

Faculté de philosophie, arts et lettres

Commission doctorale du domaine « Langues, Lettres et Traductologie » (CDL)

Institut Langage et Communication (ILC)

Centre of English Corpus Linguistics (CECL)

Centre Valibel – Discours et Variation

The acquisition of phraseological units by
French-speaking learners of English and Dutch in
CLIL and NON-CLIL settings
Exposure effects on range and accuracy

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Thèse réalisée en vue de l'obtention du grade de

Docteur en langues, lettres et traductologie

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Louvain-la-Neuve

Octobre 2019

Abstract

The present doctoral dissertation investigates the acquisition of the phraseological lexicon in second/foreign language acquisition (S/FLA). The term phraseology refers here to the large number of multiword combinations that compose the language; as for the phraseological lexicon, it refers to the inventory of multiword combinations that users or learners of a language know receptively and/or use productively. Corpus-based analyses have demonstrated that these combinations are actually pervasive in the language, be it written or spoken. However, the acquisition of target language (TL) phraseology seems to lag behind other areas of TL acquisition (Laufer & Waldman, 2011) and even advanced learners struggle in their use of phraseological language (e.g. Meunier & Granger, 2008; Siepmann, 2008). Patterns of overuse, underuse, and erroneous phraseological productions have been reported by the majority of studies looking at TL phraseology. The fact that phraseology is not always subject to explicit instruction (Meunier, 2012) and that implicit learning has its limits in instructed TL settings may further complicate its acquisition process. Moreover, error analyses of TL learners' phraseological productions usually point to interferences of the mother tongue (L1). Psycholinguistic aspects such as frequency, prototypicality, transparency, saliency, etc. of the word combination itself will also facilitate or impede its acquisition, depending on SLA variables and contexts (Ellis, 2008b).

This thesis is framed within a multidisciplinary research project on *Content and Language Integrated Learning* (CLIL) in French-speaking Belgium (cf. Hiligsmann et al., 2017) and examines the relation between the CLIL approach and the (longitudinal) acquisition of phraseological units by learners. The sample consists of French-speaking upper secondary school learners of English in a CLIL ($n=90$) or a traditional foreign language (NON-CLIL) setting ($n=90$), or Dutch in a CLIL ($n=132$) or a NON-CLIL setting ($n=100$). The learners were followed over the course of two consecutive school years (2015-2016 and 2016-2017).

Previous research on vocabulary acquisition in CLIL settings rarely went beyond the single word level and studies looking at the acquisition of phraseology by TL learners in general usually include only one or two types of multiword combinations. In addition, English remains the most frequently analyzed TL, also in the field of phraseology. The present study broadens the scope of analysis by scrutinizing a large set of phraseological units (referential phrasemes, textual phrasemes and communicative phrasemes) in two different target languages (English and Dutch) and in two different instructed settings.

A combination of corpus-based analyses and experimental methods are used in order to assess the learners' phraseological knowledge. The corpus analyses are based on a corpus of semi-spontaneous written productions that was collected to analyze the learners' productive use of word combinations. The written corpus data were collected at two different time points (beginning of the fifth year of secondary school and end of the sixth year of secondary school), so that a longitudinal analysis of the learners' written phraseological development could be carried out. The experimental test consists in a multiple-choice test designed to evaluate the learners' receptive knowledge of verb-noun collocations. The influence of other variables such as duration of TL instruction, frequency of informal contact with the TL outside school, general productive and receptive vocabulary knowledge, non-verbal intelligence (IQ) and socio-economic status (SES) was also considered in order to isolate the effect of CLIL.

Since the CLIL approach appears to be beneficial for S/FLA considering its increased provision of TL input in more authentic situations and its interactional and communicative nature, we may expect a better and faster acquisition of phraseological units – both at the productive and receptive level – by CLIL learners of English or Dutch compared to their NON-CLIL peers. More specifically, we hypothesize that CLIL learners will produce a larger number of multiword combinations and that the phraseological productions will show a higher level of accuracy. We also expect them to score higher at the receptive collocation test. In terms of longitudinal development, we believe that the two learner groups will increase their phraseological competence and that the linguistic gain will be even more substantial in the CLIL group.

