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To what extent does content and language integrated learning (CLIL) impact on pupils' critical thinking in a beginners' S5 Business Italian class?

BY

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Abstract

Content Language Integrated Learning (CLIL) is a dual-focused pedagogical approach which enables educators to teach a foreign language alongside another academic subject by providing the learner with authentic, subject-specific materials in the target language to develop critical thinking (CT). However, there is a gap in the literature regarding the effects of CLIL on CT, especially in modern languages other than English. This study sets out to examine the eventual impact of CLIL on learners' CT skills in a beginners' S5 Italian-Business class. This action research was conducted over a 7 week period and used a mixed-methods approach, collecting quantitative and qualitative data through the use of questionnaires, focus group discussions and a reflective journal to monitor the learners' CT development. These data collection modes, based on Bloom's Taxonomy, are designed to measure participants' CT with a focus on the lower order thinking skills Remembering and Understanding as well as the higher order thinking skills Analysis and Evaluation. Participants' CT skills were analysed pre- and post-CLIL intervention in order to determine the impact of this teaching method. The research results suggest that CLIL increases learners' lower and higher order CT skills and that the pedagogy warrants further investigation.

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Permission to consult

The author gives permission for this dissertation to be made available by the University of Glasgow to anyone who knows of its existence and wishes to consult it.

Abbreviations

ML – Modern Languages

CLIL – Content Language Integrated Learning

CT – Critical thinking

HOT – Higher order thinking

LOT – Lower order thinking

L2 – Second language

EFL – English as a foreign language

ELT – English language teaching

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CHAPTER 1 – INTRODUCTION

John Dewey defines education as “a social process. Education is growth. Education is not a preparation for life; education is life itself” (Dewey, 1916: 11). While students attend school to learn *about* topics and learn to *perform*, education also applies to the learning process taking place (Dörnyei, 2003). Through the constructivist approach adopted by Vygotsky (1987), the teacher is no longer the source of unchallengeable knowledge, but rather a guide in the learning. The learner is thus able to manipulate the process in steps by remembering, understanding, analysing, evaluating and ultimately creating knowledge through the confrontation, on the part of the teacher, of new ideas and concepts. This key learning process is illustrated through Bloom’s taxonomy of critical thinking (1994). By challenging students’ thinking through innovative teaching, the educator can enable pupils to learn to independently challenge their own assumptions and thinking process.

Through the use of Content Language and Integrated Learning (CLIL), introduced by Marsh (1994), teachers as well as learners can simultaneously approach two areas of knowledge via the medium of language with dual aims: the learning of a foreign language and the learning of content from another academic content (Scottish Government, 2012). Thus, pupils can develop and strengthen “decision-making skills, CT and exploration skills” (Scottish Government, 2020). By introducing the use of CLIL within the classroom, pupils could improve this invaluable process of CT and benefit from it inside and outside the classroom.

1.1 Research Context

The concept of CT is an integral part of educational policy in Scotland in terms of teaching and learning. The Scottish Government (2009) explicitly mentions the skill of CT as key in developing the notion of ‘effective contributor’, one of the four capacities under the Curriculum for Excellence. This ability is “indispensable to a democratic society” which could also refer to the capacity of ‘responsible citizen’, although not explicitly mentioned (Byrnes & Dunbar, 2014: 478). In addition, policy document “Building the Curriculum 4” also mentions CT as a necessary skill which must be developed not only in terms of

academics but also as a link to invaluable “vocational” learning (Scottish Government, 2009: 3). This notion of long-term value challenges learners in “new contexts” in order to prepare them for life and work, a key component of Languages Life and Work (*ibid.*: 3; Scottish Qualifications Authority, 2021). In other words, the use of CT should not simply be a part of the curriculum but an agent for active learning within the classroom and beyond. Furthermore, the policy document “Educational outcomes of Learning for Sustainability” highlights that CT is a step towards “not only thinking in terms of critiquing what exists but re-imagining what is possible” (Scottish Government, 2020).

Although CT is mentioned as an essential factor in the development of Scottish Education, Farrar & Stone (2019: 1) suggest that the term “has been applied incoherently within key Curriculum for Excellence documentation, including the frequent conflation” with critical reading and literacy. Furthermore, the process of CT is identified as a desirable outcome only for specific subjects such as Social Studies (Scottish Government, 2009) and Science (Scottish Government, 2009), the term is solely used within literacy-related documentation even though CT should be integrated across the whole curriculum, including modern languages.

1.2 Rationale

This practitioner inquiry stems from a CPD workshop in Argyll and Bute on the use of inquiry-based learning and pupil engagement. The process of learning has been significantly affected and disrupted due to the global impact of the Covid-19 pandemic (McLennan *et al.*, 2020). Teachers across Scotland, and beyond, were required to explore innovative ways in which to engage pupils. While a significant amount of literature at the time focused on the use of ICT as a tool to engage learners, there appears to be a lack of studies in terms of the process of the learning in itself (Çakıroğlu, 2017; Li & Wang, 2012). I identified CLIL as an innovative and challenging pedagogical means of stimulating learners and promoting independent thinking in order to encourage pupils to use language critically in other contexts, providing them with transferable skills for the future.

1.3 Research aims

The aim of this research is to determine to what extent Content Language Integrated Learning (CLIL) could impact learners' CT skills in a beginners' Business-Italian class. The following sub-questions were identified:

1. How, if at all, does CLIL support the development of CT?
2. How is CT displayed through the simultaneous learning of language and business?
3. Is there a difference in learners' LOT and HOT skills after the implementation of CLIL?

1.4 Dissertation Outline

This dissertation is composed of five chapters, including this introductory section. The second chapter comprises an overview of the literature available on the topics of CLIL and CT in education, including a focus for both concepts within the ML classroom. In addition, the literature is explored concerning the possible relationship between CLIL and CT. Chapter three provides an overview of the methodological approaches implemented in this study, exploring the benefits and limitations of the mixed-methods approach as well as the use of the questionnaire, focus groups and reflective journal as investigative tools in the classroom. Chapter four presents an in-depth analysis and discussion of the findings of the study. The final chapter explores the limitations of the research conducted and identifies recommendations for future research. Chapter five also considers the wider impact of the study in Scottish education and beyond.

CHAPTER 2 – LITERATURE REVIEW

2.1 Content and Language integrated Learning

Content and Language Integrated Learning (CLIL) is a pedagogical approach which embeds the simultaneous learning of modern foreign language with the content of another subject in a single framework. CLIL is thus “a dual-focused educational approach” (Coyle *et al.*, 2010: 1) which enables the learner to learn about a specific discipline while also developing the linguistic skills of a foreign language. As previously mentioned, CLIL focuses on four key elements: Content, Culture, Communication and Cognition. This notion of contemporaneous learning within CLIL finds its roots in the Canadian immersion approach whereby the curriculum is taught in both the first and second official languages (Westhoff, 1994). This approach then developed and gained momentum throughout Europe (Marsh, 2002; Oonk, 2004) due to the need for second language competencies in daily life and the workplace (Wolff, 2007). In fact, the European Commission Action Plan 2004 and 2006 highlights CLIL as a major contribution to the Council of Europe’s language learning goals as it can enable effective communication, through real and concrete contexts (Eurydice Report, 2006). CLIL may thus play a part in raising young people’s awareness of the invaluable skills of ML in an internationalised world (Goris *et al.* 2019).

CLIL is a multifaceted and innovative approach (Marsh, 1994) which provides fusion of a “non-language subject with and through a foreign language” (Eurydice Report, 2006: 8). Rather than teaching two disciplines separately, pupils are thus able “to learn as you use and use as you learn” (Marsh 2002: 66). Nevertheless, Coyle *et al.* (2010) argues that CLIL is, in fact, a post-method pedagogical model, which is influenced by a variety of theories which have traditionally had a significant impact on education. The significance of the implementation of this approach lies in its flexible nature, using techniques and methodologies designed for all students, not only the academically high performing (Mehisto *et al.*, 2009). Notably, the implementation of the CLIL approach “has led to the development of critical thinking skills through language teaching and learning” (Enciso *et al.*, 2017: 83). Furthermore, Buchholz (as cited in MacDougald, 2004) supports the use of Bloom’s

taxonomy in implementing CLIL programmes as a way to promote effective learning through CT (see Figure 1).

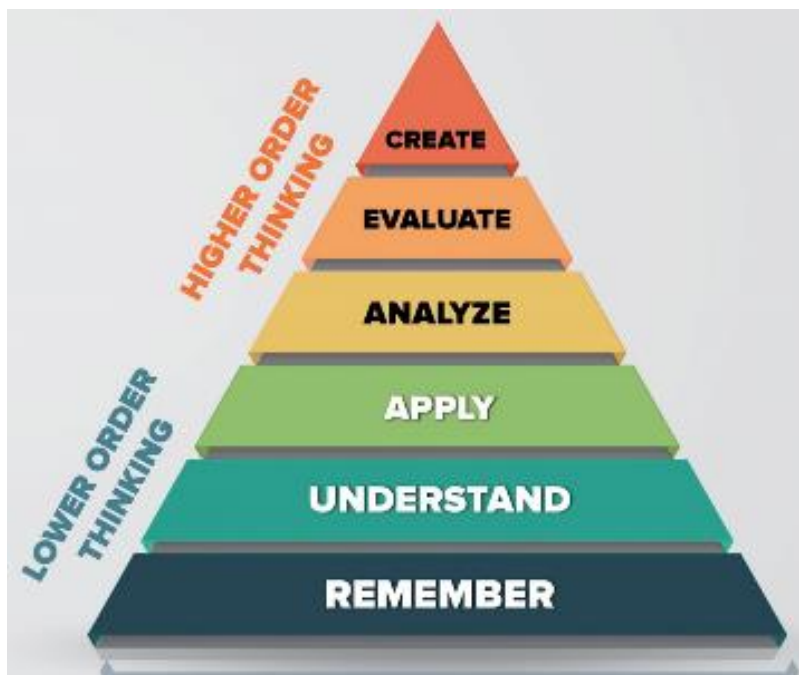


Figure 1 – Bloom’s Taxonomy of Critical Thinking

2.1.1 CLIL in Modern Languages

o Advantages

Researchers suggest that CLIL can develop significant mental flexibility (Marsh, 2009) in second language learning but also enable the development of multi-competences such as skills in thinking and communication which go beyond language itself (Chamot & O’Malley, 1994). Furthermore, Chamot & O’Malley (*ibid.*) suggest that the integration of academic content with language actually develops CT skills which are associated with the development of language functions. By merging two subjects, one of which is a language, pupils develop the critical skills necessary to hone their foreign language knowledge and skills such as vocabulary and grammar. Nevertheless, Chamot & O’Malley (*ibid.*) admits that it is the job of the CLIL educator to focus the learning around the students rather than the content itself. The teaching must be properly channelled, taking into account the importance

of cognition in the process as, if not focused on the learner, then CLIL can become a “dry methodology in the teaching-learning process.” (Aravind & Rajasekaran, 2018: 33).

When CLIL is implemented effectively however, research suggests positive language proficiency outcomes compared to conventional language classes (Dalton-Puffer, 2008; Lorenzo & Moore, 2010). Other studies have investigated the specific reasons for the improvement of L2 through the use of CLIL, with several having been conducted to determine the causes of improved L2 performance in CLIL environments. Wolff (2007) suggests learners benefit from the longer period of exposures, better learning conditions (due to more authentic lesson resources) and the presence of native speakers. In addition, the richer use of content (via the other subject content) and the creativity involved in employing real-life situations, in which the foreign language is used for concrete communication and goals, widens the learners’ perspective and vocabulary in a manner not possible in a traditional language-specific curriculum. All of the above contributes, in turn, to enabling students to process information more critically (Dalton-Puffer, 2007 & Goris *et al.* (2019).

Interestingly, Dalton-Puffer (2007, 2008, 2009) who researches L2 learning in a CLIL environment in various European contexts, has reported a positive effect on receptive language skills but also creativity and risk-taking, which reflect Wolff’s vision of creating more authentic materials in order to enhance pupils’ processing of information. Ultimately, CLIL is a catalyst for pupils’ critical thinking development and language learning, by “encouraging learners to produce spoken or written output helping them to think through ideas, to express them, to share knowledge, to give feedback, review ideas, to adapt and refine ideas and to negotiate solutions.” (Dale & Tanner, 2011: 121). All of the above aspects are key concepts in the development of CT whether in language learning or other academic subjects (Housen, 2022).

o ***Disadvantages***

Despite the idea that CLIL is accessible to everyone, studies have found that CLIL courses, contrary to the initial goal of inclusion in terms of language attainment, attract high achieving students who are “more motivated, and more linguistically and academically talented” (Bruton, 2011; Küppers & Trautmann, 2013). However, Goris *et al.* (2019: 676)

suggests that this provides “little or no information about the effectiveness of the intervention itself”. While the majority of studies focused on the benefits of CLIL, the research only investigated a specific aspect of the pedagogy, often demonstrating results in favour of CLIL. Consequently, a more long-term perspective is missing (*ibid.*).

Other academics have criticised the use of CLIL as glamourised and lacking reliability in terms of research designs and outcomes, such as the failure to match control and experimental groups in terms of aptitude and language level (Bruton 2015 & Paran 2013). However, as previously mentioned, consideration of longitudinal studies is scarce and there is a lack of detailed triangulation in terms of educational findings. Moreover, Pérez-Cañado (2012: 329) highlights that over the last two decades, the majority of studies have been of a mainly descriptive nature, focusing on the benefits of CLIL education while solid empirical studies have been sparse. In addition, Dalton-Puffer (2008) found, through student interviews, that there was reduced participation in the learning process as teachers focused too much on the teaching of CLIL. There is thus a discrepancy in the desired outcome of CLIL to enhance active participation which may in turn lead to less learning (*ibid.*).

Hanesová (2014) supports the view of Dalton-Puffer (2008) stating that there is a danger in the teacher developing a “traditional translation lesson” in terms of language learning. Thus, teachers may be inclined to neglect the content of the other subject being covered and concentrate purely on “the intellectual side of language learning” (Hanesová, 2014: 38). The challenge lies in breaking away from this more behaviourist view of language learning and focusing on more “relevant practical experience [which] is filled with more purpose and meaning and more influenced by social and cultural contexts” (Švec, 2008: 55). The content of the lesson is therefore less focused on the theory and principles of language or the second subject at hand, but rather on the process of acquiring “new unmediated experiences” of learning, both in terms of content and language (*ibid.*: 55). However, while the theory of CLIL is robust, in practice, it is more difficult to give equal importance to both language and content in the classroom, hence subjects having been taught separately before the 1990s (Airey & Linder, 2006).

Despite the vision of multifaceted learning integration, researchers have found a discrepancy between the level of language and knowledge of the other subject involved. For instance, Lim & Falk (2008) found that CLIL students used less relevant subject-based language in speech and writing than did the control students. In other words, their language skills were not related to the other subject being taught, while the control group, which was taught the subjects separately, were more proficient at subject-specific vocabulary. Lim Falk argues that in content subjects, “[the modern language] is an obstacle, and is also considered as such by pupils” (2008: 5). This notion of discrepancy in both the subject and the language being taught was also found by Airey through qualitative data analysis (Airey, 2009; Airey & Linder, 2006) which demonstrated that some students had problems describing the concepts of the subject (in this case science) in English. Problems with connections to the linguistic expression of academic concepts have also been reported by Walker (2010) for secondary students in Hong Kong.

