Paul Berge

# Teaching Young Learners in Bilingual Settings

## A teacher cognition study in the context of CLIL at the Dortmund International Primary Schools (DIPS) network

Giessener Beiträge zur Fremdsprachendidaktik

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## GIESSENER BEITRÄGE ZUR FREMDSPRACHENDIDAKTIK

Herausgegeben von Jürgen Kurtz, Michael Legutke, Hélène Martinez, Dietmar Rösler und Ivo Steininger.
Begründet von Lothar Bredella, Herbert Christ und Hans-Eberhard Piepho

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*For my late uncle Richard Worthy and his family.*

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# Contents

# 1 Introduction

## 1.1 Background and rationale

### 1.1.1 Historical and theoretical foundations of CLIL

Content and language integrated learning (CLIL) is a term used to describe educational settings "in which pupils learn a subject through the medium of a foreign language" (Eurydice, 2017, p. 13). The term "CLIL" was coined in 1994 (Coyle, Hood, & Marsh, 2010) to be an all-inclusive or "umbrella term" (Eurydice, 2017, p. 13) for the variety of bilingual programs that already existed in Europe at the time (Baetens Beardsmore, 2009, p. 208). While such an open definition of CLIL is no doubt useful on a European scale, various authors in German publications have attempted to further define or more precisely describe CLIL, or *Bilingualer Sachfachunterricht* (BSFU) in German (Rumlich, 2016, p. 41), as it is conceptualized in the German educational landscape (see, for example, Breidbach, 2002; Zydatiß, 2002; Werlen, 2006; Diehr, 2012; Mehisto, 2013).

The modern history of bilingual education, or CLIL, in Germany dates back to at least 1963 with the signing of the Franco-German Treaty (Breidbach & Viebrock, 2012) and the subsequent development of a French-German bilingual program at a *Gymnasium* in Baden Württemberg (Wolff, 2016). From this starting point, bilingual education in Germany continued to develop largely at other academically-oriented *Gymnasien* (Breidbach &Viebrock, 2012). While the early initiation of bilingual programs in Germany was often motivated by regional language profiles and needs (for example in border regions), the expansion of bilingual education in the mid and late 1990s was sparked by increasing globalization and European integration (Wolff, 2016). Economic incentives rooted in globalization provided a metaphorical carrot for foreign language learning while a recommendation from the European Commission stating that European Union citizens should learn two European Community languages beyond their mother tongue (EC, 1995, p. 47) provided a gentle metaphorical stick. The EC further suggested that bilingual education at secondary schools may help to achieve this goal (EC, 1995, p. 47).

Further motivating the early expansion of CLIL education in Europe was the notion that bilingual education is an efficient form of teaching and learning since non-language content and a foreign language are learned simultaneously. Wolff (2009, p. 546) suggests that CLIL education "saves time within the overall curriculum" and that the "length of study time both for language and content subject can thus be reduced considerably, and as a consequence, more languages can be introduced into the curriculum and more time can be devoted to the study of each language." While such a promise of "two for the price of one" has no doubt been a factor in the initial expansion of CLIL programs, Lyster (2011, p. 612) warns that "nothing comes for free." Instead, Lyster maintains that "a great deal of attention still needs to be drawn to the second language, which needs to be manipulated and enhanced during content teaching" (Lyster, 2011, p. 612).

As an approach to foreign language learning, CLIL programs are broadly based on the idea that changing students' linguistic environment will lead to changes in students' linguistic competences. Because it has been argued by some that it may be possible to learn

more on the "streets" than in the classroom (see Dalton-Puffer, 2007, p. 2 for a discussion), Dalton-Puffer suggests that CLIL, as a pedagogical approach for the development of a foreign language not spoken outside of the immediate classroom, is a "clever and economical way of turning classrooms into 'streets'" (Dalton-Puffer, 2007, p. 2). Key to such an altered linguistic environment is increased levels of L2 input and opportunities to use the L2 in various ways. Input is the "*sine qua non*" of any language learning context (Gass & Mackey, 2015, p. 181). In CLIL, the notion of "rich input" (Gallardo-del-Puerto & Blanco-Suárez, 2021; Mehisto, Marsh, & Frigols, 2008) suggests that input in CLIL is abundant, varied, and of high quality. Much of this input needs to come from teachers. Wode (2009) claims that with young CLIL learners, teachers are the only ones who are able to provide such rich input and therefore advocates for high amounts of L2 teacher talk in early CLIL lessons (Wode, 2009, p. 100).