On the whole, the results of the present doctoral research corroborate our hypotheses. A higher phraseological productive and receptive knowledge was observed in the CLIL group. The longitudinal results were however more mixed since the CLIL learners either positively progressed, but to a lesser extent than the NON-CLIL learners (in the case of English), or even decreased (in the case of Dutch). It is important to note that the results often differed according to the TL, in the sense that the difference between the CLIL and the NON-CLIL learners appeared to be larger in TL Dutch than in TL English.

It has to be acknowledged that the apparent positive influence of the CLIL approach on the acquisition of phraseology observed in this research may not be the sole factor at work. Our study also showed that other variables were at play, like for instance the impact of other input-related and vocabulary-related measures, and background variables on the learners' receptive collocational knowledge. Other factors like the motivation of the learners and their attitudes

towards the TL (especially in the context of Belgium where Dutch and English tend to have a different status), the teachers' proficiency in the TL as well as their teaching practices are undoubtedly important aspects to consider.

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INTRODUCTION

In times of globalization, policies increasingly promote multilingualism as a strong social and economic asset. One way to foster multilingualism in education is *Content and Language Integrated Learning* (CLIL), a pedagogical approach in which some school subjects (e.g. history, geography, mathematics, etc.) are taught with and through a different language than the mainstream school language. In the French-speaking Community of Belgium, schools have been allowed to provide CLIL education in Dutch, English or German since 1998. To this day, however, we only have an incomplete and fragmented view on how CLIL differs from the traditional language learning form of education (NON-CLIL) and on how it affects second/foreign language acquisition (S/FLA). A multidisciplinary ARC project (*Action de Recherche Concertée* – Concerted Research Action) called *Assessing Content and Language Integrated Learning: Linguistic, Cognitive and Educational Perspectives* was launched by a team of researchers from the Université catholique de Louvain (UCLouvain) and the Université de Namur (UNamur) in order to gain more insight on CLIL in French-speaking Belgium (cf. Hiligsmann et al., 2017). As the project's title suggests, it involves different research lines: linguistic, cognitive, educational, and socio-affective. The present doctoral research constitutes an integral part of this project and focuses on the acquisition of target language (TL) English and Dutch phraseological units by CLIL and NON-CLIL French-speaking learners.

This doctoral dissertation primarily falls into the field of phraseology. Corpus-based analyses of authentic language brought its phraseological character to light; a large proportion of language produced by native speakers is actually 'prefabricated', which means that proficient language users rarely produce utterances word by word, but mostly resort to chunks that seem to be stored that way in their mental lexicon, as suggested by research in psycholinguistics. S/FLA studies looking at the linguistic competence of learners of a second or foreign language agree to say that phraseological competence remains a stumbling block; even advanced learners struggle to be fluent and to produce a language that sounds natural and authentic because of their lack of intuition about the way words combine together in the second/foreign language. A large amount of input seems necessary to be able to use appropriately the many and varied word combinations that exist in a language.

The present work on learners' phraseological acquisition actually fits quite well into the usage-based and emergentist theories of language acquisition and this for several reasons. First, these theories consider language input as the driving force of language acquisition and even though their principles result from research on child language acquisition, evidence has shown that

similar learning mechanisms operate for older learners learning a TL. Since CLIL settings are believed to provide learners with more substantial input than NON-CLIL settings, one may expect them to enhance the learners' acquisition of phraseological units. Second, usage-based approaches are particularly relevant for the analysis of phraseology as they acknowledge the importance of multi-word units in language learning; formulas are actually considered as the first building blocks in the language construction process. In addition, they reject the lexis-grammar dichotomy and multi-word units are located at the interface of lexicon and grammar.