In Europe, there is an incipient debate that CLIL might indeed have negative effects on advanced language proficiency as pupils tend to focus on L2 at a relatively basic level due to the dual-focused nature of the pedagogy and consequently the development of L2 in terms of both vocabulary and grammar is hindered (Goris *et al.*, 2019). However, the latter concedes that there is a lack of research on the topic. Interestingly, Goris *et al.* (2019) suggests that academics often focus on findings which link CLIL to a positive or negative effect of language learning and neglect other findings such as Admiraal *et al.*’s (2006), Jappinen (2005) and Badertscher & Bieri (2009) who report that there is neither a positive nor a negative effect on the learning of both content and language. All the studies previously mentioned on the use of CLIL were specifically conducted into the learning of English. There is a blatant lack of research into other modern foreign languages. Badertscher and Bieri (2009) is one of the only studies which explores the use of CLIL in German and French. There is a definite need for more robust academic research into the use of CLIL in other ML, in order to be able to confidently state that CLIL has a beneficial or negative effect on pupil learning. As Dalton-Puffer (2011: 189) suggests: “How is it possible that learners can produce equally good results even if they studied the content in an imperfectly known

language? The classroom and its pedagogical and linguistic practices should hold some answers.”

2.2 Critical Thinking

Critical thinking, similarly to CLIL, has become a focus in educational research and practice in recent decades (Enciso *et al.* 2017). There is academic consensus that CT plays a fundamental role, not only in language but in all fields of knowledge (Moseley, 2005; Butler 2012). In fact, Halpern (as cited in Liu *et al.*, 2014: 3) defines CT within education as a current challenge which is to prepare people who are able to meet the demands of the labour market, taking part in a thinking process that is “purposeful, reasoned, and goal directed—the kind of thinking involved in solving problems”. While Norris & Ennis (1989) define CT as a thoughtful and reasonable process with the objective of making sensible decisions about what to believe or what to do, Scriven & Paul (1987) understand this process through Bloom’s Taxonomy:

“[...] the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from or generated by observation, experience, reflection, reasoning, or communication, as a guide to belief and action”.

In turn, Siegel (1991) argues that CT involves a process of reasoned judgement and evaluation as well as the willingness, dispositions and attitudes for living and acting by them.

Some researchers argue that there is difficulty in finding a common definition which encompasses all aspects of this process and thus each particular definition will have limitations (Paul & Elder, 2019; Karbalaei, 2012). Nevertheless, these varied definitions all highlight the focus on exploration, questioning and reflection, which are also supported by Facione (1990), leading Paul & Elder (2019) to conclude that such components are in fact intrinsically connected while also remaining independent of each other. Although this difficulty in defining the concept of CT can be considered a barrier to academic consensus, Bloom’s taxonomy (1994) provides a framework in both the process and the definition of CT with the clear separation of LOT and HOT skills. This organisation of CT provides a

framework within which to identify the different stages of the process which, as previously mentioned, work intrinsically but also independently of one another (Paul & Elder, 2019).

While *thinking* is an innate human capacity (Paul & Elder, 2019), it is important to note that there is consensus within academic literature that CT does not occur spontaneously (Enciso *et al.* 2017; Lipman, 2003). On the contrary, Norris & Ennis (1989) suggests it must, in fact, be cultivated. This suggests that the learner requires a more knowledgeable other (Vygotsky, 1987) to foster this invaluable skill within the classroom so that outside of the school context the learner can participate in the essential political, economic and social aspects of society (Scriven & Paul, 1987). Lipman (2003) also sees CT as a necessary skill, used in facilitating self-assessment, judgement and decision-making in order to succeed within society. Tama (1989) suggests that CT can be measured through the use of belief justification unless the opposing argument is convincing. This notion of personal reflection requires nurturing a high degree of evaluation but also a willingness to be challenged by the educator yet not refuted in order to provide a space for growth and nurture Siegel (1991).

Thus, there is a high correlation between an individual's CT skills and his or her education (Moseley, 2005) and "it is urgent that education offers students the opportunity to develop skills, abilities and capabilities, as well as values associated to CT and applicable to life outside the classroom" (Enciso *et al.* 2017: 81). This urgency to shift to a more constructivist approach on thinking is required as CT is, according to Paul (1992) the only way to face the evolving problems within society. Rather than a discipline in itself, CT is considered as a vehicle for resolving ambiguity and embrace, challenge or adapt to cultural, social and technological change (Brookfield, 2005). Dewey (cited in Fahim & Nazari, 2012) argues that the primary purpose of education should be to teach individuals how to think and Karbalaei (2012) even suggests that educators are responsible for providing learners with the opportunities to develop this invaluable skill.

Indeed the notion of CT, although quite recent in terms of a pedagogical concept, can be found in documents ranging from the European Commission, through the Curriculum for Excellence, to Australian education: "The importance being accorded to CT is now a worldwide phenomenon. In education reports of countries such as the United States, United

Kingdom and Australia, CT has been listed as a key area to be cultivated and assessed in higher education” (Ku & Ho, 2009: 70).

2.2.1 Critical Thinking in Modern Languages

Critical thinking is often associated with science and maths in an educational context at secondary level (Santos 2017; Vieira *et al.*, 2011; Bailin 2002) and there is a clear lack of literature on the use of CT in the ML classroom. Bagheri (2015: 969) states that in order to be a successful language learner, “notwithstanding the emphasis on the ability to think critically, it is a vital necessity for the citizens of the current century”. As previously mentioned, CT is seen as key not only in terms of (language) learning but as a skill for post-educational success. However, Bagheri (2015: 971) admits that “the application of CT for teaching and learning foreign languages is a new area of investigation”. Nevertheless, academics have always surmised a connection between language and CT skills even when not specifically examined or investigated (Fairclough, 1999 & Vygotsky, 1987). There should be more explicit studies on the relationship between CT and ML in order to determine not only its effects but also the opportunities available to educators for fostering thinking within the learning while also improving teaching and learning as pedagogues (Enciso *et al.*, 2017).

Despite the scarcity of studies previously mentioned, some academics have found a significant relationship between CT and language. Lin & Mackay (2004) for instance, found that CT can improve language learning by drawing inferences from unfamiliar language items based on previous knowledge. This in turn developed the learners’ language autonomy. Nikoopour, *et. al.* (2011) also found a significant correlation between language, and cognitive skills with students’ CT ability. Naeini (2005) conducted a study into the effect of collaborative learning on CT skills in the language classroom in which the experimental group outperformed the control group. However there are questions on whether the results say more about the use of collaborative learning in fostering CT rather than ML. Indeed, ML was not being measured as a tool towards the improvement in CT.

Moreover, Jodeiri (2005) conducted a study on the relationship between CT and proficiency of English as a foreign language students (EFL). The results indicated that

students with the best level of English displayed a higher level of CT. It is important to consider, however, that the results of this study were specific to writing skills which may not translate to the other three language skills (talking, reading and listening). Nevertheless, Ehrman *et al.* (2003) highlights that all four language skills are interdependent and that CT is transferable in a modern language context. Indeed, Kusaka & Robertson (2006) found that CT was correlated to ML oral communication ability and Liaw (2007) found an increase in CT skills enabled improved language proficiency. Sokol *et al.* (2008), the only longitudinal mixed method at secondary school level found in the literature, determined that language learning enabled the learners to develop their CT skills. Other studies (Pally, 1997 & Chapple & Curtis, 2000) also found that constant English as a foreign language (EFL) learning enhanced CT skills. Interestingly, however, Borzabadi and Movassagh (2011) found, in a study focusing on reading skills, that there was no significant correlation between language learning and CT.

Although there is a wide range of research on the topic of CT within ML, it focuses mainly on English language teaching (ELT) classes and higher education (King, Wood & Mines, 1990; Chacón & Lago, 2003; Crenshaw, Hale & Harper, 2011). However Bataineh and Zghoul (2006) suggest that, while there seems to be a high correlation between language and CT, the issue is in fact the lack of research on specific language teaching practices which promote CT.

2.2.2 Critical Thinking within CLIL

A range of academics have attempted to find the most effective way to develop CT in students within a classroom context. For instance, Coyle *et al.* (2010) suggest that CLIL, through its dual-focused approach, introduces the development of CT as it requires the student to merge and confront both language and content as one, creating a challenging space which creates the cognitive dynamic (McDougald, 2009). While Rodriguez (2011) suggests that there is a certain idealism in implementing CLIL due to the minimal funding, training and time provided to teachers and the excessive focus on the language communicative competence, Enciso *et al.* (2017: 83) highlights that critical skills should “not be left aside”. Coyle (2007) also highlights the importance of CT within the CLIL methodology as many

educators feel that they disregard Cognition for the other three components of the teaching method: Communication, Culture and Content. Interestingly, however, Coyle (*ibid.*) suggests that these three components are in fact mediums through which CT is established within the ML classroom context. Enciso *et al.* (2017: 83) insists that the development of CT in CLIL must nevertheless be nurtured as a skill, as it enables “students to understand the content, analyse it, use it to solve problems, make decisions on its application, evaluate it, reflect how it relates to their lives, as well as to monitor their learning”.

Furthermore, although Saeed, Reza and Momene (2012) firmly believe the advantages of learning a language in terms of CT, they found through the use of interviews and questionnaires that some language teachers believed they had a clear understanding of critical thinking when in fact their ideas of the concept were vague and general. Bloom’s taxonomy provides a framework which can work in conjunction with the CLIL structure to enable rigorous teaching and learning in the modern languages classroom (Hanesová, 2014).

Researchers of the American Foundation for CT argue that CT is not a natural skill such as running or speaking but rather a complex set of skills which takes years to acquire (Paul & Elder, 2019). Similarly, language acquisition requires years of practice. So, learning both subject content and language simultaneously saves time but also provides “a synergy effect: developing the former we improve the latter and vice versa” as well as learning skills including CT (Aravind & Rajasekaran, 2018: 31). Aravind & Rajasekaran (2018: 34) considers CLIL:

“a reliable approach especially language learning approach with integrated goals in learning. CLIL helps critical thinking and in the same way, critical thinking helps CLIL. In short, ‘critical thinking and CLIL are two sides of the same coin’”.

This dual-focused approach provides the learners with CT which is necessary, not only in the ML context, but also for problem-solving in real life situations, as CLIL provides the learner with the capacity to identify, understand and solve – which is, in essence, the very nature of CT (Marsh, 2009). By thus challenging the notions of language and pedagogy being incompatible, “it immerses the learner into different universes” and the contributions of

multilingualism to the human brain [are] evidently enhanced through CLIL” (Aravind & Rajasekaran, 2018: 33).

Interestingly, Hanesová (2014: 37) also views CLIL as a challenging pedagogy as its focus on two subjects is not only unconventional but also provides students with “the privilege of the educational challenge and novelty”. The modern language being taught equips the learners with “new ways of expressing reality” in terms of culture but also content through communication and cognition which summarises the CLIL methodology (*ibid.*: 38). Hanesová also highlights the need for cognitive challenge and stimulation through cultural novelty and considers it “essential” for students to “graduate from CLIL with an ‘enriched’ not just ‘baseline’ brain.” (2014: 36). Nevertheless, Zull (2006) notes that teachers must trust the process of the learning and thus learners of all ages must have the chance to experience this method of teaching and learning. Zull (2006) also found that only specific – and usually privileged– learners realistically access this type of learning. Thus most learners lose out not only on the language opportunity but also the CT skills which can be developed through this pedagogy.

Having reviewed the literature, CLIL appears to be a convincing, dynamic methodology for developing “teaching/learning strategies, learners’ CT, creativeness and strengthens their motivation to learn, verifying the expectation that foreign languages learning is easier if based on real concrete content mediated through the foreign language” (Mehisto, 2008, as cited in Pokrivčáková 2015: 31). However, although Brumfit *et al.* (2005) also found through interviews and classroom observation that CT was developed by implementing both content and language, the latter highlights the need for CLIL research in the field of language learning and its use in promoting CT.

CHAPTER 3 – METHODOLOGY

3.1 Search strategy: action research

The investigative approach used for this study was action research methodology as the project focuses on a relatively small group of 8 participants. This approach was chosen as it provided the personalisation required to investigate what works best in the classroom as “every teaching situation is unique in terms of content, level, student skills and learning styles, teacher skills and teaching styles” (Mettetal, 2002: 1). While teachers, particularly specialists at higher education level, conduct formal empirical studies into teaching and learning, the introduction of action research enables a less reductionist approach in terms of methodology as it provides a wider research range and results from “personal reflection at one end to formal educational research at the other” (*ibid.*: 1). Indeed, action research can be considered a balanced, holistic approach to classroom research, as it is more systematic and data-based than simple personal reflection while also providing a more personal, informal and natural aspect to the research (see Appendix 8; Anderson *et al.*, 2007).

The research strategy was identified through the use of online database searches, including Google Scholar and EBSCO. While the terms “teacher research” and “practitioner inquiry” were investigated more generally, the concept of “action research” was subsequently considered in a systematic search through the use of filtering from the British Education Index and the University of Glasgow’s School of Education online system, pinpointing relevant resources such as journals, ebooks and academic papers involved with educational research methodologies key in action research (Torgerson *et al.*, 2017). Narrowing the search pattern led to a number of articles dealing with the topic of science and nursing education (Punch & Oancea, 2014).

In order to pinpoint more specific literature pertaining to the topic of language foreign language the search was further filtered through the terms “language education” and “action research” in the same search. With a range of more targeted texts, the researcher was able to link relevant methodologies with the subject and level at hand, as well as pertinent key ethical

issues in action research, including the benefits and challenges of mixed-methodology and appropriate data collection methods.

Finally, a wide range of literature exists on questionnaires and focus groups respectively as key search strategies within educational research, along with the reflective journal, though less abundant. Guides to the implementation and classroom research through the practitioner inquiry lens were also invaluable in shedding light on the implications of these various methodologies (see bibliography). While this review is specific to a secondary school environment, the use of valuable data collection in other contexts such as in higher education was not overlooked with a number of works providing valuable insight into the use of these key search strategies, such as Kember *et al.*'s (2000) scaling questionnaire which forms the basis of the CT questionnaire designed for this study.