In addition to rich input, CLIL contexts provide opportunities for students to use the L2 for various communicative purposes (Mehisto et al., 2008; Buchholz, 2007). Foreign language development in CLIL will be "driven primarily by the discourse in which students need to engage to complete academic tasks" (Lyster, 2011, p. 619). Mehisto et al. (2008, p. 26) describe a basic CLIL language learning formula: "A CLIL environment can unleash a child's language-learning potential by providing rich *input*, and opportunities for rich *intake* and *output*" (italics in original). However, they warn that "not all *input* becomes *intake*. And if there is limited *intake*, then there will be equally limited opportunities for *output*" (Mehisto et al., 2008, p. 26 italics in original). Beyond increased opportunities for input and output, other constructs from the field of second language acquisition (SLA) such as "negotiation for meaning" (Long, 1996), "collaborative dialogue" (Swain, 2000), and "affordances" (van Lier, 2000; Larsen-Freeman, 2015) also play a role in providing a theoretical basis for the acquisition of a foreign language in CLIL contexts. The theoretical basis for language learning within a CLIL context will be reviewed in chapter 2.2.

Early versions of bilingual education at primary schools in Germany began in the early and middle of the 1990s. Zydatiß (2000) reports on an early trial of primary school bilingual education at a network of 14 public "European schools" in Berlin beginning in the school year 1992-93. Wode (2009) accompanied and studied a primary school bilingual program implemented at the Claus-Rixen School in Altenholz/Kiel that began in 1996. In North Rhine Westphalia (NRW) (where this study is set), however, various forms of primary school CLIL did not begin until the early 2000s at which time English as a foreign language (EFL) instruction became compulsory at primary schools.

Wode (2009) claims that foreign language learning should begin early, in preschool or at the beginning of primary school, because of the additional time that an early start affords learners on their way to achieving a high enough level of language competence. Wode argues that the time required to learn two additional languages beyond the mother tongue or, as he calls it, the "3 language formula" cannot be met if students begin learning the first foreign language in fifth or even third grade with only one or two lessons per week (Wode, 2009, p. 17). Wode goes on to argue that such early language learning should take place through an immersion approach which he claims, among other things, provides young learners with an age-appropriate and "natural" approach to language learning and is cost-neutral in that it does not require additional teachers or lessons (Wode, 2009, p. 18).

The promise of CLIL at primary school is that it is a time and cost efficient approach to foreign language learning and, by extending the time spent learning languages at school, makes it possible for students to reach the goal of mother tongue plus two set out by the EC.

CLIL programs generally target the development of competences in three areas: the L1, L2, and the non-language subject. However, the way that these and other related goals are communicated tend to differ between the broader European discourse on CLIL and the German discourse on CLIL. For example, Mehisto et al. (2008, p. 12), writing from a broader European perspective, describe five goals that CLIL programs target. They are:

- grade-appropriate levels of academic achievement in subjects taught through the CLIL language;
- grade-appropriate functional proficiency in listening, speaking, reading and writing in the CLIL language;
- age-appropriate levels of first-language competence in listening, speaking, reading and writing;
- an understanding and appreciation of the cultures associated with the CLIL language and the student's first language;
- the cognitive and social skills and habits required for success in an ever-changing world. (Mehisto et al., 2008, p. 12)

In the German context, Diehr (2012, p. 29) describes two all-encompassing CLIL goals that are representative of the broader discourse on CLIL in Germany: "*Ziel des BU ist es, doppelte Fachliteralität auszubilden und kulturbewusste Mehrperspektivität in fachspezifischen Zusammenhängen zu entwickeln*" (The aim of CLIL is to train subject literacy in two languages and to develop culturally aware multi-perspectivity in subject-specific contexts).

CLIL goals written in and for the German context are more relevant to this study which is set in the context of primary school CLIL programs in Germany. Nonetheless, briefly comparing the way CLIL goals are described in the European and German contexts can illuminate more precisely what exactly CLIL programs in Germany aim to achieve.

First, the goals as communicated by Diehr (2012) have the advantage of existing in a particular national CLIL context. They reference explicitly "subject literacy" and "subject-specific contexts" indicating the guiding role that the various subject curricula in the individual German federal states play in setting the educational goals for CLIL in Germany. As stated by the Standing Conference of the Ministers of Education and Cultural Affairs (*Kultusministerkonferenz*), "*Leitfach des bilingualen Unterrichts in den Ländern ist das Sachfach*" (The guiding subject of CLIL in the federal states is the content subject) (KMK, 2013, p. 7). In Germany, the goal of CLIL is first to teach the subject as outlined in the various curriculum documents in the different federal states.

Second, Mehisto et al. (2008, p. 12) describe CLIL goals relevant to the L1 as follows: The goal is to develop "age-appropriate levels of first-language competence in listening, speaking, reading and writing." Stated this way, L1 development seems to be uncoupled from subject-specific discourses or literacies and rather a matter of age-normed development. Such a developmental orientation to the L1, one that suggests that the L1 will develop appropriately regardless of targeted L1 instruction, differs from a more instructional

orientation to the L1 suggested by the CLIL goal of developing subject literacies in two languages described by Diehr (2012). Such a difference in orientation to the L1 in CLIL suggests that in German CLIL contexts, the L1 should play a more active role and should be an explicit object of learning.