As shown in the summary table below, this doctoral dissertation aims to answer three main research hypotheses that are further broken down into specific research hypotheses in each empirical chapter. All of them focus on the TL phraseological competence of CLIL and NON-CLIL learners. Some of them relate to case studies addressing the effect of other variables on the acquisition of phraseological units (the frequency of the collocation in Chapter 6, and formal/informal TL exposure, general vocabulary knowledge, socio-economic background and non-verbal intelligence in Chapter 7). The main hypotheses were formulated on the basis of previous research showing the advantages of the CLIL approach for S/FLA and the results of a pilot study that had been carried out beforehand. The pilot study investigated the learners' global written competence in their TL, but also in their L1, as the effect of CLIL on the mother tongue appears to be a key issue in CLIL research (see Chapter 3, Section 3.2.).

Pilot study's research hypotheses: • We expect CLIL learners to show a higher level of global written competence in the TL English/Dutch; • We expect CLIL and NON-CLIL learners to perform equally well in their L1 (French).
Research hypothesis (1): We hypothesize that the TL productions of CLIL learners will be more phraseological (and target-like) than that of NON-CLIL learners, i.e. they will produce more phraseological units and display higher phraseological accuracy. <i>Specific research hypotheses (Chapter 5):</i> • The phraseological language of CLIL learners will display a greater range of phraseological units; • The phraseological language of CLIL learners will be more accurate.
Research hypothesis (2):

We hypothesize that both the CLIL and the NON-CLIL learners will show improvement in their phraseological language after a period of two consecutive school years, with CLIL learners displaying greater progress.

Specific research hypotheses (Chapter 5):

- The CLIL and the NON-CLIL learners will perform better at Time 2, both in terms of frequency of use and accuracy;
- The CLIL learners' TL phraseological language will improve more than that of NON-CLIL learners, both in terms of frequency of use and accuracy.

Research hypothesis (3):

We hypothesize that the receptive phraseological knowledge of CLIL learners will be greater than that of NON-CLIL learners.

Specific research hypotheses (Chapter 6):

- The CLIL learners will perform better at the receptive test;
- The frequency of the collocation and its degree of similarity with the L1 (congruence) will have an impact on the results.

Specific research hypotheses (Chapter 7):

- CLIL is positively related to the learners' receptive phraseological knowledge;
- Formal and informal TL exposure are positively related to the learners' receptive phraseological knowledge;
- General vocabulary knowledge is positively related to the learners' receptive phraseological knowledge;
- The learners' socio-economic status and non-verbal intelligence are positively related to the learners' receptive phraseological knowledge.

These research hypotheses are addressed using a combination of corpus-based analyses and experimental methods. Both the productive and receptive phraseological knowledge of the learners are scrutinized and the collection of longitudinal data will allow for an analysis of the learners' linguistic development. The influence of a number of predictor variables is also considered. The investigation of the learners' phraseological productive knowledge is not limited to one specific type of word combination (as it is often the case in phraseological research), but takes into account a large array of multi-word units. In addition, unlike previous research on the acquisition of phraseology in a TL that mostly focused on English, the present

study also looks at Dutch, which is one of the official languages in Belgium. All these features contribute to the originality of the present doctoral dissertation.

Another innovative aspect of the present doctoral research is that it pays attention to the phraseological competence of CLIL learners, and therefore looks at their linguistic competence beyond the word level. The large number of studies on CLIL has mainly been concerned with various aspects of language proficiency such as vocabulary (at the single word level) (e.g. Zydatiś, 2007; Jexenflucker & Dalton-Puffer, 2010; Lo & Murphy, 2010; Ruiz de Zarobe, 2010), writing skills (including morphosyntactic aspects, spelling, tense, pragmatic awareness, etc.) (e.g. Jexenflucker & Dalton-Puffer, 2010; Ruiz de Zarobe, 2010), or oral skills (including fluency and phonetics) (e.g. Admiraal, Westhoff & de Bot, 2006; Zydatiś, 2007; Lasagabaster, 2008; Ruiz de Zarobe, 2008). Research into the lexical competence of CLIL learners at the phraseological level is scarce.