3.2 Action research flowchart

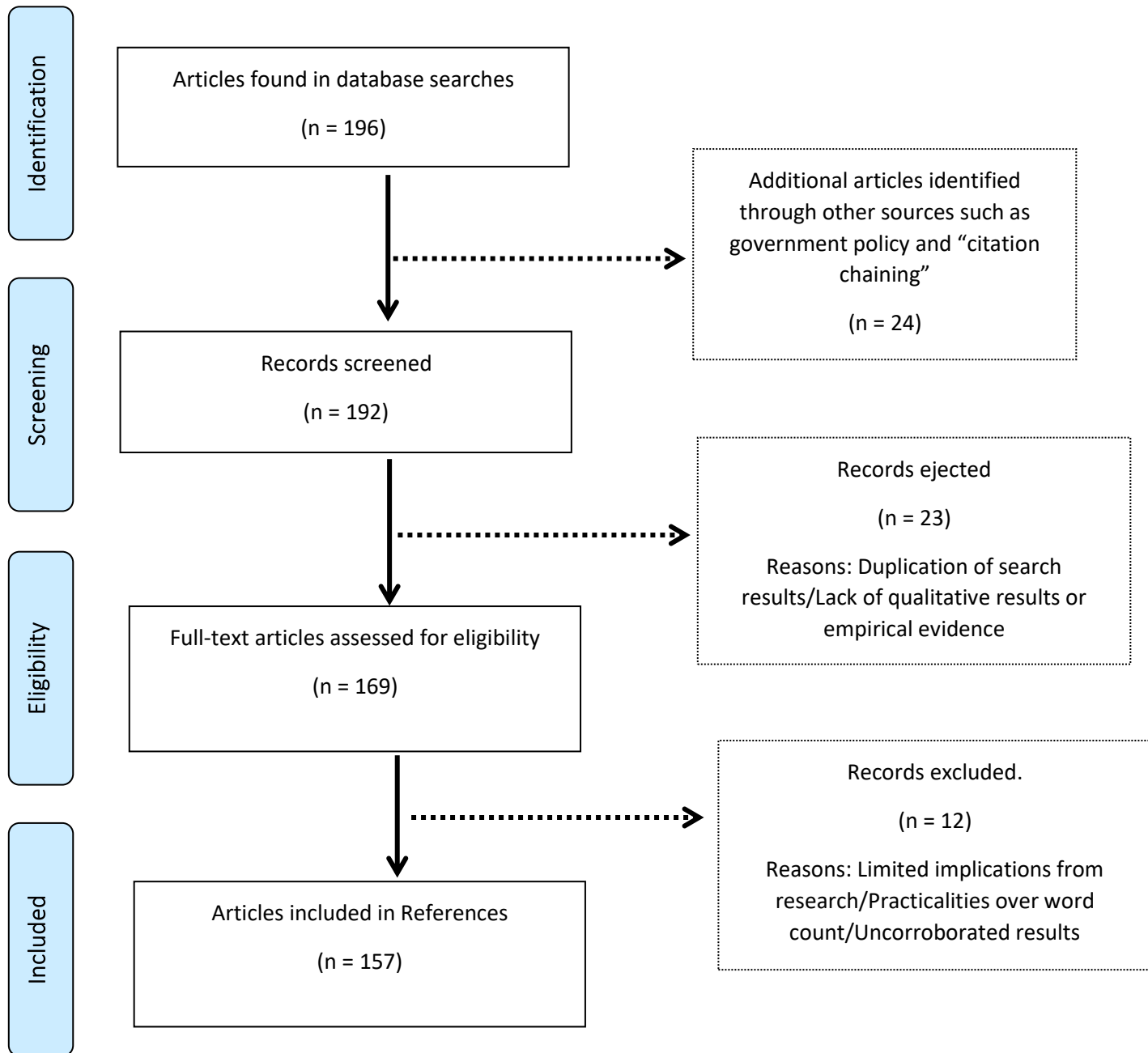


Figure 2 – PRISMA diagram outlining the search strategies for this investigation.

3.3 Paradigm

According to Doyle *et al.* (2009), in order to provide a clearer picture in terms of the nature of the study, researchers are urged to locate their paradigm of research which can be defined as ‘the set of beliefs and practices that guide a field’ (Morgan, 2007: 47). The paradigm of the research thus influences the questions and methods employed as well as the interpretation of data collected in the research. Traditionalists argue that it is impossible to combine the epistemological (how we know what we know) and ontological (nature of reality) paradigms (Hanson, *et al.*, 2005; Guba and Lincoln, 1988). This view of research is not aligned with the notion of mixed approach design as the latter suggests that both the positivist paradigm and the constructivist tradition can be explored hand in hand in order to provide a full and more general vision of what is being investigated. In fact Sandelowski (2000) defines the mutual exclusion of either quantitative or qualitative methods as an illusion with some researchers arguing that they should be combined (Sale, *et al.*, 2002; Stevenson, 2005). Thus, Johnson and Onwuegbuzie (2004) propose the mixed-methods approach as another paradigm to bridge the gap between the quantitative and the qualitative.

This approach is eclectic as it provides a personal needs-based or contingency approach to research method and concept selection’ (Johnson and Onwuegbuzie, 2004: 17), which is arguably appropriate in the classroom setting. Hence the researcher is not constrained by solely numerical data or observation but can carry out deduction and induction through the process of inquiry (Morgan, 2007). Morgan (*ibid.*: 48) summarises this phenomenon as a pragmatic approach to research and considers it a new guiding paradigm which can serve “as a basis for supporting work that combines qualitative and quantitative methods and as a way to redirect our attention to methodological rather than metaphysical concerns”. Thus, mixed methodology has been used in order to minimise reductionism in the research process and maximise the valuable insight provided by both quantitative and qualitative data.

3.4 Research Question

This action research with a mixed methods approach investigates the extent to which Content and Language Integrated Learning (CLIL), through its dual-focused approach, may impact on learners' critical thinking skills in an S5 Business Italian class.

3.5 Mixed-methods approach

As with the decision to use action research for this study, the choice of a mixed methods approach provides a range of data to be collected in order to measure various aspects of CT to be explored and analysed. Mixed methods can be defined as “research in which the investigator collects and analyses data, integrates the findings and draws inferences using both qualitative and quantitative approaches or methods in a single study” (Tashakkori & Creswell, 2007: 4). Thus the research is not solely confined to the use of traditional data collection but is guided by inquiry which is the foundation of research (Creswell, 1994). While this method has wide consensus in the literature, the notable difficulty of articulating how qualitative and quantitative data link to one another exists and a need for clear steps in explaining what constitutes complete integration of the two approaches persists (Hanson, *et al.*, 2005; Bryman, 2007). Nevertheless, Bryman (2006) suggests that although the mixed approach does involve difficulties in connecting the qualitative and the quantitative, it provides triangulation which allows greater validity in a study as there is a search for corroboration by the researcher. In addition, it provides a more complete and comprehensive picture of the phenomenon being studied, in this case CT. Finally, it enables the limitations of the respective data to be somewhat neutralised, thus enabling the researcher to make more accurate inferences (Bryman, 2006; Creswell, *et al.*, 2003).

3.6 Timeline

The study was conducted over a period of 7 weeks with 8 participants. The participants completed a scaling questionnaire on their CT skills (see Appendices 4 & 5) on week 1 and again on week 7 after the implementation of CLIL, to evaluate any eventual evolution in their CT skills. CLIL was implemented within my lessons from weeks 2 to 6. The pre-intervention focus group discussion took place on Week 1 and the post-intervention discussion on week 7. Within this time frame, the pupils were taught the content of the

Business curriculum through the medium of Italian. In addition, I kept a reflective journal from week 2 to week 6, noting when learners were displaying CT based on criteria from Bloom's taxonomy (see Appendix 7).

3.7 Participants

The 8 participants in this investigation belonged to a fifth year Business-Italian cohort aged between 16 and 17. They were taught one period a week through a CLIL methodology, with teaching and learning focused around the topic of Business in Italian. The impact of CT was determined based on the following data collection methods.

3.8 DATA COLLECTION

The research involved three types of data collection methods, all including questions based on Bloom's Taxonomy of CT as the "CLIL practices are expected to help learners' transition from lower-order thinking skills such as remembering, understanding, and applying to higher-order thinking skills such as analysing [...] and creating" (Hemmi, & Banegas, 2021: 3). Thus, all four stages of CT mentioned above were investigated.

3.8.1 Questionnaire

A scaling questionnaire based on the format proposed by Kember *et al.* (2000) was used in this study (see Appendix 4 & 5). The questions were separated into four assessment categories: Remembering, Understanding, Analysis and Evaluation, with four questions per category. The first two sections are considered lower thinking skills, according to Bloom's taxonomy whereas the other two categories refer to HOT skills which are also key in CT. The questions were placed in a randomised order so as to reduce the possibility of pupils assuming any particular pattern in the design of the questionnaire. For the first two categories, the participants provided a measurement for each statement by selecting a number from 1 to 5 using a Likert scale (with 1 indicating strongly agree and 5 strongly disagree). The learners had already taken part in several formative assessment tasks at the end of lessons in which

they were asked to evaluate various statements relating to their learning experience using a 1 to 5 Likert-scale and were therefore familiar with this means of gathering information.

The Likert-scale allowed more objective quantification and analysis of the data produced, while also taking into account the pupils' subjective responses. In order to collect more personal qualitative data, participants also answered open-ended questions concerning the other two categories: Analysis and Evaluation. The questions were slightly different in the pre- and post-intervention questionnaires as the post questionnaire includes the implementation of CLIL. Finally, a full period was allocated for participants to complete the questionnaire on both occasions to avoid the pressure of time constraints, with anonymity ensured through the use of pseudonyms.

3.8.2 Focus group

Participants also took part in a pre- and post-intervention focus group which provided them with a space to express their views and understanding of Italian and Business, before and after the implementation of CLIL in order for me to determine if their critical skills had evolved. The semi-structured nature of the group enabled follow through questions based on the direction of the discussion at hand, whereby the questions asked by the researcher focused on the HOT skills: Analysis and Evaluation. Each question was introduced using terms from Bloom's taxonomy verbs chart to prompt participants' CT (see Appendix 6). Pupil answers were collected through recording. Each discussion lasted 15 minutes in groups of two, for pupils to have an opportunity to develop their answers and exchange ideas as well as points of view, with the class teacher in the role of moderator/facilitator. This part of the study took place in a natural setting, in the classroom, during the Italian lesson.

3.8.3 Reflective journal

In order to gather a variety of quantitative and qualitative data, I kept a record in the form of a reflective journal in which to record instances of pupils displaying specific CT skills during the implementation of CLIL, based on Bloom's taxonomy verbs (see Appendix 7). This reflective journal in which my observations of pupils' actions were recorded during the lesson provided the study with qualitative data which did not alter the format of the class,

thus avoiding any change in pupils' behaviour with a view to pleasing the researcher. The data collected within the participants' natural school setting provided the study with qualitative research from the teacher's perspective offering further insight into the investigation and an additional dimension to the analysis of learners' CT skills.

3.9 DATA ANALYSIS

3.9.1 Questionnaire

In order to visually compare the results of their CT skills before and after the introduction of CLIL lessons, the learners' responses to the questionnaire are displayed in bar chart graphs to visually compare the results their CT results before and after the introduction of CLIL lessons, with four graphs, one per assessment category: Remembering, Understanding, Analysis and Evaluation.

Figures 3 and 4 represent remembering and understanding (LOT skills) and are organised as follows: the x-axis represents the four questions from the questionnaire. Each question, within an assessment category, has two columns: one representing the pupils' answers before the implementation of CLIL and the other displaying the participants' answers after the implementation of CLIL. The y-axis represents the average Likert-scale response (1-5) for each question, within an assessment category. Using a Likert scale enables participants' opinions to be measured in terms of statement agreement in a quantifiable manner.

Figures 5 and 6, representing the participants' responses in terms of Analysis and Evaluation (HOT skills), were processed using Braun & Clarke's (2006) six-phase thematic analysis, identifying the key themes displayed as follows: the x-axis represents the prevalent themes identified in participants' answers while the y-axis illustrates the number of participants who mentioned each theme in their answers as key elements to their CT process.

The quantitative data will subsequently be compared to the qualitative data after the implementation of CLIL, to identify an eventual correlation between LOT and HOT skills.

3.9.2 Focus group

As with Figures 5 and 6, the participants' qualitative data were processed using Braun & Clarke's (2006) six-phase thematic analysis to detect the emerging themes (see Appendix 9). The data is presented in the form of direct quotes from participants, from the pre- and post-CLIL discussions. The participants' contributions are then analysed and discussed enabling the researcher to compare, contrast and/or support the data collected in the reflective journal and the questionnaire.

3.9.3 Reflective journal

The data from the reflective journal is presented in the form of four bar chart graphs, based on the four categories derived from Bloom's Taxonomy verbs: Correction, Comparison, Questioning and Explanation (see Figures 7, 8, 9 and 10). For each graph, the x-axis indicates each participant taking part in the study while the y-axis represents the number of times each participant displayed CT skills within the lesson. Each week is illustrated by a different coloured column, allowing me to not only observe participants' individual evolution in CT skills, but also visually compare them over time, identifying emergent trends throughout CLIL implementation.

3.10 RELIABILITY & VALIDITY

This mixed methods approach requires an evaluation of the reliability of the quantitative and qualitative data collection methods used in this action research. In addition, as the investigation involves the participation of secondary school learners, it was important to ensure that they felt as comfortable as possible in the investigation process, keeping wellbeing guidelines central to the study (BERA, 2011). The participants were therefore already familiar with all data collection methods used.

3.10.1 Questionnaires

The use of questionnaires was seen as an appropriate manner in which to collect different types of data efficiently and in a relatively short space of time while keeping in

mind the wellbeing of the participants, who are already familiar with this approach in a classroom setting (Menter *et al.* 2011). As outlined by Anderson & Arsenault (2005) and Menter *et al.* (2011: 105), closed questions can make for “rapid data analysis” while also enabling the researcher to “include ‘open’ questions that are more complex to analyse” and provide further insight into the participants’ perceptions. Focusing on standardised questions of specific interest to the researcher ensures an economy of data collection (*ibid.*). This targeted approach allows both the participants and the researcher a clear understanding of what is being investigated which, in a classroom context, provides the participants with clear expectations of the task at hand.

While Menter *et al.*, (*ibid.*) warn of the danger of excessive and inappropriate use of questionnaires, with Gillham (2008: 1) stating that questionnaires provide a “quick-fix” research method and that “no single method has been so much abused”, Gillham (2008) also argues that the use of questionnaires is vital in research but should be used in tandem with other methods of data collection. For instance, the questionnaire format is dependent on motivation and honesty as well as ability, which could affect the answers and thus the data collected. This applies to both open and closed questions, whether quantitative or qualitative (Gillham, *ibid.*). For this reason it was important to choose a small group of participants who were happy to take part in this research project. Nevertheless, Menter *et al.* (2011) highlights that issues of comprehension may arise for student-participants when answering questionnaires. This is the reason for “Likert-scale questionnaires [being] administered in conjunction with other data-gathering approaches in order to produce a more well-rounded understanding of the construct under investigation”, thus overcoming inherent numerical limitations of Likert scale data “namely that numerical data cannot provide a complete picture of educational phenomena” (Nemoto & Beglar, 2014: 8). Finally, questionnaires do not allow for follow up questions, hence the conscious decision to set up a focus group discussion in which the participants’ CT could be noted in real-time as well as reviewed.

3.10.2 Focus group

In order to complement the data from the questionnaire, those taking part were placed in a focus group as interaction between participants can elicit responses from others which,

in turn, can cast light on topic(s) being investigated (Basch, 1987; McDonald & Topper, 1989), in a manner not possible in a one-to-one interview (Anderson & Arsenault, 2005). Thus, participants took part in a learning dialogue with another participant with whom they felt comfortable. As Hoppe *et al.* (1995: 102– 3) suggests: ‘one participant’s responses may provoke responses from others in the group, resulting in a synergistic effect not achieved in the usual interview situation’. This set-up enables the researcher to ask follow up questions and help facilitate and mediate the conversation (Anderson & Arsenault, 2005).

The choice of a focus group in pairs was designed to minimise individual participants displaying their “public self”, a term coined to explain the concept of pupils’ learned way of displaying a “highly expurgated version of [themselves] to others” (Jourard, 1964: 10). Avoiding a larger group discussion, as well as letting the participants choose their discussion partner, limited the pupils’ need to please either the researcher or other class members taking part in the study. As Jourard, (1964) found in his studies of self-disclosure "subjects tended to disclose more about themselves to people who resembled them in various ways than to people who differ from them" (Jourard, *ibid.*: 15). In addition, some academics found that participants tended to feel more relaxed in a group setting where there is less focus on them as individuals leading them to feel more at ease in providing more detailed answers (Festervand, 1985; Mariampolski, 1989).