The promise of CLIL and ultimately its efficacy for the development of increased L2 competences has been the focus of much research for more than two decades. Much of the early research on the effects of CLIL enthusiastically reported the benefits of CLIL for L2 development (Pérez Cañado, 2016). However, some of this initial research has come under scrutiny for a variety of methodological weaknesses including variable control, research design, and statistical methodology (Rumlich, 2016; Pérez Cañado, 2016). Pérez Cañado (2020) cites more recent studies (primarily from Spanish contexts) which she claims address and correct such methodological weaknesses. She concludes that "CLIL is the variable which best accounts for the differences detected in FL competence" (Pérez Cañado, 2020, p. 9). Such results are encouraging for advocates of CLIL education but nonetheless need to be met with a degree of skepticism when seeking to apply them to other educational contexts, e.g. CLIL contexts in Germany (Rumlich, 2016, p. 194).

### 1.1.2 Research results on CLIL outcomes in Germany

In Germany, a number of studies have investigated the effects of English language CLIL instruction in secondary schools. Nold, Hartig, Hinz, & Rossa (2008) compared CLIL students' and non-CLIL students' English language competences in areas such as listening comprehension, reading comprehension, and grammar. The researchers analyzed a subset of data gathered in the DESI (*Deutsch-English Schülerleistungen International*) study. The data was gathered from 958 students from 31 academically-oriented *Gymnasium* classes and 7 vocationally-oriented *Realschule* classes. While CLIL students outperformed non-CLIL students in all competence areas when tested at the end of grade nine, the results as presented in Figure 35.1 (Nold et al., 2008, p. 455) indicate that only CLIL students' listening comprehension improved at a rate beyond that of non-CLIL students suggesting that CLIL can be especially effective at developing receptive language competences.

Dallinger, Jonkmann, Hollm, & Fiege (2016) compared the general English proficiency, listening comprehension, and History knowledge of CLIL (N=703), non-CLIL (students at schools with CLIL streams who do not participate in CLIL) (N=659), and regular students (students at schools without CLIL streams) (N=444). They tested students at the beginning and the end of grade eight. The results indicate that at the end of grade eight, CLIL students outperformed non-CLIL and regular students in measures of general English proficiency and listening comprehension. However, after prior achievement was controlled for, CLIL students' advantage in general English proficiency was reduced to statistically insignificant levels but CLIL students' advantage in listening comprehension remained statistically significant albeit reduced from previous levels. All groups performed roughly the same with regard to History knowledge, although CLIL students received 50 % more History instruction than non-CLIL and regular students. The authors conclude that a CLIL-program selection effect exists, that CLIL has a positive effect on students' listening comprehension skills, and that CLIL students "need more input to achieve the same output regarding

central content knowledge" (Dallinger et al., 2016, p. 30). This conclusion suggests that CLIL, described as an efficient form of instruction (Wolff, 2009), may not be as efficient as suggested in theory.

Rumlich (2016) compared the general English proficiency, EFL self-concept, and interest in EFL classes between CLIL students (N=414), non-CLIL students (N=360), and regular students (N=179). He gathered data on background variables (e.g. verbal cognitive abilities, sex, L1 background) and tested students before the beginning of grade seven at which time CLIL instruction would begin for the future CLIL students and then again at the end of grade eight (i.e. after two years of CLIL instruction). In interpreting his statistical results for general EFL proficiency, Rumlich (2016) reports that CLIL students had an approximately 1.25 and 1.5 to two school year advantage over regular and non-CLIL students respectively. However, "the absolute mean proficiency gains of CLIL and regular students are equal" indicating that differences between the two groups at the end of grade eight were the same as they were at initial testing at the end of grade six (Rumlich, 2016, p. 424). Rumlich concludes that such results "suggest that there might be no impact of CLIL on general EFL proficiency" (Rumlich, 2016, p. 425).

The partial results of the studies presented here suggest that in secondary school CLIL contexts in Germany, CLIL instruction has a positive benefit on CLIL students' listening comprehension skills but not on their general English proficiency. Learning content, while not affected negatively by CLIL, may require more instructional time in order to achieve results similar to non-CLIL and regular students.

