to liberate learners, foster creativity, and encourage holistic thinking. A critical component

of this transformation involves the integration of green spaces and educational gardens as catalysts for experiential learning and cognitive growth.

As educational landscapes evolve, the concept of replicating information through rote memorization is replaced by the cultivation of imagination and comprehensive understanding. The call for such change is underscored by the recognition that the conventional model of education often fosters reductive thinking, stifling the development of critical reasoning and practical skills essential for thriving in the contemporary world.

This transformation is emblematic of a larger educational ethos, one that resonates with the philosophy of Content and Language Integrated Learning (CLIL). The adoption of CLIL principles not only redefines how learners engage with content, but also necessitates a shift in the physical spaces where learning takes place (Schoolnet, 2013). The introduction of an “educational garden” as an embodiment of this transformation emerges as a powerful proposition.

Gardens, with their open and inviting spaces, offer an alternative to the confinements of traditional classrooms. They symbolize liberation from the mundane and a departure from conventional learning boundaries. As such, they align seamlessly with the overarching goals of modern education, which seek to cultivate environments that foster creativity, encourage exploration, and elevate the learning experience to new heights.

Drawing on principles from psychology and educational theory, the significance of color and visual stimulation in learning environments is evident. Bright colors and natural elements have been linked to reduced stress and enhanced cognitive development. The integration of such elements in an educational garden further underlines its potential as a catalyst for transformative learning experiences.

The concept of an educational garden resonates deeply with the philosophy of experiential and hands-on learning. The engagement of visual and kinesthetic learners is particularly notable, as these students thrive in environments that facilitate active participation and learning by doing. As students immerse themselves in garden-based activities, they transcend the boundaries of traditional pedagogy and delve into a realm of sensory-rich exploration.

Furthermore, educational technology presents opportunities to bridge the theory-practice gap. Immersive technologies, such as Virtual Reality (VR) and Augmented Reality (AR), can provide students with experiential learning opportunities, enabling them to explore complex concepts in real-world contexts (Johnson, 2019). These technologies transcend mere memorization, immersing learners in interactive scenarios that demand critical thinking and problem-solving skills.

The transition from teacher-centered instruction to a facilitator-guided approach is emblematic of this shift since in the context of an educational garden, educators assume roles as guides and observers, orchestrating dynamic learning experiences that encourage students to take ownership of their learning journey. This transformation of the teacher-student dynamic aligns with modern pedagogical philosophies that emphasize student agency, critical thinking, and collaborative problem-solving.

Impact of Enhanced CLIL Approach on Student Engagement and Academic Performance: A Longitudinal Study

In the pursuit of transforming conventional education paradigms, the integration of Content and Language Integrated Learning (CLIL) approaches has garnered significant attention. This study examines the effects of an enhanced CLIL approach on student engagement and academic performance, with a focus on the outcomes observed over a four-year implementation period in a school setting.

The study was conducted over a five-year period, during which an enhanced CLIL approach was implemented across multiple classrooms, involving more than 2500 students. The approach encompassed the introduction of diverse CLIL-based courses that prioritized skill-based knowledge acquisition and experiential learning. During the study a mixed-methods approach was adopted, combining qualitative observations and quantitative data analysis to assess changes in student engagement and academic outcomes.

Findings

Enhanced Student Engagement. The implementation of the enhanced CLIL approach led to a substantial increase in student engagement levels. Through the utilization of quality effective group work strategies, students demonstrated heightened interest and active participation in their learning journey. This finding underscores the efficacy of CLIL in creating a learning environment that aligns with real-life situations, encouraging students to connect their prior knowledge with new content.

Improved Learning Relevance and Connection. A significant outcome of the enhanced CLIL approach was the ability of students to establish meaningful connections between different pieces of knowledge. This ability to connect mental dots resulted in enhanced analytical, reflective, and critical thinking skills. Students exhibited a heightened capacity to question, argue, and discuss various concepts, indicating a deeper understanding of the content and its practical applications.

Enhanced Academic Performance. The study observed higher success rates in high-stake exams among students exposed to the enhanced CLIL approach. This improvement in academic performance underscores the effectiveness of CLIL in equipping students with the necessary skills and knowledge to excel in assessments that demand critical thinking and practical application.

Positive Emotional Response and Desire to Learn. The study identified a positive emotional response among students exposed to the enhanced CLIL approach. Students demonstrated smiles and expressed a strong desire to attend classes, reflecting a newfound enthusiasm for learning. This emotional shift suggests that the approach not only enhances cognitive growth but also contributes to the overall well-being of students.

Conclusion

The findings of this longitudinal study underscore the transformative potential of an enhanced CLIL approach in education. The observed increase in student engagement, improved learning relevance, enhanced critical thinking skills, and elevated academic performance highlight the capacity of CLIL to bridge the gap between theoretical knowledge and practical application. Additionally, the positive emotional response and increased enthusiasm among students suggest that the approach has the power to create a fulfilling and enriching learning experience. As education continues to evolve, the implementation of CLIL-based approaches emerges as a viable strategy to prepare students for the complexities of the modern world.

In the realm of education, the call for transformation is resounding, as traditional models prove insufficient in equipping students with the skills and mindset demanded by the dynamic world.

The transition from traditional subject-based learning to CLIL courses represents a pivotal shift in educational philosophy since the integration of diverse subjects, such as storytelling, environmental studies, art education, and business concepts, aims to foster skill-based knowledge, applied imagination, empathy, systemic thinking, and social intelligence. These courses encourage learners to transcend mere information retention and engage in critical analysis, problem-solving, and creative expression. Additionally, the establishment of

"educational gardens" and dynamic learning spaces marks another key facet of this transformation since these environments break away from the confinements of traditional classrooms, fostering a liberating atmosphere that encourages exploration, interaction, and holistic development.

In conclusion, the journey from "zombie education" to a transformative CLIL-based approach reflects the evolving educational landscape. As educators, policymakers, and stakeholders, the imperative lies in embracing innovation, fostering dynamic learning environments, and nurturing holistic thinkers who possess the ability to address complex global challenges. The shift from conventional to CLIL-based education represents a step toward producing adaptable, empowered, and socially conscious individuals who can shape a sustainable and inclusive future.

In conclusion, the chasm between educational theory and classroom practices necessitates a paradigm shift in how education is conceived and delivered. Realigning education with the demands of the 21st century involves integrating pedagogical theories, embracing experiential learning approaches, and leveraging technology to bridge the gap between theory and practice. By doing so, educators can steer education away from its zombie-like state and towards a future where students are active and equipped to tackle the complexities of our modern world.

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