This dialogue with the learner in terms of both research and education, enables the voices of the students involved to be heard, exploring in depth their experience and providing insight for the researcher/educator, enabling the latter to change and improve their teaching (Palomba and Banta, 1999). In terms of data collection, focus groups also allow the researcher to pinpoint frames of reference and terminology used by the participants relating to specific, relevant categories which provide context (Menter *et al*, 2011). Nonetheless, it is worth noting that using focus groups in social science research is relatively recent and work on the rules and criteria for conducting group discussions and managing the data collected is ongoing, especially regarding information gathering in young people (Stewart, & Shamdasani, 2014). Finally, although there is the view that the findings are not as generalisable as robust quantitative data such as that provided by the Likert-scale used in the

questionnaire, Menter *et al.* (2011: 150) note that “one could argue that this is a false limitation in that these methods are qualitative and are not meant to be generalisable in the sense of quantitative-based work”, but rather complement other data, whether it be quantitative or additional qualitative data.

3.10.3 Reflective journal

The data collected in the questionnaire and the focus group provided personal responses from the participants. However the pupils’ answers are all based on their own personal perceptions and experiences of their learning. From both the researcher and teacher points of view, if assessment is “the process of carefully collecting or recording and analysing students’ products and processes in order to inform instruction” (Rhodes, 1993: vii), then Gil-Garcia & Cintron (2002: 3) suggest that the reflective journal is “the proper artifact which would allow to inform teachers and administrators on how their pedagogical and instructional experiences are being carried out”. By taking part in the process as a researcher, I was able to identify specific points at which each participant was taking part in the CT process during the implementation of CLIL.

In fact, for the researcher, keeping a reflective journal in a classroom setting constitutes a source of narrative research (Connelly & Clandinin, 1990) which provides further insight into the learning experience of the pupils in the classroom. Dymont & O’Connell (2011) as well as Bashan & Holsblat (2017: 2) support this idea, as journals “serve as an instrument for the improvement of learning by creating a connection between theory and practice.” Furthermore, Lindroth (2015) states in her literature review of the reflective journal that it continues to be an important tool in teacher education but that research is lacking on the topic of journals as a qualitative tool and that their use must be further investigated.

However, Progoff (1992) highlights that although journal writing is an effective way of obtaining feedback from ourselves as both researcher and educator, it is important to consider the possible loss of accuracy in the data collection “from the field to the text to the final public research report” (Janesick, 1998: 4) as it brings to light the issues “of interpretation, meaning, and representation” (Janesick, *ibid.*: 4). Overall, while this method

of data collection does not provide robust quantitative data, it provides the study with another facet and point of view of the research in which the participants' behaviour is thus analysed externally. As Janesick (*ibid.*: 10) suggests, the researcher and individual taking part in the reflective process create their "own best model" which works for our purposes, similarly to the use of personalisation in the focus group set-up.

3.11 Ethical considerations

Action research is a "dynamic, evolving practice" (Anderson, Herr & Nihlen, 2007: 7) and there is no "foolproof plan to avoid ethical dilemmas as the research develops" (*ibid.*: 7). As an educator, action research enables teachers to develop their practice based on rigorous standards, however the wellbeing of the learner is primordial and thus the most important aspect of the process is to recognize an ethical issue when it appears in order to take it into consideration (Cassell, 1982). Moreover, researchers must assume that they will be faced with ethical decisions throughout the process while keeping the wellbeing of the participants at the heart of the process (Anderson, Herr & Nihlen, 2007), especially as the dependent variable concerning the relationship between the pupils and the teacher cannot be ignored.

In order to ensure reliability but also validity in terms of the organisation of the study, it was designed to "fit the realities of the setting and foster and capture the flow of action" (*ibid.*: 15). As previously mentioned the various methods of data collection all have their limitations but also strengths in gathering information. However, the wellbeing of the learner should be central to action research and thus the methodology and possible circumstances arising were reviewed and approved by the ethical committee of the University of Glasgow (see Appendix 1) but also by the pastoral team at the school as suggested by Pritchard (2002) who highlights that the local involvement of the school body should be paramount in the process, not only the researcher. Thus, this proposed research was discussed with the Head Teacher of the school before its implementation as well as with the Principal Teacher of the department and the pastoral team.

First of all, all data collected during the study was kept in a safe and locked location. As Punch and Oancea (2014: 191) suggest: "Care must be taken to protect the data recorded".

Secondly, all data was destroyed post-intervention in order to protect the learners' identities due to audio recordings raising questions of privacy due to voice recognition (Flick, 2014). The participants' anonymity was also guaranteed and protected through the use of pseudonyms (e.g. Student 1; Student 2; etc.). Thus, no individual learner can be identified from the amalgamated data that is presented, in order to avoid any breach of privacy.

All relevant information was shared with participants through the PLS (see Appendix 2). The PLS also illustrates other ethical considerations including the right to withdraw from the study as well as the right to confidentiality and the respective mitigation strategies. Studies specifically with adolescents raise specific issues concerning consent due to their age (Punch and Oancea, 2014) and thus the notions of consent and voluntary participation are further highlighted by the consent form which had to be signed and returned by the learners involved in the study (see Appendix 3). If participants did not read, understand and accept the terms of the PLS, then they were not allowed to take part in the study.

Finally, with three data collection methods used in this research project, there is the issue of "justifying the burden of time" (Punch and Oancea, 2014: 190). In order to overcome the problem of taking up participants' valuable learning time, the study was specifically designed to integrate naturally arising data collected during class time. For instance, the focus groups and questionnaires were administered during class time as both were part of a reflective project included in the course curriculum. All the above information is discussed in more depth in the PLS which also outlines the benefits of taking part in this inquiry.

CHAPTER 4 – FINDINGS AND DISCUSSION

The data collected, both qualitative and quantitative for this study has been processed using graphs to enable the reader, as well as the researcher, to compare and contrast the results. As (Menter *et al.*, 2011: 192) suggests: “Research frequently ends up being messy and complicated”. These visual aids allow a clear understanding of how learners performed in terms of CT which, without the use of Bloom’s taxonomy, can remain abstract and convoluted (Paul & Elder: 2006).

4.1 Questionnaires

As previously mentioned, this study uses the following four Bloom taxonomy categories as criteria for identifying CT: Remembering, Understanding, Analysing and Evaluating. According to Bloom the first two categories are LOT skills which are nonetheless required in the initial process of acquiring and developing CT skills.

The following two graphs represent the learners’ views on their remembering and understanding skills pre- and post-CLIL intervention. Although this may be deemed somewhat subjective as it reflects the personal opinion of each participant, it is important that the researcher not only consider their own viewpoint but also ask the following question: ‘how can the analysis do justice to the participants and their perspectives?’ (Flick, 2014: 15). In other words, the learners’ view of their experience is key in extracting conclusions and informing the teacher’s practice (Dalton-Puffer, 2011). As discussed in the Methodology section, the following two graphs represent the average Likert-scale result.

4.1.1 Closed questions

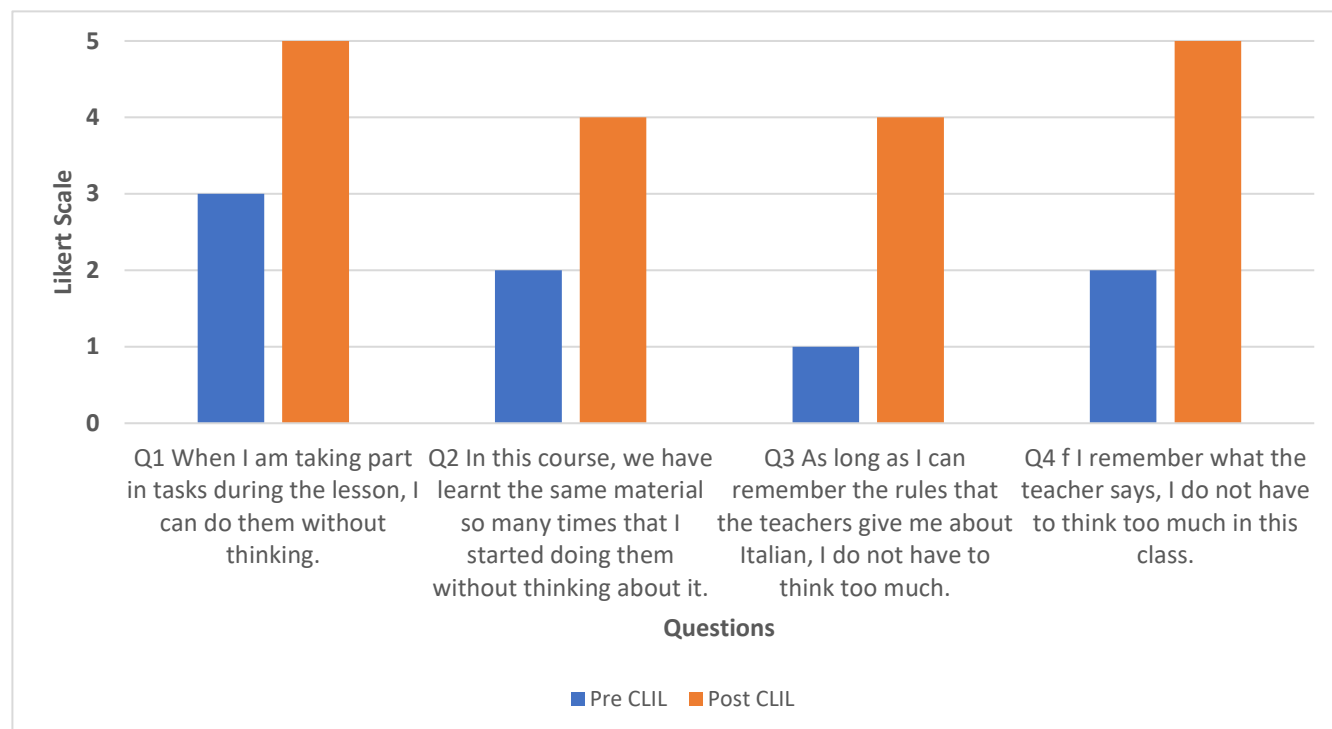


Figure 3: The average Likert scale responses of participants on the effect of CLIL on Critical Thinking through the use of Remembering. The Likert scale measurements were as follows in the questionnaire: 1 = strongly agree; 2 = agree; 3 = neither agree nor disagree, 4 = disagree, 5 = strongly disagree.

Figure 3 shows the average participant responses concerning their Remembering skills through the use of a Likert scale. The above results demonstrate a minimum 2-point increase post-CLIL in the participants' disagreement with all four questions provided in the questionnaire. Q1 focuses on the learners' ability to conduct a task without thinking. While pre-intervention there is an average score of 3, post-CLIL the average is 5. Thus, participants disagree, post-CLIL, with the notion that they do not require any thinking skills in order to complete classroom tasks, compared to pre-CLIL. This could indicate a shift, in terms of lower thinking skills, in the participants' understanding of how to succeed in tasks; post-CLIL it requires thinking, not simply repetition (Mehisto, 2012).

Q2 also examines the value of memory in learning business and language skills. Pre-CLIL, participants agreed with the value of repetition in the learning process with an average of 2. One possible reason for this result could be that the lessons pre-CLIL were based on a

more behaviourist approach to learning, especially concerning the rules and knowledge of both language and business content, as suggested by Rashty (1999). However, post-CLIL memory was not valued in the classroom by the learners as, overall, they disagreed with an average of 4. An explanation for this could be that, as highlighted by the Eurydice Report (2006) and Marsh (1994), every CLIL lesson introduces new elements of both language and subject-content materials which requires more constructive thinking (Vygotsky, 1987).

Q3 focuses specifically on language learning and indicates a notable 3-point increase from a pre-CLIL average of 1 to a post-CLIL average of 4. As with Q2, the learners' results post-CLIL suggest that learning the language rules is insufficient as they must nonetheless think more in order to succeed on the course. This result could be an indication of the dual-focused nature of CLIL pedagogy which triggers, according to Hanesová (2014), a certain degree of cognitive challenge.

Q4 addresses the role of the teacher in enabling participants to remember the content of what is being taught. Pre-CLIL the average learner score was 2 compared to 5 post-CLIL which, as with Q3 constitutes a 3-point difference. Therefore, while on average participants originally agreed with the notion of the teacher being central to knowledge transfer in the learning process, post-CLIL participants strongly disagreed with that notion. This result could be an indication of role reversal between the teacher and learner. In other words, through the implementation of CLIL, passive knowledge provided by the teacher is insufficient for succeeding in the course; the student must actively participate in the learning process through the content and language provided, thus engaging in active thinking (Dörnyei, 2003). This result supports the notion that a key part of CLIL methodology is that it removes the teacher from the centre of the learning, thus encouraging more active involvement by the students (Dörnyei, 2003 & Dalton-Puffer *et al.*, 2008).

There is a definite trend towards disagreement regarding the importance of Remembering for success in a CLIL environment. Therefore, based on Bloom's taxonomy, the first criterion of Remembering does not appear to play a significant role in the learning process.

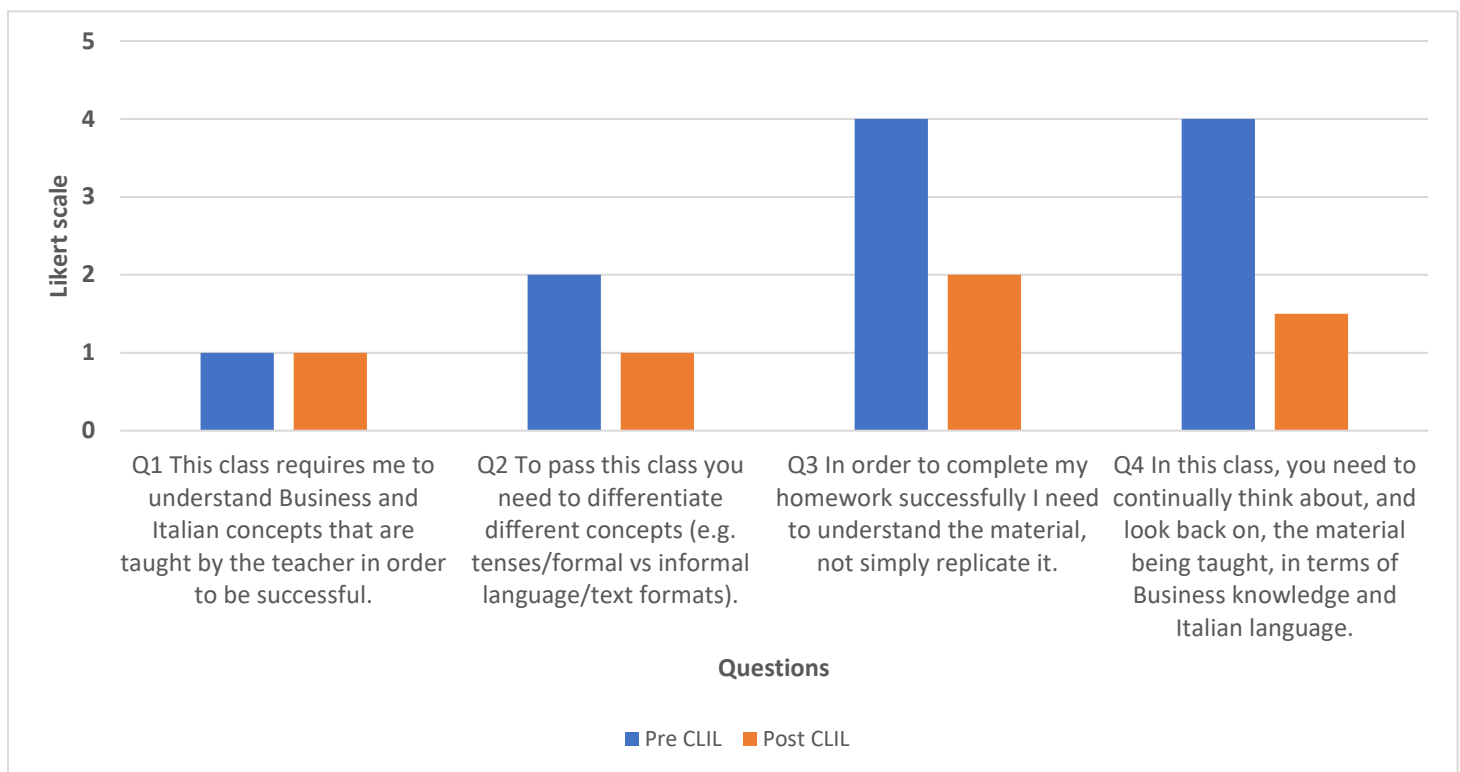


Figure 4 – The average Likert scale responses of participants on the effect CLIL on Critical Thinking through the use of Understanding. The Likert scale measurements were as follows in the questionnaire: 1 = strongly agree; 2 = agree; 3 = neither agree nor disagree, 4 = disagree, 5 = strongly disagree.