Two studies reviewed briefly below help illuminate the effects of CLIL on content and language learning in primary school contexts in Germany. In a qualitative study of one primary school CLIL class in Germany, Botz and Diehr (2016) investigated the effects of L1 and L2 instruction on students' conceptual and vocabulary knowledge. Students were tested and interviewed after a sequence of lessons taught exclusively through the L2 (English) and then after another sequence of lessons taught through the L2 and the L1 (German). The authors report that students were able to better verbalize their subject knowledge in the L1 after being instructed bilingually through English and the "*sparsame aber gezielte Einsatz der deutschen Sprachen*" (sparse yet targeted use of the German language) (Botz & Diehr, 2016, p. 251). The authors report that the effect was greatest at the lexical level and conclude that acquired subject-language competences in the L2 (English) are not automatically transferred to the L1 (German) (Botz & Diehr, 2016, p. 256).

In a quantitative study, Frisch (2021) investigated the natural science competences of CLIL (N=207) and non-CLIL (N=125) fourth grade students at seven primary schools in NRW as part of the "*Bilinguales Lehren und Lernen in der Grundschule – Effekte auf die naturwissenschaftliche Kompetenz*" (Bilingual teaching and learning at primary school – effects on natural science competences) (BiLL-NaWi) study. The BiLL-NaWi students' natural sciences competences were tested using a German language version of the TIMSS (Trends in International Mathematics and Science Studies) test. The results were then compared within the study group (CLIL and non-CLIL students), with a sample of regular German students (students not attending schools with a CLIL branch), and with an international sample of students. The CLIL students in the BiLL-NaWi sample outperformed the non-CLIL students in the BiLL-NaWi sample by 72 points, the German

sample by 9 points, and the international sample by 51 points. However, in order to determine whether or not this advantage was the result of CLIL instruction, Frisch (2021, p. 41) conducted propensity score matching in order to compare CLIL students from the BiLL-NaWi sample to students with similar background characteristics (e.g. age, sex, first language, socio-economic status) in the other samples (German and international). The results of this comparison showed no advantage for the CLIL learners in the BiLL-NaWi sample (Frisch, 2021, p. 41). Such a result suggests that while CLIL may not have a positive effect on natural science competences, it also does not have a negative effect. No negative effect on the development of natural science competences can be interpreted positively by CLIL advocates, since CLIL is motivated by the potential for increased foreign language competences and not for increased non-language subject competences.

In order to ascertain whether or not the language of the test influences students' results, Frisch (2021) also had the CLIL students in the BiLL-NaWi sample complete the TIMMS test in English. Student's scores were drastically lower. Frisch (2021, p. 42) reports that, on average, students scored 386 fewer points on the English version of the TIMMS test than on the German version. On the German version of the test, almost 80 % of the CLIL students tested achieved scores placing them at level three or higher on a five-level scale of natural science competences. On the English version of the test, more than 90 % of the students achieved scores placing them at level one. Frisch (2021, p. 42) concludes that the CLIL students could only complete simple and routine English language tasks that are solvable with common knowledge.

The results of the two studies from German primary school CLIL contexts reviewed above suggest first that content learning in the natural sciences is not negatively affected by learning through a foreign language. Second, the L2 competences of primary school CLIL students are not sufficient to master academic tasks through the L2. Frisch (2021, p. 46) therefore questions whether the "ambitious" goal of subject literacy in two languages is appropriate for primary school students. Third, the acquisition of conceptual and lexical competences in the L2 does not automatically transfer to the L1 suggesting that the targeted use of the L1 needs to be included in CLIL instruction in order to (potentially) meet the L1 aspect of the goal of developing subject literacy in two languages (Botz & Diehr, 2016).

### 1.1.3 The CLIL context of the present study: Dortmund International Primary Schools (DIPS)

Based on the research from German CLIL contexts reviewed above, the positive effects of CLIL may not be as high as once thought or hoped. Indeed, contentious debates regarding the effects of CLIL continue (see, for example, Bruton, 2019; Pérez Cañado, 2020). However, such concerns or uncertainties have generally not prevented the expansion of CLIL offerings. For example, in addition to the various officially recognized CLIL branches at secondary schools in NRW, the Ministry of Education in NRW has initiated the "*Bilingual für alle*" (CLIL for everyone) program, a program which allows any secondary school in NRW to establish and offer various forms of CLIL instruction (MSB NRW, 2022, March 3).

As can be assumed when implementing CLIL under programs such as "*Bilingual für alle*," CLIL programs vary greatly in how they are implemented. This concern about what

exactly CLIL is and how it is realized has been addressed in the CLIL literature. Pérez Cañado (2016) reviews such concerns. She reports that some researchers see such diversity in CLIL programs as "detrimental" to the "pedagogically coherent evolution of CLIL" (Pérez Cañado, 2016, p. 15), while others see such diversity as helping CLIL to "accommodate the linguistic diversity of the European landscape" (Pérez Cañado, 2016, p. 15).