The present doctoral dissertation is organized in two main parts and seven chapters. The first part (“Part 1: Theoretical background”) is devoted to the theoretical contextualization of the study and includes three theoretical chapters. The second part (“Part 2: Acquiring phraseological units: research hypotheses, methodology and results”) consists of a methodological chapter and three empirical chapters.

Chapter 1 entitled “Phraseology in second/foreign language acquisition” first reviews the current issues in the field of research on phraseology – its definition, identification, variation according to the communication mode as well as its acquisition and teaching – and then discusses the methodological approaches used for the analysis of phraseological language. The chapter also reports results from previous research conducted on the phraseological competence of TL learners.

Chapter 2 (“Second/foreign language acquisition”) presents the important theoretical principles to language learning that frame the present research. It introduces the major tenets of the usage-based and emergentist approaches to first language acquisition and their applications to S/FLA. It also discusses important learner-related factors such as age, motivation, and cognition.

In Chapter 3, “Content and Language Integrated Learning (CLIL) in French-speaking Belgium”, we first introduce CLIL and draw attention to a number of differences between this educational approach and other types of immersion programs and mainstream target language learning contexts. We then focus more closely on the situation in French-Belgium and provide a short overview of studies that were previously carried out on CLIL in French-speaking

Belgium. After that, we describe the main objectives and research lines of the overarching multidisciplinary project on CLIL in which the present doctoral research is framed. Finally, we explain the contribution of the present thesis to the overall project.

Chapter 4 deals with the methodological aspects of the study. First, the results of a pilot study investigating the global written competence of CLIL and NON-CLIL learners in their target languages English and Dutch and their first language (L1) French are described. Then, the main research hypotheses are formulated on the basis of the pilot study's findings and the theoretical chapters outlined above. We also provide a detailed description of the participants who took part in the study, the different types of data that were collected, the taxonomy of phraseological units that was used for the extraction and analysis of the learners' phraseological language, and the research design.

In Chapter 5, "Productive phraseological competence", we investigate the productive phraseological competence of the CLIL and NON-CLIL learners in the two target languages on the basis of corpus data in the form of semi-spontaneous written productions. The chapter also includes an analysis of the longitudinal development of the learners' phraseological productions. The analyses include quantitative measures of frequency, variety and accuracy.

Chapter 6 entitled "Receptive phraseological competence"¹ describes the findings of a study on the receptive knowledge of English and Dutch verb-noun collocations by CLIL and NON-CLIL learners. The learners' receptive collocational knowledge was tested using a receptive test in the form of a multiple-choice exercise.

Chapter 7 ("Effects of target language exposure and vocabulary knowledge on the acquisition of phraseological units") is a follow-up study to the previous chapter and aims to disentangle the effect of CLIL from other types of TL input (number of years of target language instruction and frequency of informal contact with the target language outside school). The relation between the learners' overall productive and receptive vocabulary knowledge and receptive collocational knowledge is also assessed. Two variables related to the learners' individual background (socio-economic background and non-verbal intelligence) are also controlled for.

¹ The fact that the analysis of the learners' receptive phraseological knowledge is dealt with after the learners' productive phraseological knowledge is explained by the chronological order of the data collections (the productive data were gathered before the receptive data). In addition, while the investigation of the productive data involves a wide range of phraseological units, the receptive data focus on only one specific type of lexical collocations, i.e. verb-noun collocations.

The doctoral dissertation ends with a recapitulative overview of the results as well as a discussion of the findings with respect to other outcomes produced within the framework of the encompassing research project. A number of limitations are exposed and future avenues for research are provided.

CONCLUSION

The present doctoral dissertation was part of a multidisciplinary project on CLIL in French-speaking Belgium and contributed to the project's linguistic research line by investigating the acquisition of phraseological units in English and Dutch by French-speaking learners in CLIL and NON-CLIL contexts.