In contrast to Remembering, there is less of a consistent trend concerning Understanding in Figure 4 in terms of participants’ Likert scale responses. With regards to Q1, on average, learners felt that, both pre- and post-CLIL, the concepts studied, in terms of language and business content “taught by the teacher” must be understood “in order to be successful” with an average of 1. This result suggests that the learners were dependent on the teacher as the constant source of knowledge (María & Luisa, 2016), both pre- and post-CLIL. This dependence could be an indication of the importance of understanding basic concepts in order to build on more challenging materials. However, this could be an indication of the teacher devoting a significant part of the lesson to teaching the learners, thus impeding their independent learning of the content and language at hand (O’Malley, 1994). As highlighted in the literature review, Dalton-Puffer *et al.* (2008) found reduced participation in the learning process with the teacher inclined to focus too much on the teaching of CLIL, to the detriment of the desired CLIL outcome for more active learner participation.

Q2 is similar to Q3 in Figure 4 in that it focuses on language learning. Pre-CLIL, the average was 2 (agree), compared to 1 (strongly agree) post-CLIL, suggesting that language differentiation is considered key by learners in both cases. Although this result indicates a similar opinion pre- and post-CLIL, it nonetheless suggests that language differentiation is more important post-CLIL. The skill of Understanding different language structures could have been present through “the intellectual side of language learning” (Hanesová, 2014: 38) prior to the implementation of CLIL. This increase in agreement post-CLIL could also be due to the use of a variety of original, business text samples with different formats and language, as promoted by CLIL methodology (Wolff, 2007). By looking at ‘how’ one reads, the learner can improve understanding through critical thinking (Paul, 2005).

On Q3, which focuses on the topic of homework, the pre-CLIL participant score was 4 (disagree) while post-CLIL it was 2 (agree) indicating a 2-point difference. This change suggests that while homework pre-CLIL was more of a revision exercise using replication, mere replication was not sufficient for homework post-CLIL. This result supports the claim by Mehisto (2012) that CLIL pedagogy supports the process of understanding rather than the simple repetition of information, a key process in CT. This shift in opinion could indicate a more significant place for problem-solving in CLIL methodology requiring identification and understanding for the issue at hand to be solved (Marsh, 2009). The learner is thus no longer passive in the learning process where knowledge provided by the teacher is accepted *de facto* (María & Luisa, 2016).

Finally, Q4 addresses the importance of understanding previous knowledge of both business and language. Pre-CLIL, participants disagreed there was a need for previous knowledge with a score of 4 compared to 1.5 post-CLIL. This positive shift in opinion regarding previous knowledge represents a 2.5 difference, the most significant change in Figure 4. As Van de Craen & Surmont (2017: 26) suggest, in a CLIL lesson “the meaningful environment in which previous knowledge is activated”. Although new business resources were introduced at each lesson, a linguistic pattern was deliberately built up through scaffolding, another key aspect of CLIL (Van de Craen & Surmont, 2017). Finally, Figure 4,

shows similar results for Q3 and Q4, supporting the theory that homework and the internalisation of previous knowledge are intrinsically linked (Songsirisak & Jitpranee, 2019).

There thus appears to be less need for Remembering as opposed to Understanding, the latter being the final stepping stone to HOT skills in developing CT. The results from the closed questions could be an indication that the development of HOT is indeed more relevant in a CLIL environment.

4.1.2 Open questions

The open questions focus on the following HOT skills: analysing and evaluating which are key in the CT process. Figures 5 and 6 represent the emerging themes from the participants' descriptive responses based on their personal experiences of learning pre- and post-CLIL. As suggested by Hanesová (2014), the learner's point of view is key, not only in improving the learning process, but also in recognising the value of their input.

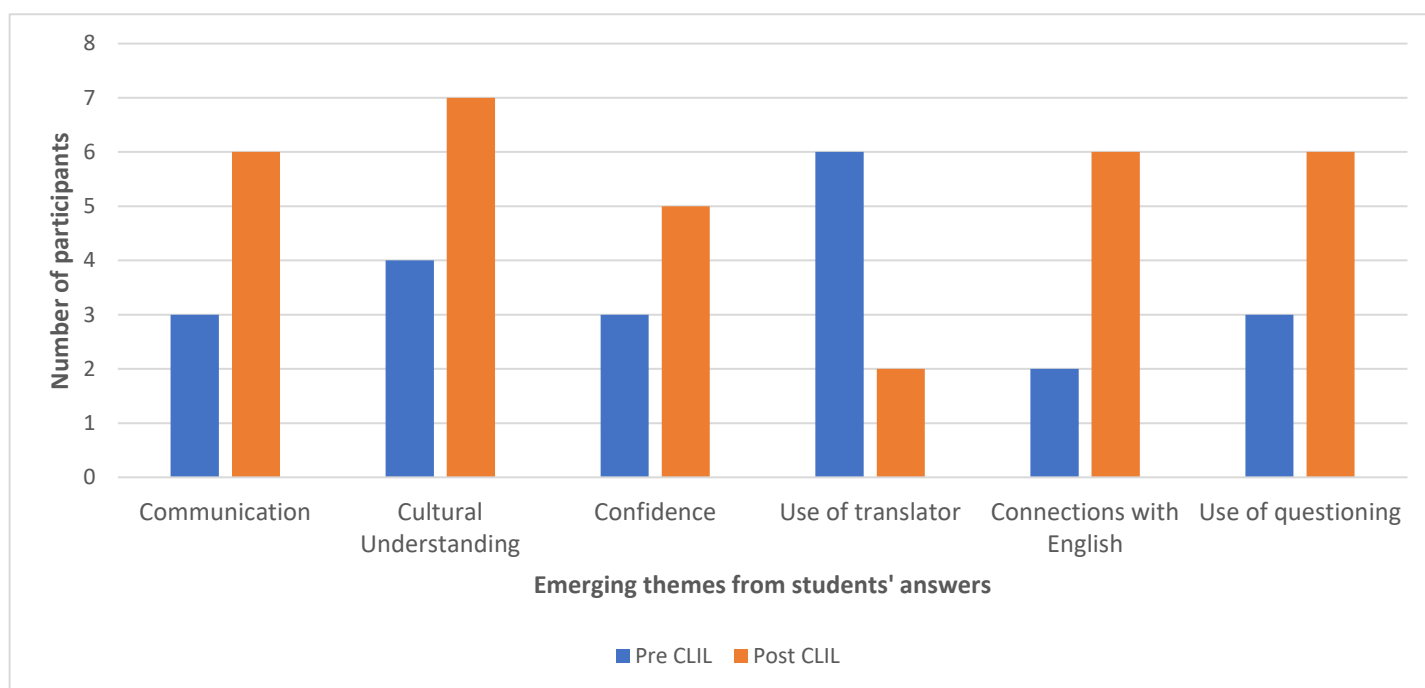


Figure 5 – The emerging themes on the effect of CLIL on Critical Thinking through the use of Analysis.

Figure 5 indicates that participants cited a range of themes as key concepts in developing their CT through analysis. Cultural understanding was mentioned the most post-CLIL (7 vs 4 participants pre-CLIL). This 3-point difference is also apparent for Communication and Questioning, both of which delivered the same results pre- and post-CLIL, doubling post-CLIL. This could indicate that they are indissociable in language learning (Eurydice Report, 2006). Thus, through their questioning of content in the classroom, learners develop communication skills in Italian. This notion supports the implementation of CLIL pedagogy as Communication and Cognition are two of the four Cs required in order to critically think about, and analyse, the use of language in different contexts (Coyle *et al.*, 2010).

Concerning language-specific themes, Figure 5 indicates a significant use of Google Translate as an aid to analysis in a pre-CLIL lesson with 6 participants compared to 2 post-CLIL. However, Gestanti *et al.* (2019) suggests that automated translators do not in fact develop analytical skills in terms of language as it uses literal translation without taking the linguistic context into account. The observed decrease in use could be due to the subject-specific vocabulary (business) being in the target language (Italian) (Goris *et al.*, 2019).

The decrease in translator use post-CLIL coincides with an increase in participants making connections between Italian and English (from 2 pre-CLIL to 6 post-CLIL). This 3 fold difference represents the most significant post-CLIL increase. This demonstrates CLIL is key in developing Italian but, more importantly, the analytical skills required for language learning (Lin, 2015). This reflects the experiences and outcomes of the Curriculum for Excellence: “I can make comparisons and explore connections between spelling patterns in English and the language I am learning” (Scottish Government, 2009).

The CLIL methodology seems to have increased learners’ analytical skills relating to the most frequently mentioned theme post-CLIL: cultural understanding. All but one participant mentioned it as an important part of the course (7 out of 8 participants as opposed to only 4 post-CLIL indicating a 3-point increase). This result could be due to language and culture going hand in hand in CLIL (Švec, 2008: 55).

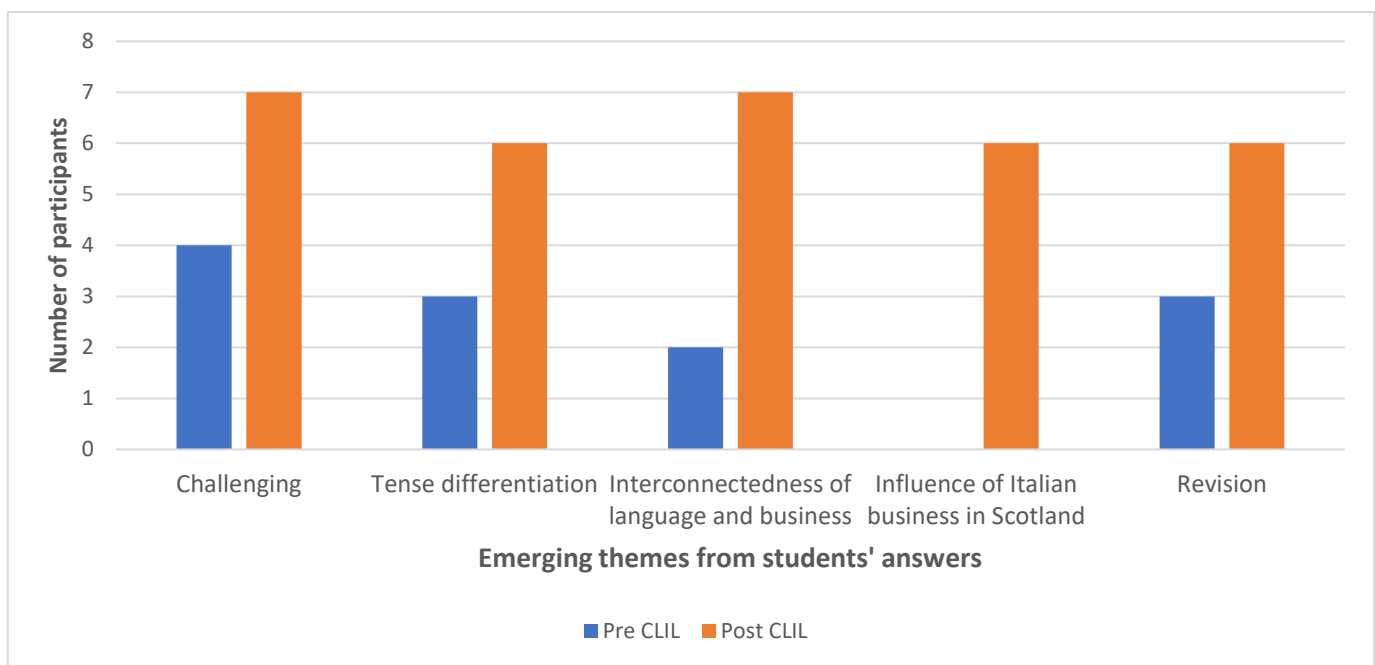


Figure 6 – The emerging themes on the effect of CLIL on Critical Thinking through the use of Evaluation

Figure 6 illustrates the most recurrent themes for the final HOT skill: Evaluation. While the themes emerging from Figure 5 were predominantly language-related, Figure 6 demonstrates a more balanced view concerning the influence of business content and language in determining participants' CT skills.

The interconnectedness of language and business is the theme with the highest increase in mentions (2 participants pre-CLIL compared to 7 post-CLIL, an increase of 5). This result could suggest that, through the dual-focused nature of CLIL, participants were able to make more critical connections between language and business through language specific-content which would not be covered in a traditional language-specific curriculum (Dalton-Puffer, 2007).

The influence of Italian business in Scotland was not apparent in any of the participants' pre-CLIL answers regarding their evaluation skills, despite the course being based on the use of business content in an Italian context. This lack of connections could reflect a degree of failure on the part of the educator's teaching methodology as the language teaching was more grammar focused pre-CLIL which could be detrimental by neglecting

aspects of language such as the Communication and Culture components of CLIL (Burns *et al.*, 2011). With a significant increase of 6 participants, it seems likely that CLIL played a part in promoting CT skills through the critical evaluation of business influence on culture, thanks to its “dual-focused” nature with both subjects having equal status (Coyle *et al.*, 2010).

The participants’ results in terms of tense differentiation and revision illustrate the identical results: 3 mentions pre-CLIL and 6 post-CLIL, a twofold increase. This increase post-CLIL suggests that these contribute to nurturing learners’ critical thinking skills through Evaluation, but also in Understanding (see figure 4), both required to succeed in the active learning process (Enciso *et al.*, 2017). Furthermore, tense differentiation and revision are key aspects for evaluating a language in order to make educated linguistic decisions (Lorenzo & Moore, 2010) which is a key skill for CT (Bagheri, 2015).