One of those realizations of CLIL is the context in which the current study is set. The Dortmund International Primary Schools (DIPS) program is a group of five primary schools in Dortmund, Germany each with a CLIL stream or branch for each of the four grade levels. The program started during the 2010-2011 school year with the aim to close the then-existing gap between CLIL programs offered at various preschools and secondary schools in Dortmund (Raunser & Steffens, 2012). By closing this gap, program organizers sought to further expand foreign language (English) learning opportunities to students in and around Dortmund (Raunser, 2012, March 5).

The DIPS program is described as using an "immersion" approach to language learning in which "the students are literally immersed in the English language" (DIPS, 2020, Sept. 7, my translation). Additionally, the program is characterized by Science and Social Studies lessons that are taught by two teachers; an English-speaking as well as a German-speaking teacher. Within this team-teaching arrangement, the concept of "one person-one language" in which the English-speaking teacher only uses English with students and the German-speaking teacher only uses German with students is implemented (Raunser & Steffens, 2012, p. 37).

Within this broad programmatic outline (to be detailed further in section 5.3.1), the teachers in this study, whether alone or in collaboration with colleagues, make decisions about learning goals and instructional approaches and put those decisions into action. Such thinking and practice is ultimately what creates the specific CLIL program in which students learn.

### 1.1.4 Researching teachers' cognitions

The very nature of teaching is one of thought and action. Teaching is a "reflective, thinking activity" (Calderhead 1987b, p. 1) and teachers are "active, thinking decision-makers who make instructional choices" (Borg, 2003, p. 81). Within the context of CLIL instruction, such thinking and instructional choices are further complicated by what Morton (2012, p. 12) describes as a "complex hybrid of practices [which draw] on the pedagogies of different academic subjects and those of language education." Further complicating CLIL is the role of the L2 in CLIL as both "an intended outcome" and as "an essential prerequisite for content learning to be possible at all" (Morton, 2012, p. 12).

While any CLIL context is complex, there are factors which make teaching and learning in primary school CLIL contexts even more complex. First, most primary school CLIL students are at the very beginning of the foreign language learning process and therefore have low foreign language competences. Since some degree of L2 competence is "an essential prerequisite" (Morton, 2012, p. 12) for learning content through an L2, teaching a content subject through a language that is largely not understood by students presents obvious challenges. Second, there is some evidence that primary school CLIL teachers in

Germany and in NRW specifically lack professional support and guidance in the form of CLIL-specific teacher training (Massler, 2012) and CLIL-specific guiding documents or handbooks from the Ministry of Education in NRW. Such a lack of professional support would seem to make planning and teaching in CLIL contexts even more difficult.

In order to understand specific realizations of CLIL including those at primary school, it is important to understand the teachers who make decisions about and implement instruction. As Tedick and Cammarata (2012, p. S48) explain:

> Because teachers are the ultimate decision makers as to what enters their classroom and because all curricular reforms are filtered through their beliefs and perception, CBI [content-based instruction, a North-American term for CLIL-like instruction] has little chance to succeed without their support, interest, and motivation. In other words, teachers' experience is key to CBI program implementation.

Because CLIL is a complex pedagogical context and because teachers are thinkers, decision-makers, and the ultimate arbiters of what happens in the classroom, there have been calls to investigate CLIL from a teacher cognition perspective (see Morton, 2012; Nikula, 2017, July 5). The study of teacher cognition itself or what teachers "think, know and believe" (Borg, 2003, p. 81) dates back to the 1970s and 1980s and focused primarily on teachers' decision-making processes and knowledge (Borg, 2015) as well as "*subjektive Theorien*" (subjective theories) (Groeben, Wahl, Schlee, & Scheele, 1988; Koch-Priewe, 1986). Since then, teacher cognition research has established itself as a research approach to a variety of language learning contexts including CLIL (see, for example, Viebrock, 2007; Morton, 2012; Bovellan, 2014).

From the beginning, teacher cognition research has been motivated by a simple premise: that "what teachers do is affected by what they think" (Clark & Yinger, 1977, p. 279). In an effort to better understand *what teachers do* and therefore what happens in the classroom, researchers in this newly formed field of "teacher thinking" (Clark & Peterson, 1986, p. 285), as it was known at the time, sought to describe and better understand *what teachers think*. Investigating, documenting, and understanding teachers' cognitions has never been about teachers' cognitions *per se*. Instead, it is about how teachers' thoughts, knowledge, and beliefs can inform an understanding about their classroom practices.

Calderhead (1987b) describes this essential value of teacher cognition research.

> An important role of research is to provide more realistic models of teaching that help us conceptualize the nature of this practice more clearly, enabling supportive efforts, including training and policy-making, to be more constructive. (Calderhead, 1987b, p. 4)

In order for teacher cognition research to achieve this purpose, a conception of teachers' cognitions as "highly situated and action-oriented" (Borg & Sanchez, 2020, p. 25) is necessary. However, even with an understanding of teachers' cognitions as being based on practice, what teachers think is not synonymous nor always congruent with what they do. What teachers do in the classroom is based on a variety of factors which includes their thinking and contextual factors. Teachers' thinking, in turn, is affected by factors which include their classroom practices (Borg, 2003, p. 82). The fact that teachers' cognitions may be more or less aligned philosophically, theoretically, or practically with their practices

suggests, again, that the study of teachers' cognitions can be used to further understand and support classroom practice (Calderhead, 1987b, p. 4) but not to "predict teachers' practices" (Borg & Sanchez, 2020, p. 17).

### 1.1.5 Research results on CLIL teachers' cognitions

In Germany, relatively little is known about CLIL teachers' cognitions in the specific context of primary school. Nonetheless, teacher cognition research from other contexts such as CLIL at secondary school and in other national settings as well as primary school EFL settings in Germany can combine to offer insights into teachers' thinking that may also be relevant to the context of primary school CLIL in Germany. There is CLIL teacher cognition research which suggests that there are various types of CLIL teachers; those who orient themselves primarily to traditional boundaries of subject disciplines and those who orient themselves to more general pedagogic principles of learning (Dirks, 2004; Bonnet & Breidbach, 2017). There is also evidence that teachers differ in the way in which they conceptualize the target language. For example, Hüttner and Dalton-Puffer (2013) found that secondary school EFL teachers in their study oriented themselves to a native-speaker conception of English while CLIL teachers oriented themselves to a conception of English as a global lingua franca. However, in Bovellan's (2014) study of primary school CLIL teachers in Finland, teachers oriented themselves to a native-speaker ideal of English. Such various conceptions of teaching and learning in CLIL as well as various conceptions of the target language likely have implications for CLIL teachers' goals and instructional approaches.

There is also CLIL teacher cognition research focused on describing teachers' goals. There is research from primary, secondary and tertiary contexts that suggests that CLIL teachers focus on content learning and not on language form (Skinnari & Bovellan, 2016; Bovellan, 2014; Costa, 2013; de Graaff, Koopman, Anikina, & Westhoff, 2007). Also, the goal of L2 learning in CLIL has been described by teachers (in Spain, Finland, and Austria) as a "side-effect" or "by-product" (Skinnari & Bovellan, 2016, p. 153). Such a cognition in the German context would seem to run contrary to the stated goal of developing subject literacy in two languages. When teachers do describe L2 learning goals, their descriptions tend to be limited to vocabulary knowledge and the development of oral communication competences (Bovellan, 2014; Morton, 2012; Imgrund, 2004). There is also evidence that secondary school teachers value general pedagogic goals such as the development of motivation and respect (Skinnari & Bovellan, 2016; Wegner, 2012).

Finally, there is CLIL teacher cognition research that suggests that teachers use a variety of approaches in their CLIL instruction. There is evidence from the Swedish secondary school context that teachers adjust their use of the L1 and L2 based on their knowledge of individual students (Sandberg, 2019). Also, teachers in several different contexts understand language learning in CLIL to be a natural process (Hüttner & Dalton-Puffer, 2013; Costa, 2013; Skinnari & Bovellan, 2016) and therefore attempt to maximize their use of the target language (Lasagabaster, 2017). An exception to such a natural approach to L2 acquisition in CLIL seems to be the explicit instruction of subject vocabulary (Hüttner & Dalton-Puffer, 2013; Morton, 2012; Viebrock, 2007). The research on CLIL teachers' cognitions briefly

summarized here comes from a variety of CLIL contexts. A more complete review of CLIL teacher cognition research will be presented in chapter 4.4.

## 1.2 Purpose of the study

It is within the context of CLIL and teacher cognition research that this study seeks to understand the cognitions of five CLIL teachers all teaching within the Dortmund International Primary Schools (DIPS) program in Dortmund, Germany. The investigation of teachers' cognitions is "one way of making sense of what [teachers] do" (Borg, 2016, April 25). Therefore, it is my intention in this study to explore and describe primary school CLIL teachers' cognitions in Germany. I will do this in the specific context of the DIPS program.