Finally, the increase of 3 participants, from 4 to 7, regarding CLIL as a challenging pedagogy in terms of Evaluation skills could be an indication that the methodology provides learners with more space in which to grow academically and increase their HOT skills as a way to confront ideas and concepts (Siegel, 1991). In other words, it requires the student to merge and confront both language and content as one, creating a challenging space which creates the cognitive dynamic (MacDougald, 2004). However, it is impossible to know how individual participants perceive challenge; while some may view it as an obstacle to be overcome, others might view it as a barrier and be “overwhelmed by having to attend to several demanding tasks simultaneously” (Dalton-Puffer, 2011: 195).

4.2 Focus group

In contrast to the reflective journal, in which specific behaviour displayed CT skills, or the questionnaire which provided the participants with pre-determined questions, the focus group was of a semi-structured nature. This format allowed follow-up questions, which play “an important role in facilitating students’ critical thinking” (Aikawa *et al.* 2021: 113), allowing learners to develop their answers, reflecting on their learning experience. The following quotes are samples from participants’ answers in which key CT is displayed through Analysis and Evaluation.

4.2.1 Analysis

The following themes emerged as the most recurrent triggers for developing participants' CT:

- Theme 1: The connection between culture and language as an effective business tool
- Theme 2: Success in business through language proficiency
- Theme 3: Language as a means of promoting business opportunities abroad

Sample 1

Student 3 (Pre-CLIL): *Language is an important skill for business because you need language to be able to communicate with customers. [...] Well, if you work at a restaurant you need to speak to them in Italian so you need to understand the language.*

Student 3 (Post-CLIL): *Business is only possible when you can communicate with customers from a specific culture and so with language you are able to learn more about what the customer wants based on their needs, both personally and culturally. [...] For example if you want to sell coffee to an Italian, you need to know how to say it but also how to serve it.*

This shows an apparent shift in Student 3's answer post-CLIL on several levels reflecting more critical analysis. Pre-CLIL, Student 3 only mentioned language as a key tool for Business. Post-CLIL however, they connect language with business as well as the concept of culture (one of the 4 Cs in the CLIL methodology). Secondly, although in both instances Student 3 provides a concrete example to support their answer, post-CLIL the example is more specific as it includes not only the use of language but also the cultural dimension about "how to serve [coffee]". Thirdly, post-CLIL Student 3 mentions the personal needs of the customer which were not mentioned pre-CLIL. Finally, they suggest that customers' needs are reflected through culture, an implicit indication of culture as identity, a key aspect of the CLIL framework in promoting CT skills (Cruz, 2021). Student 3's response post-CLIL provides a more holistic answer to the question of language as a key business tool. More importantly, this more developed answer demonstrates that CLIL enables the development of critical analysis through real-world contexts (Gromoglasova, 2015).

Sample 2

Student 7 (pre-CLIL): *Well I think you need to speak another language so that you can travel more and become a more successful businessman by knowing other people in Italy. It means you have more contacts.*

Student 7 (post-CLIL): *If you cannot speak another foreign language then you cannot create business links around the world. People think English is the only language of business but if you look at football, cooking or fashion, there is a big Italian influence. If you are able to speak Italian then you can create more professional links but you can also convince other business people to listen to you because you have another point of view that they don't have.*

Similarly to Sample 1, Student 7 provides a relatively different answer post-CLIL both in terms of form and content suggesting a change in the level of CT. While pre-CLIL the participant considers the need for language in order to travel, post-CLIL they also take into account the inability to speak a language in affecting business links. This contrast provides a more analytical perspective as it explores not only the benefit of language but also the negative aspect of monolingualism, thus providing a more balanced view of the topic, “the deconstruction of pupil thinking” in CLIL pedagogy. (Moate, 2011: 25).

While in the pre-CLIL response there is a general understanding of why language is important to business, during the post-CLIL discussion Student 7 provides more concrete examples on the relevance of Italian culture in specific business sectors, another key skill in CT as learners can back up their arguments (Golding, 2011). In terms of business links, Student 7 suggests that language is a vehicle for communication as mentioned pre-CLIL. However, they also identify language as a medium for business innovation by providing people with “another point of view which they don't have” thus acknowledging that language provides specific understanding, alien to other cultures. Thus, Student 7 demonstrates critical analysis of the relationship between culture, language and business. As Houssen (2022) suggests it is through the confrontation between language and content that CT is able to evolve.

4.2.2 Evaluation

The following themes were the most recurrent across discussions:

- The misuse of language based on Google Translate
- The understanding of cultural differences as a means of attracting more customers
- Language as a basis for more effective business skills

Sample 3

Student 4 (Pre-CLIL): *When I started studying Italian, I only used Google Translate because it was easier but then I realised it doesn't always make sense so I use wordreference instead because it gives you more context so I can make more sense of what I am reading and so I feel more confident.*

Student 4 (Post-CLIL): *I realise now that using a translator is not very useful because I need to look at the text as a whole and by looking at the different types of words or formats like email or article, I can kind of work out what the message of the text is and there's always clues from places that are mentioned that don't need me to use a dictionary.*

Sample 3 compares Student 4's evolving attitude towards translators. Pre-CLIL, they regarded Google Translate as an inefficient tool in providing reliable translations therefore relied on an alternative online dictionary instead of alternative means of interpreting information as it made them feel more confident when reading. However, Gestanti *et al.* (2019) suggests that translators can constitute a barrier to successful learning outcomes due to lack of context, with a realisation of this premise demonstrated by the participants' evaluative progress post-CLIL. Student 4 qualifies the translator as “not very useful” since CLIL requires more linguistic and contextual understanding, referring to the holistic process required for reading comprehension, not supported by a dictionary. Interpretation is key in CLIL as answers are provided through “clues” such as different text formats, tenses and content-specific vocabulary (Rieder-Bünemann *et al.*, 2022: 32). There is thus a clear evolution in evaluative comments post-CLIL, indicating a significant enhancement in CT skills.

Sample 4

Student 1 (pre-CLIL): *I think that I learnt that language is needed for business because you can't just speak English to everyone, not everyone has the ability to do so even though most people think it is the international language of business. I also never realised that Italians had different ways of saying hello so that in a business meeting you need to learn how to act based on the culture.*

Student 1 (post-CLIL): *Now I understand that there is language that you speak in your house but then you have language you have to use for work so it is not just about knowing the words for how you present it like in the Italian CV or the Italian interviews. Like you have formal hello and informal hello so it can be misinterpreted in a business meeting if you make a mistake. So I realised even if you don't speak properly like using grammar that's ok because you are more confident since you know how to react professionally.*

Sample 4 covers the understanding of the role of language within the business course. Pre-CLIL, Student 1 acknowledges the need for additional foreign language knowledge and the common misunderstanding of English as the sole business language. This evaluation displays an increased awareness of the need for foreign language learning in the business sector. While a certain degree of evaluation was apparent pre-CLIL, Student 1 highlights that the course has enabled them to fully appreciate the importance of the cultural elements underlying language use.

Student 4 also highlights the importance of context in language through more “relevant practical experience [which] is filled with more purpose and meaning [...] by social and cultural contexts” (Švec, 2008: 55), in this case the Italian CV and the interviews. This could suggest CT as their argument is supported by specific examples such as the use of “hello” in formal and informal settings. This illustrates how evaluation has developed, indicating CT is associated with the clear integration of new knowledge through examples (Anderson, & Garrison, 1995).

Although the possibility of making mistakes is acknowledged by Student 2, their evaluation demonstrates greater confidence despite their imperfect language skills.

Consequently, this evaluation of the understanding of language as a means of communication, regardless of mistakes, displays the impact CLIL has had on the participants' CT skills as they admit "they feel more confident about their own language skills and less concerned about making mistakes" (Dale & Tanner, 2012: 20).

There seems to be a clear correlation between CLIL and the development of Analysis and Evaluation, two HOT skills key in the critical thinking process. However, in contrast to the analytical skills displayed in the focus group, evaluation was more apparent pre-CLIL. This could be due to the fact that the course curriculum includes a significant number of evaluation tasks, including a reflective project.

4.3 Reflective journal

Figures 7, 8, 9 and 10 represent the effect of CLIL pedagogy on participants' CT over time. Each figure represents one of the following skills indicating CT use in the classroom: Correction, Comparison, Questioning and Explanation, action verbs which activate CT (Bloom, 1994). Each figure highlights specific points at which the educator observed evidence of CT use in the learning process.

4.3.1 Correction

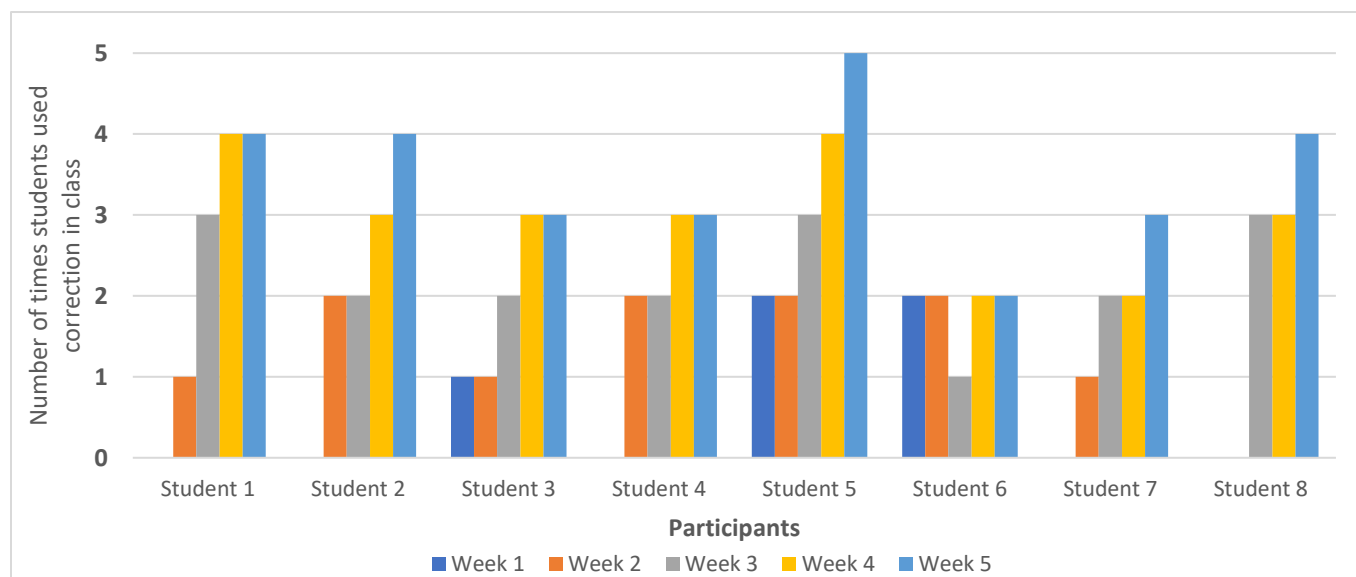


Figure 7 – The effect of CLIL on participants' Critical Thinking through the use of Correction over time

Figure 7 indicates use of Correction. While students 3, 5 and 6 applied self-correction of language concepts throughout, the other participants began self-correcting on week 2. This could be due to lack of confidence in the early stages of CLIL as reported by Mearns (2012). Regardless of correction frequency, all but one participant increased their capacity to self-correct over time, corroborating Mesquida & Juan-Garau's findings (2013). Student 6 corrected themselves less frequently doing so only once in week 3, subsequently reverting back to two, nonetheless suggesting a CT increase over time. All other participants indicated at least 2 uses of self-correction per class by week 3 with a continual increase afterwards.

It is interesting to note that not all learners achieved the same degree of critical thinking through self-correction. Students 3, 4 and 7 self-corrected 3 times on Week 5 with Students 1, 2 and 8 showed 4 instances of self-correction. Only student 5 reached the maximum of 5, thus displaying the greatest increase in critical thinking by the end of the study.

Thus CLIL seems to have played an important part in promoting critical thinking, in terms of Correction being an effective tool, as all participants involved increased their ability to self-correct. This could be due to the CLIL framework offering increased opportunities for verbal explanation and reformulation, both inside and outside of the language context (Lesca, 2012).

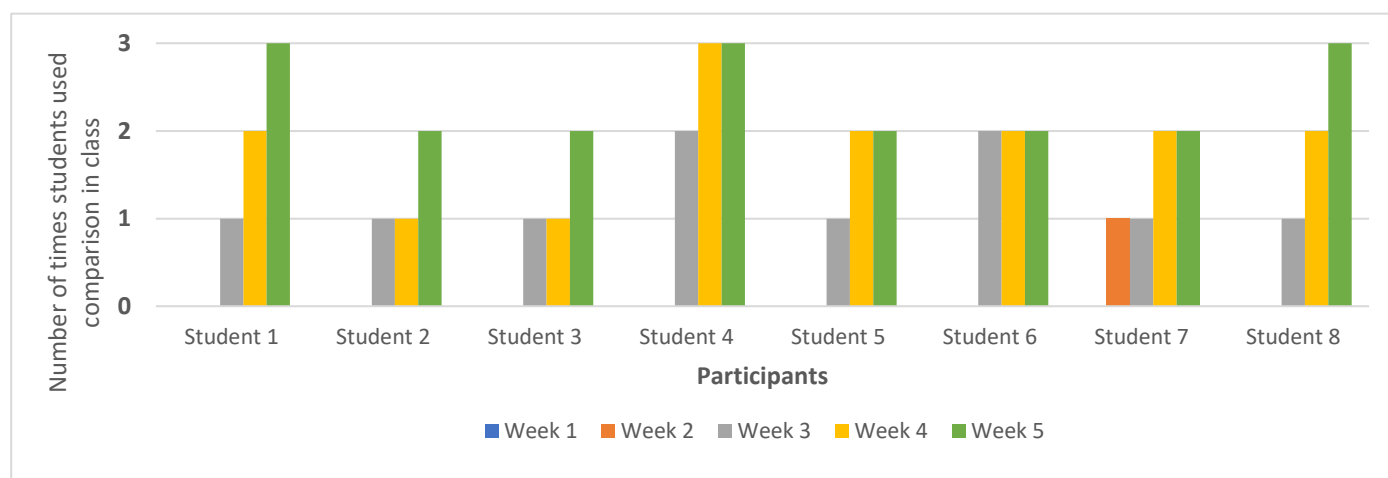


Figure 8 – The effect of CLIL on participants' Critical Thinking through the use of Comparison over time

Figure 8 displays the use of Comparison over time as a key element of CT. Comparison was the skill least displayed. All but 1 participants displayed at least one instance of knowledge and language comparison from Week 3, with Student 7 starting on Week 2. This lack of use could be an indication, as suggested by Enciso (2017), that comparison is among the hardest skills to develop in language learning. Hence, Enciso (*ibid.*) emphasises the need for more dual-focused pedagogy to nurture this skill.

While only Students 1, 4 and 8 showed maximum comparison use by Week 5, an incremental pattern developed for all participants from Week 3, with additional linguistic and content-based comparisons. In fact, by Week 4, most participants had used comparison at least twice (once for Students 1 and 2) and by Week 5 all participants had displayed 2 instances of comparison. Students 1, 4 and 8 displayed most instances with a total of 3 comparisons by the end of the study.

Figure 8 suggests that CLIL could be an effective tool in fostering CT through language and content-based comparisons, both in English and Italian. Although the apparent increase in the use of Comparisons over time suggests improved critical perspective, the researcher expected more significant results. This could be due to lack of “knowledge of the pedagogical content” on the educator’s part in harnessing learner’s CT skills (Custodio Espinar & García Ramos, 2020: 22).