Achieving such a goal serves two purposes. First, it helps to fill an existing research gap in the cognitions of primary school CLIL teachers in Germany. As introduced above, teacher cognition research in CLIL contexts comes from a variety of national contexts at various school levels. None of the research introduced above comes from primary school CLIL contexts in Germany. Investigating and understanding primary school CLIL teachers' cognitions is important not only because CLIL, regardless of school level, demands subject and language integration thus making it a "complex hybrid of practices" (Morton, 2012, p. 12), but also because CLIL teachers at primary school are faced with young learners who often have low target language competences, "an essential prerequisite" (Morton, 2012, p. 12) for CLIL learning, thus increasing the complexity and challenge of their CLIL instruction. Also, at least in some cases, primary school CLIL teachers lack support structures for their CLIL instruction (see, for example, Massler, 2012; MSB NRW, 2021, March 4; Wolff, 2020, Sept. 7). Exploring and describing primary school CLIL teachers' cognitions can, ultimately, support the further development of CLIL pedagogy at primary school.

Second, conducting the study in the specific CLIL context of the DIPS program will provide a valuable description of and insight into the DIPS program from teachers' perspectives. As noted earlier, the ways in which CLIL programs are implemented across Europe are diverse (Pérez Cañado, 2016). An important role of CLIL research is to document and understand specific CLIL programs from a variety of research perspectives including that of teacher cognition. Woods (1996), writing from a teacher cognition perspective, argues that any research into the process of teaching and learning as well as into classroom contexts is an attempt to "evaluate the success and failure of the learning process, to determine the factors that lead to success, and render it more successful" (Woods, 1996, p. 3). While this study does not evaluate the DIPS program *per se*, the results of this study nonetheless have the potential to inform DIPS teachers and administrators on their unique CLIL program and pedagogy and thus, possibly, "render it more successful" (Woods, 1996, p. 3).

Several key questions emerge from the literature on CLIL and CLIL teachers' cognitions. One of them relates broadly to how teachers conceptualize various aspects of CLIL, for example, the target language itself and learning through a foreign language as well as the prioritization of major CLIL goals such as content learning and L1 and L2 development.

CLIL teacher cognition research suggests that teachers see the process of language learning in CLIL as a natural process and prioritize content learning. However, this research does not come from primary school CLIL contexts in Germany. Considering the generally low target language competences of primary school learners and the goal in Germany of the development of subject literacies in two languages, a variety of more specific questions relevant to DIPS teachers emerge. For example, do DIPS teachers describe learning through a foreign language in CLIL as particularly challenging? Do teachers ascribe a greater role to L1 use and, if so, what is that role? Do they describe the development of L2 competences in terms of something that can and must be achieved or, like the teachers in Skinnari and Bovellan's study, do they describe it as a "side-effect" or "by-product" (Skinnari & Bovellan, 2016, p. 153) of CLIL instruction?

Another key question that emerges from the literature and research on CLIL is, What goals related to L2 learning do teachers work toward? CLIL teacher cognition research suggests that teachers focus on vocabulary knowledge and the development of oral competences. Such limited goals would seem less than the all-inclusive and "ambitious" (Frisch, 2021, p. 46) goal of developing subject literacy in two languages. Based on her research, Frisch (2021) concludes that the goal of developing subject literacy in two languages may be too ambitious and that new pedagogical conceptions for primary school CLIL in Germany need to be developed. In this context, what L2 competences do DIPS teachers focus on? Like teachers in studies from Skinnari and Bovellan (2016) and Wegner (2012), do teachers in the DIPS schools also target general pedagogic goals such as motivation and respect? The answers to such questions have potential relevance for the reconsideration of CLIL goals at primary school and the further development of pedagogical conceptions of CLIL at primary school.

Finally, research on CLIL and CLIL teachers' cognitions suggests that teachers employ or describe employing a variety of approaches including, for example, adjusting L1 and L2 use based on knowledge of students (Sandberg, 2019) and maximizing L2 input (Lasagabaster, 2017). Based on their research into language switching in primary school CLIL, Botz and Diehr (2016), found that learners who acquired subject knowledge in the L2 were not automatically able to transfer that knowledge to the L1 and therefore conclude that in order to develop subject literacies in two languages, the L1 should be used in targeted ways in CLIL instruction. The question, then, is what approaches do DIPS teachers describe using in order to meet their goals and, more specifically, how do they describe using the L1 in their CLIL instruction? Do they, for example, describe using the L1 for the purpose of L1 development or rather to support content and L2 learning?

Based on the reading of the theoretical and empirical CLIL literature presented above, three research questions emerge that will guide the research project in order to achieve the two research purposes. These questions are broad and therefore allow an exploratory approach to teachers' cognitions.

1. **What cognitions do teachers hold about teaching and learning in primary school CLIL?**

In its breadth, this question allows for the exploration of a range of teachers' cognitions that may go beyond what is already evident in CLIL teacher cognition research.

2. **What language-related educational goals do teachers work toward?**

While CLIL is a dual-focused, content and language learning pedagogy, this research question focuses more specifically on language learning goals (e.g. various foreign language competences) as well as any goals that may be more tangentially related to language learning (e.g. motivation, attitudes, etc.).

3. **What approaches do teachers think are most effective for achieving these goals?**

This question allows for the exploration of teachers' thinking not only about what approaches, techniques, or methods they think are best suited to learning in CLIL but also to why they think such approaches work.

## 1.3 Eliciting teachers' cognitions related to CLIL practices

In this study, I have employed the data gathering methods of semi-structured interviews and classroom observations. By talking to teachers about their actual CLIL practices and observing those practices over time, it was my intention to elicit teachers' "highly situated and action-oriented" (Borg & Sanchez, 2020, p. 25) cognitions through "contextualized discussion[s] of teachers' concrete experiences in the classroom" (Borg & Sanchez, 2020, p. 25). Semi-structured interviews provided the necessary flexibility for teachers to speak about a range of topics related to their CLIL practices. Classroom observations allowed me to document classroom practices and subsequently investigate teachers' thinking about those practices in post-observation interviews.

To analyze the interview data, I have applied the method of qualitative content analysis (QCA) because it offers a systematic approach to describing the meaning of qualitative data while at the same time being flexible enough to be tailored to the needs of individual research projects (Schreier, 2012). Additionally, the coding frame, a central aspect of QCA, resulting from the data analysis offers a concrete and "quasi-statistical" (Becker, 1970, p. 81) summary of the data. Such a catalogued summary of results that includes descriptive statistics (frequencies of coded segments) provides another tool to communicate results clearly to DIPS program stakeholders and the scientific community.

The study was ultimately carried out in three phases. Phase one consisted of two parts: 1) a short questionnaire (10 items) intended to gather biographical information such as age and teaching experience (see Appendix 2 for the questionnaire) and 2) an interview designed to elicit teachers' thinking on a range of CLIL-related topics such as their CLIL goals, materials, and planning (see Appendix 3 for background interview guide). The initial interviews lasted between 45 minutes and one hour. Phase two consisted of observing CLIL lessons in all of the participating teachers' classes. Classroom observations took place over approximately six to eight weeks and were recorded using fieldnotes. The goal of the observations was to observe the types of activities used and lesson structures as well as to record how languages are used in lessons (i.e. who uses what language when). Observations were also used as a basis on which to plan and conduct the follow-up interviews. In phase three, I interviewed teachers a second time. The focus of the follow up interviews was to

get teachers to reflect and comment on aspects of the CLIL instruction documented during the classroom observation phase of the study (see Appendix 4 for the follow-up interview guide).

The interviews were recorded using a digital audio-recorder. Classroom observations were recorded using fieldnotes. The interview recordings were transcribed using transcription software (*f4transkript* and MAXQDA) and analyzed using QCA. Because QCA can be implemented in a variety of ways and in order to avoid accusations of "name-dropping" (Kuckartz, 2019, p. 3), I will describe in detail my process of data analysis in section 5.3.4. Classroom observations were used to provide a basis for the phase three follow-up interviews and to provide additional context for the interview analysis.

## 1.4 Outline of chapters

In chapter two of this study, I first review the foundations and principles of CLIL and immersion education and then describe key concepts and constructs from the field of second language acquisition which provide a theoretical basis for language learning in CLIL.

In chapter three, I review two theories of learning important to primary school learners as well as review eight key pedagogical principles of teaching EFL at primary school which are relevant to language learning and teaching within a primary school CLIL context. I then describe the primary school CLIL context in North Rhine Westphalia (NRW) considering both organizational aspects as well as empirical evidence from a variety of sources that, taken together, illustrate a more complete picture of what primary school CLIL in NRW looks like.

In chapter four I first review the history, goals, and terminology of teacher cognition research. I then review empirical literature in order to describe what CLIL teachers think about their CLIL practice with special attention to their goals and approaches. While empirical literature on primary school CLIL teachers' cognitions is rare, section 4.4 brings together research from related fields including teacher cognition research from secondary school CLIL contexts, international contexts, and German primary school EFL contexts in order to provide an empirical basis of knowledge that can help inform an understanding of primary school CLIL teachers' cognitions in Germany.

In chapter five, I further elaborate on the aims of this study and then review theoretical considerations of the data gathering and analysis methods used. After that, I describe in detail the research context as well as the data gathering and analysis procedures. Finally, I discuss issues of research quality, specifically validity and reliability.

In chapter six, I describe the results of my research. This chapter has been organized first according to research questions and then according to the highest-level subheadings in the coding frame. At the beginning of each subsection I include the corresponding part of the coding frame. I then describe and contextualize this part of the coding frame with evidence from the teacher interviews and from classroom observations.

In chapter seven, I discuss key results of the study as they relate to each of the three research questions. In my discussion, I compare the results to the theoretical background of this study and to previous empirical research as well as consider what these results might