4.3.3 Questioning

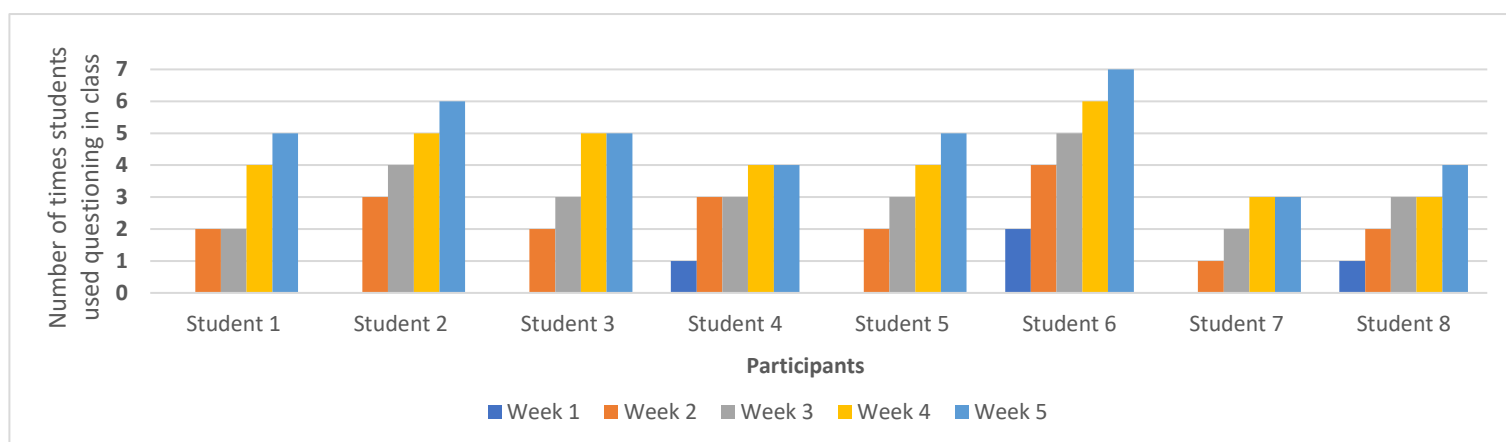


Figure 9 – The effect of CLIL on participants' Critical Thinking through the use of Questioning over time

Figure 9 shows questioning to be the skill indicating the most consistent increase over time. All participants displayed more frequent questioning, although not to the same extent. With Students 2 and 5 increasing their CT by asking an additional question every week. The difference in CT level based on the number of questions asked is apparent in Student 2's final result of 6 questions per class compared to 5 questions per class for Student 5. Interestingly, both participants started their CT process through questioning on Week 2, as did Students 1, 3 and 4.

Furthermore, five out of eight participants displayed the same amount of questioning two weeks in a row (Student 1 asking 2 questions on weeks 1 and 2; Students 3 and 7 on weeks 4 and 5; Student 8 on weeks 3 and 5). This repetitive plateau pattern occurred on two occasions for Student 4, on weeks 2 and 3 with a total of 3 questions as well as on weeks 4 and 5 with a total of 4 questions. This pattern could suggest that although the questioning increases over time, some participants may require more exposure to build their questioning skills (Wolff, 2007) and thus be able to process information more accurately (Goris *et al.*, 2019).

This steady increase in questioning suggests that CLIL does “encourage learners to react and ask questions”, thus enhancing active participation and CT skills (De Graaff *et al.*, 2007: 609). In addition, it is important to note that similarly to Figures 7 and 8, although Student 7 has a relatively low score of 3 questions by Week 5 compared to Student 6 who asked 7 questions, this difference in results does not affect the overall claim that CLIL does indeed positively impact CT through questioning. In other words, the key inference from Figure 8 is that, regardless of the number of questions asked by the highest performing participant, the gradually consistent increase of CT through questioning demonstrates “varying achievement levels, learning paces, and intellectual capacity” among learners (Madrid & Perez Canado, 2018: 244).

4.3.4 Explanation

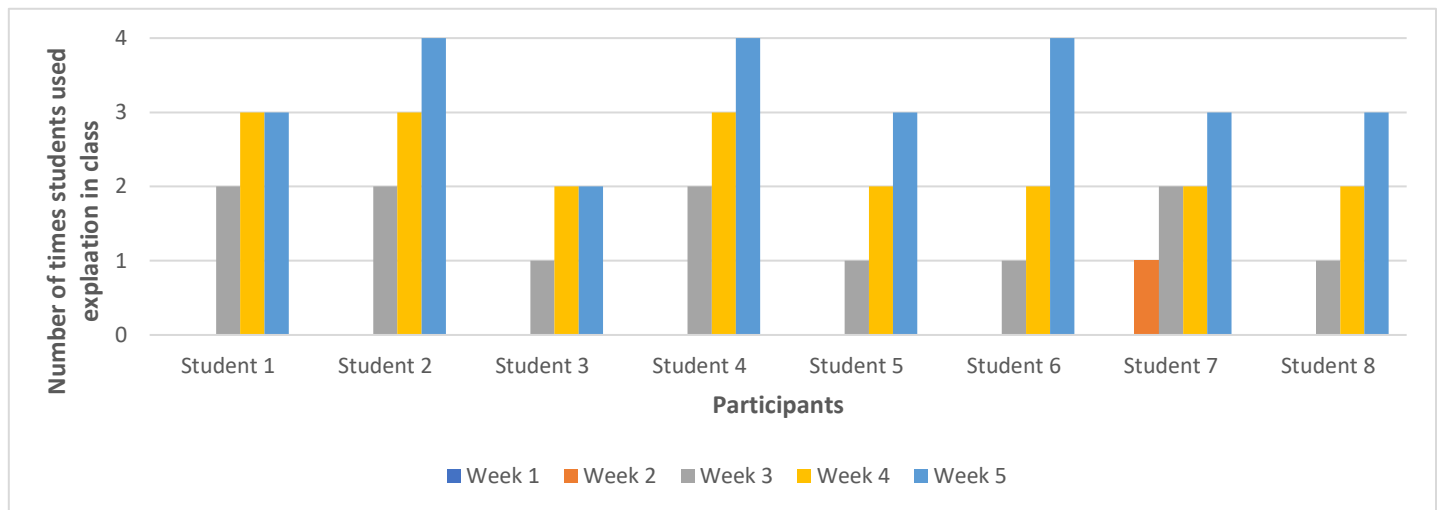


Figure 10 – The effect of CLIL on participants' Critical Thinking through the use of Explanation over time

Figure 10 illustrates the use of Explanation in language and business in promoting CT. As with Figure 8, no participants used explanation in Week 1, with Student 7 using it once in Week 2. During week 3, Students 3, 5, 6 and 8 used explanation once and Students 1, 2 and 4 employed it twice. Figure 8 displays an identical pattern which could indicate a correlation between Comparison and Explanation. Students 2, 4 and 6 displayed the most frequent use over time, with 4 explanations by Week 5, with Students 1, 5, 7 and 8 reaching 3 explanations by Week 5 and Student 3 being the only participant to have used explanation only twice in Weeks 4 and 5.

The use of Explanation increased by 1 every week for 50% of the participants (Students 2 and 4 displayed exactly the same pattern with the same end result of 4, as did Students 5 and 8 with an end result of 3). While Student 1 plateaued after Week 4 at 3, as did Student 3 with a result of 2, all learners displayed an increase in their use of Explanation over time, albeit minimal in some cases. This demonstrates that CT skills can be enhanced through

the use of Explanation, an integral part of CLIL in the construction of knowledge by the learner with the support of the teacher (Dalton-Puffer, 2007).

Based on the four criteria analysed above, there appears to be a clear correlation between CLIL methodology and an increase in learners' CT skills. The findings of the educator's reflective journal corroborate the participants' own perceptions as evidenced in their answers to the questionnaire.

CHAPTER 5 – CONCLUSION AND RECOMMENDATIONS

5.1 Key findings

This enquiry set out to determine the impact of CLIL on learners' CT skills using Bloom's taxonomy criteria and a mixed-methods approach. The resulting data provided by the questionnaire, focus group and reflective journal seems to indicate that CLIL does indeed increase learners' CT.

All but one thinking category seemed to have positively impacted students' CT skills during the implementation of CLIL. Remembering was not considered key to the CT process as replication was insufficient to succeed in CLIL. Understanding, however, was key in the classroom, especially in terms of revision and homework, supporting Henni & Ambegas's premise that "the LOT skills such as remember and understand are important in that one could not apply or evaluate their knowledge without understanding and remembering new content" (2021: 3). Thus, analysis was the category with the most impact on learner's CT, in terms of both language and content, notably in Cultural Understand and connections between L1 and L2. The only element which decreased analytical skills was the use of Google Translate. Finally, evaluation skills also increased, especially concerning the connection between language and business, and also the challenge involved. Italian and its influence in Scottish business was a key theme in reflecting learners' evaluative skills. Surprisingly, pre-CLIL, this notion was non-existent.

The focus group discussion confirmed that Analysis was the skill which most positively impacted learners' CT, especially in terms of making connections between language and culture in a business setting. The important role of Evaluation was also confirmed in promoting CT skills, although its evolution was not as dramatic as that of analysis, probably due to the fact that the course relies largely on self-evaluation.

Questioning and Correction were the skills which improved most over time in all participants suggesting CLIL provides a more open environment in which to critically reflect and challenge oneself. Explanation and Comparison also increased over time, but far less

frequently, and were arguably more difficult to perform on a linguistic level in Italian and more input from the educator may be required to improve these two facets of CT.

All elements investigated in the action research therefore suggest that CLIL pedagogy has a clear, positive impact in increasing CT. As suggested by Aravind & Rajasekaran (2018: 34), CLIL “is a reliable approach especially language learning approach with integrated goals in learning. CLIL helps critical thinking and in the same way, critical thinking helps CLIL. In short, ‘Critical Thinking and CLIL are two sides of the same coin’” (*ibid.*: 34).

5.2 Limitations of the study

Due to time constraints, the study took place over a limited period with a limited number of participants and the Business-Italian course only open to S6 students. It is therefore difficult to generalise results which limits representation (Schanzenbach, 2012). In addition, most of the data collected was qualitative thus the results relied heavily on the participants’ and researchers’ personal views and experiences (Anderson, Herr & Nihlen, 2007). Furthermore, there are questions of reliability in both interpreting and reporting accurate qualitative data on the part of the researcher. Indeed, self-reported data is difficult to verify independently and reproduce due to external variables and researcher or participant bias which affects the results and thus the conclusions (McNiff, 2013). Moreover, due to Covid-19, two participants were unable to answer the post-CLIL questionnaire on Week 6, during class time, due to self-isolation guidelines and this may have altered their experience.

As the study relied heavily on qualitative data, a range of biases could have affected results, especially seeking to please the researcher or peers, so mitigation strategies, such as guaranteeing anonymity and small focus group size, were put in place (see Methodology section). As participants were aware of the overall inquiry procedure, there is a risk that the educator’s role, as both teacher and researcher, may have affected participants’ language content, attitude and behaviour during the study, especially when being observed, which may have had an impact on the data collected.

Cultural bias is another fundamental limitation as it may have affected the learners’ answers but also the researcher’s questions, both conscious and unconscious, especially

regarding cultural business differences which, in turn, could affect participants' answers due to pre-conceived ideas (e.g Italian stereotypes) (Fan *et al.*, 2019). Finally, fluency, or lack thereof, in Italian must be taken into account as learners' language level may have impeded their display of CT skills, especially when expressing ideas in the target language. CT and language fluency are not interdependent, therefore low language performance does not, in fact, signify a lack of CT skills, but rather that language could be a barrier to CT performance.

5.2 Recommendations

Given the limited context and small sample size of this investigation, further research could be conducted across year groups through a whole-school approach so as to identify possible trends, with the possibility of including a range of academic disciplines since CLIL is transferable. This could provide additional evidence and validate the findings of this inquiry. Designing and carrying out a similar study over a longer period of time could be another approach, thus providing longitudinal data on the influence of CLIL on CT.

CLIL CPD training could be offered, both at local and national levels, for teaching staff throughout Scotland, who may be interested but unsure of how to put this challenging pedagogy into practice in promoting CT, thus increasing teacher understanding and confidence (Madrid & Perez Canado, 2018). CLIL, which is firmly established in Scottish Education policy through the 1+2 Approach and Languages for Life and Work, could thus be implemented to improve language attainment across all year groups, with Local Authorities collaborating on its provision.

In future, it would be interesting to compare the CT skills of a control group taught in a non-CLIL setting with those of an experimental group taught in a CLIL environment. This would, however, raise issues of equal learning opportunities for participants. Another means of obtaining more objective performance data could be a standardised CT assessment in both the target language and the other subject involved. This, along with qualitative data, could display a more accurate vision of learners' CT skills based on their answers including the analysis of other variables such as gender and background.

This study is intended as a stepping-stone for personal professional development in the hope of providing learners, but also colleagues, with innovative and relevant learning experiences in order to challenge learners' CT through cross-curricular content, continuing to reflect on professional practice (Nieto Moreno de Diezmas, 2018; GTCS, 2012).

5.3 Dissemination

Dissemination of research is key as it enables a piece of investigation to be read, analysed and potentially replicated in a different and possibly broader setting than that in which the initial study was conducted (The Norwegian National Committees for Research Ethics, 2016). The assumption by teacher-researchers that their research findings are only relevant to their personal situation results in others, whether colleagues, academics or the wider public, remaining unaware of the professional development opportunities they offer (Menter *et al.*, 2011).

This research is intended to improve teachers' practice with a focus on developing learners' CT and contribute to the implementation of CLIL, whether at a local or national level. I intend my research to be made accessible not only to academics but all teachers in Scottish schools across my Local Authority, and beyond, interested in developing similar inquiries in order to provide the literature with more robust, in-depth studies in order for CLIL and CT to become increasingly valued and explored in an educational language context. This study is also aimed at teachers who grapple with the modern language uptake in schools, as this dual-focused approach to teaching could potentially increase participation as learners are not only attracted to the language but also the context being learned from the other subject involved in the learning process (Doughty, 2011).

The research was conducted as part of a Master's in Education and will be formally submitted to the University of Glasgow. In order for the research to inform practice and reach a wide audience of teaching staff, a report of the research outcomes will be disseminated across various educational platforms, including GLOW, but also the school's Local Authority through GTCS Scotland. I also intend to submit the paper to the 4th Biannual International CLIL Conference which will take place in July 2023. If deemed relevant, I would consider this work for publishing in academic journals such as the *CLIL Journal of*

Innovation and Research in Plurilingual and Pluricultural Education and I am willing to discuss the results formally or informally with interested parties, with a view to pursuing exploration of this innovative and challenging pedagogical method.

Appendices

Appendix 1 – Ethical Approval



25 February 2022

Dear Willie,

School of Education Research Ethics Committee

Project Title: Cohort Approval for MEd Professional Practice

Application No: 402210061 (Group Approval)

The School of Education Research Ethics Committee has reviewed your application and has agreed that there is no objection on ethical grounds to the proposed group application. It is happy therefore to approve this application, subject to the following conditions:

- Start date of ethical approval: 03/01/22
- Project end date: 30/09/22
- Procedures for approving individual projects under this umbrella application are as sent in separate document
- Any proposed changes in the protocol should be submitted for reassessment as an amendment to the original application. The *Request for Amendments to an Approved Application* form should be used:
<https://www.gla.ac.uk/schools/education/research/ethics/forms/>

Thank-you for establishing a group ethics approval application for your programme and for your patience with the process this year.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'P. Lynch', on a light-colored background.

Dr Paul Lynch
School of Education Ethics Officer

Appendix 2 – Participant Information Sheet



Participant Information Sheet

Study title: The impact of content and language integrated learning (CLIL) on critical thinking skills

Researcher: David Vescio, Modern Languages teacher (email: d.vescio@lomondschool.com)

Supervisor: Mary Clare Kelly

Course: Master of Education (Professional Practice)

Invitation:

You are being invited to take part in a research project into the effects of CLIL on your critical thinking skills. Before you decide to take part, it is important that you understand why the research is being done and what it will involve. Please read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information. Take some time to decide whether or not you wish to take part.

I hope that this sheet will answer any questions you have about the study.

What is the purpose of the study?

- I want to see if teaching both Italian language and Business content simultaneously can help you develop your critical thinking skills.

Why have I been chosen?

You are being asked to take part because the Italian-Business class is the only class at Lomond School which delivers a curriculum encompassing both business and language content.

Do I have to take part in this study?

You do not have to take part in this study. If you do not wish to take part in the study, you will still complete classroom activities and take part in the learning just as you are now. If, after you have started to take part, you change your mind, just let me know and I will not use any information you have given me during the research project.

What will happen to me if I take part?

- If you take part I will ask you some questions about what you think about how CLIL can develop your critical thinking skills in a Business and Italian context. You do not have to answer any question that you do not want to.
- You will answer an 8-question questionnaire twice - once at the beginning of the study and once at the end - after having been taught Business using CLIL. On both occasions, you will subsequently answer 9 open questions on your critical thinking skills. You will have a whole period to complete the questionnaire. Each questionnaire will take about 50 minutes.
- You will also take part in a 15-minute discussion with the class teacher and one of your peers, talking about your learning experience and how it affects your thinking skills. I will record the answers on a voice recorder so that afterwards I can listen carefully to what was said.
- I will keep a weekly reflective journal, keeping a record of my observations of your critical thinking skills through the use of CLIL.
- I will be finished gathering data by Thursday 16th June.

Appendix 2 – Participant Information Sheet (continued)

Will the information that I give you in this study be kept confidential?

I will keep all the data I collect about your critical thinking skills in a locked cabinet or in a locked file on my computer. When I write about what I have found, your name will not be mentioned. You may choose a number which I will use when writing up the final assignment.

However, if during our conversation I hear anything which makes me worried that you might be in danger of harm, I might have to inform relevant agencies of this.

What will happen to the results of the research study?

I will analyse the data I collect from participants, and present this in the dissertation which I am writing for my qualification, Master of Education (Professional Practice). All participants will receive a written summary of the findings and I will also present the information to colleagues. I will destroy the data at the end of the project.

Who has reviewed the study?

This study has been reviewed and agreed by the School of Education Ethics Forum, University of Glasgow.

Who can I contact for further information?

If you have any questions about this study, you can ask me, David Vescio (2087625V@student.gla.ac.uk) or my supervisor, Mary Clare Kelly (maryclare.kelly@glasgow.ac.uk) or the Ethics officer for the School of Education, Paul Lynch (paul.lynch@glasgow.ac.uk).

Thank you for reading this.

End _____

Appendix 3 – Participant Consent Form



Consent Form

Title of Project: The effect of CLIL on pupil reflective thinking

Name of Researcher: David Vescio

Name of supervisor: Mary Clare Kelly

Acknowledgement

- ◆ I confirm that I have read and understood the Participant Information Sheet for the above study and have had the opportunity to ask questions.
- ◆ I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason being required.
- ◆ I acknowledge that participants will be referred to by an individual number.
- ◆ I acknowledge that there will be no effect on my grades arising from my participation or non-participation in this research.

Data usage and storage

- ◆ All names and other material likely to identify individuals will be anonymised.
- ◆ The material will be treated as confidential and kept in secure storage at all times.
- ◆ The material will be retained in secure storage for use in future academic research
- ◆ The material may be used in future publications, both print and online.
- ◆ I agree to waive my copyright to any data collected as part of this project.

Privacy Notice (in relation to processing of personal data)

I acknowledge the provision of a Privacy Notice in relation to this research project.

Methodology

I consent to answering a 16-question questionnaire on two occasions, choosing answers using a 1 to 5 scale.

Consent

- ◆ I agree to take part in this research study ☐
- ◆ I do not agree to take part in this research study ☐

Name of Participant Signature

Date

Name of ResearcherSignature

Date

Appendix 4 – Pre-CLIL questionnaire



Study title: The impact of content and language integrated learning (CLIL) on critical thinking skills

Critical Thinking Questionnaire (pre-CLIL)

1 = strongly agree

4 = disagree

2 = agree

5 = strongly disagree

3 = neither agree nor disagree

Remembering

1. When I am taking part in tasks during the lesson, I can do them without thinking.

1 2 3 4 5

2. In this course, we have learnt the same material so many times that I started doing them without thinking about it.

1 2 3 4 5

3. As long as I can remember the rules that the teachers give me about Italian, I do not have to think too much.

1 2 3 4 5

4. If I remember what the teacher says, I do not have to think too much in this class.

1 2 3 4 5

Understanding

1. This class requires me to understand Business and Italian concepts that are taught by the teacher in order to be successful.

1 2 3 4 5

2. To pass this class you need to differentiate different concepts (e.g. tenses/formal vs informal language/text formats)

1 2 3 4 5

Appendix 4 – Pre-CLIL questionnaire (continued)

3. In order to complete my homework successfully I need to understand the material, not simply replicate it.

1 2 3 4 5

4. In this class, you need to continually think about, and look back on, the material being taught, whether it be in terms of Business knowledge and Italian language.

1 2 3 4 5

Open questions

Analysis

1. How do you prepare your response before speaking and writing in Italian?
2. In what way does this class help you to develop your business and language skills?
3. What has this class helped you develop apart from business and language?
4. How does learning a new language help you develop your thinking skills?

Evaluation

1. How useful have you found Italian and business knowledge?
2. How has this language development class challenged your understanding of language learning?
3. How have your language and business skills developed?
4. How has this class changed your understanding of Italian culture?

Appendix 5 – Post-CLIL questionnaire



Study title: The impact of content and language integrated learning (CLIL) on critical thinking skills

Critical Thinking Questionnaire (post-CLIL)

1 = strongly agree

4 = disagree

2 = agree

5 = strongly disagree

3 = neither agree nor disagree

Remembering

1. When I am taking part in tasks during the lesson, I can do them without thinking.

1 2 3 4 5

2. In this course, we have learnt the same material so many times that I started doing them without thinking about it.

1 2 3 4 5

3. As long as I can remember the rules that the teachers give me about Italian, I do not have to think too much.

1 2 3 4 5

4. If I remember what the teacher says, I do not have to think too much in this class.

1 2 3 4 5

Understanding

1. This class requires me to understand Business and Italian concepts that are taught by the teacher in order to be successful.

1 2 3 4 5

2. To pass this class you need to differentiate different concepts (e.g. tenses/formal vs informal language/text formats)

1 2 3 4 5

3. In order to complete my homework successfully I need to understand the material, not simply replicate it.

1 2 3 4 5

Appendix 5 – Post-CLIL questionnaire (continued)

4. In this class, you need to continually think about, and look back on, the material being taught, whether it be in terms of Business knowledge and Italian language.

1 2 3 4 5

Open questions

Analysis

1. How do you prepare your response before speaking or writing in Italian after the introduction of CLIL?
2. In what way has CLIL helped you to develop your business and language skills?
3. What has CLIL helped you develop apart from business and language?
4. How does CLIL help you develop your thinking skills?

Evaluation

1. What are the connections between Italian and business for you, after the implementation of CLIL?
2. How has CLIL changed your understanding of language learning? Has it challenged your views? If so, how?
3. How have your critical skills developed after CLIL?
4. How has CLIL changed your understanding of Italian culture?

Appendix 6 – Focus group questions



Focus group questions

Study title: The impact of content and language integrated learning (CLIL) on critical thinking skills

- Participants will be asked the following questions before and after the implementation of CLIL.
- Their answers will be organised into common themes using Braun & Clarke's (2006) six-phase thematic analysis. The data will be analysed and compared in order to see if their critical thinking has developed with the implementation of CLIL.
- The following questions have been formed based on Bloom's Taxonomy verbs to spark their critical thinking.

Analysis

1. How can you **link** the following aspects about the course: business, Italian, culture and employability?
2. What is the **significance** of the following concepts as business tools: food, language, culture and jobs?
3. What **correlation** is there between language proficiency and business skills?
4. How can you **illustrate** that a focus on culture can be a tool to business success?

Evaluation

1. Can you **critique** how language might be a barrier against business? Give reasons for your answer.
2. Can you **comment** on how language is a successful tool for a successful business? Please provide examples.
3. Can you **reflect** on how your skills in Language Development help develop your interpersonal and business skills? Give some examples.
4. Can you **review** any area of knowledge you think you should develop more in this class? Justify your answer.

Appendix 7 – Reflective journal CT criteria



Reflective Journal Criteria

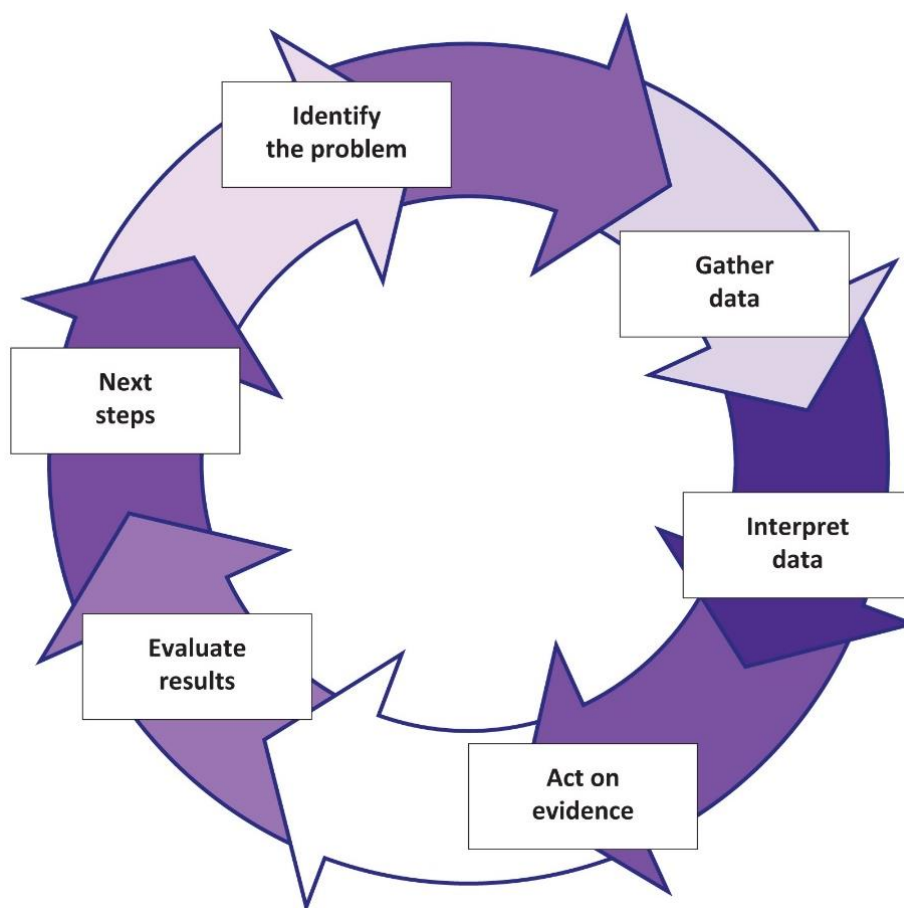
Study title: The impact of content and language integrated learning (CLIL) on critical thinking skills

- Throughout the implementation of CLIL, I will look at how pupils are displaying critical thinking (with a focus on evaluation & analysis).
- Here are the following categories which I will be looking for in order to discern pupils' critical thinking skills:

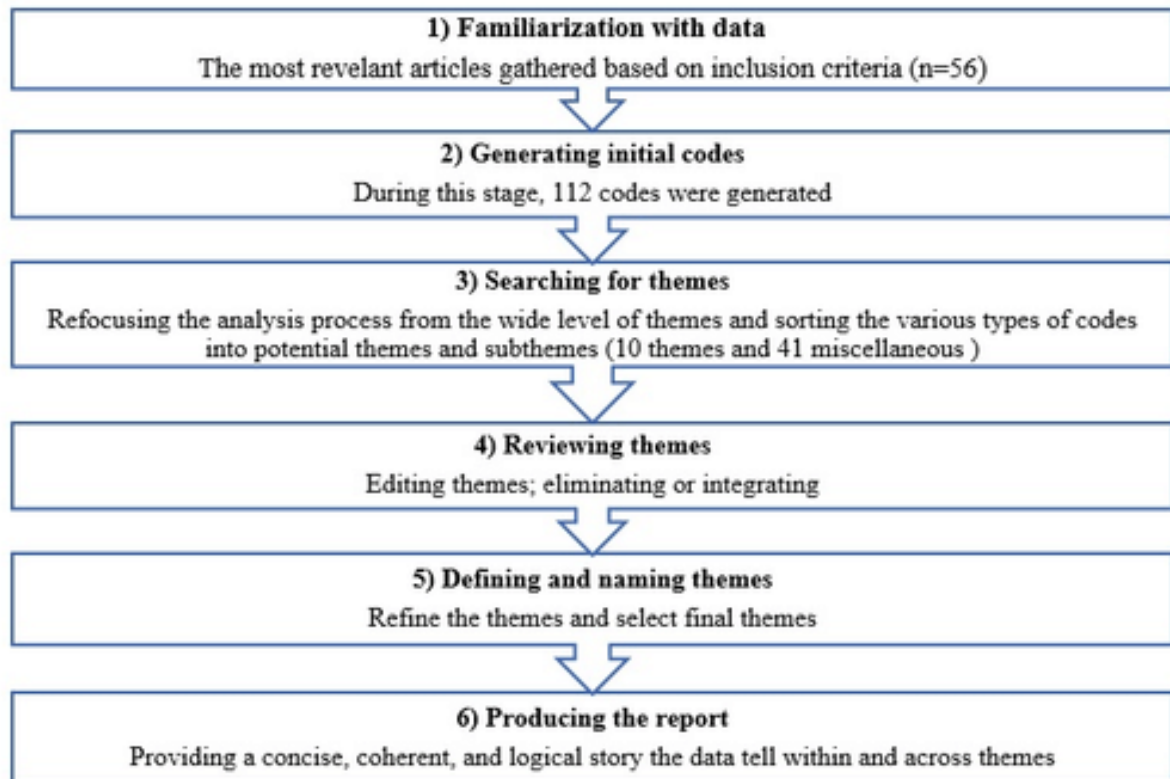
Display of analysis

	Pupil 1	Pupil 2	Pupil 3	Pupil 4	Pupil 5	Pupil 6	Pupil 7	Pupil 8
Use of correction								
Use of comparison								
Use of questioning								
Use of explanation								

Appendix 8 – Action Research Cycle (Ferrance, 2000)



Appendix 9 – Braun & Clarke six phase thematic analysis (1994)



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