Previous research on the linguistic outcomes of CLIL has largely focused on vocabulary at the single word level. The lack of focus on phraseological competence constituted a gap in the literature on CLIL as both L1 and S/FLA studies have demonstrated that authentic language is in essence phraseological: it is made of words that combine together and constitute one lexical choice rather than of separate lexical items that are put one next to another. Besides, phraseological competence is closely linked to linguistic competence in first and second/foreign language acquisition as it helps achieve fluency and facilitates the development of receptive and productive skills. Prior studies looking at the phraseological competence of learners acquiring a TL have shown that phraseology remains a stumbling block, even for advanced learners. The limited amount of input provided to learners in instructed settings does not allow them to become aware of the frequency with which some words co-occur. Interferences from the mother tongue also throw a spanner in the works of the learning process. The CLIL approach being considered as a more implicit and input-rich type of approach to learning, it seemed interesting to examine its effect on phraseology.

More specifically, **three main research hypotheses** guided the present doctoral research. These were **formed according to prior work done in the field of phraseology (Chapter 1), insights provided by the usage-based and emergentist theories of language acquisition (Chapter 2), existing research carried out on CLIL (Chapter 3), and results from a pilot study into the learners' global written competence (Chapter 4, Section 4.2.)**. The first hypothesis predicted that CLIL learners would display a higher phraseological competence in terms of frequency of use and accuracy when writing in the target languages English and Dutch. The second hypothesis was concerned with the learners' phraseological development over time. We expected both CLIL and NON-CLIL learners to increase their phraseological production and accuracy over the course of two consecutive school years, with CLIL learners showing more substantial gains than their NON-CLIL peers. The third hypothesis concerned the learners' receptive knowledge of verb-noun collocations and foretold that CLIL learners would score better at the receptive collocational test. These research hypotheses were tested out on the

basis of corpus-based and experimental data, as explained in Chapter 4. The results of the analyses were presented in Chapters 5 to 7.

Chapter 5 presented the findings of two related studies: 1) a cross-sectional analysis of the learners' phraseological productions, and 2) a longitudinal analysis of their phraseological development over time. The cross-sectional study showed that CLIL learners significantly produced a higher number (and a wider range) of phraseological units and that they significantly made fewer phraseological errors than NON-CLIL learners. The difference between the groups was larger in Dutch. The longitudinal study revealed slightly different patterns according to the TL. The CLIL and NON-CLIL learners of English significantly increased their phraseological production in a number of categories, but larger gains were found in the NON-CLIL group. As for Dutch, the NON-CLIL learners significantly increased their production of phraseological units in a large number of categories, while the CLIL learners significantly decreased in a small number of categories. No clear trend was found in terms of accuracy.

Chapter 6 reported the outcomes of a study investigating the learners' receptive knowledge of one specific type of phraseological units, namely verb-noun collocations. The results of the multiple-choice test demonstrated that the CLIL learners of English and Dutch have acquired a higher receptive knowledge of verb-noun collocations than the NON-CLIL learners. The study also showed that the collocation itself had an influence on the type of answer given to the test. Further analyses revealed that, for English, the frequency of the collocation (measured in a reference corpus) was significantly related to the learners' receptive collocational knowledge. A qualitative analysis showed that congruence also appeared to play a role. On the whole, English and Dutch congruent collocations, i.e. collocations that have a direct translation in the learners' L1, were more easily retrieved by the learners. However, collocations with a more restricted meaning or collocations composed of low frequency items seemed to cause more trouble. In relation to that, CLIL learners appeared to make a more correct use of positive transfer, even when the collocation had a less core meaning.

Chapter 7 presented the results of a follow-up study to the analysis of the learners' receptive collocational knowledge (Chapter 6), which examined the actual effect of CLIL on the receptive knowledge of verb-noun collocations when considering the influence of general vocabulary knowledge (receptive and productive), two other input-related variables (duration of TL instruction and current informal contact with the TL outside school), and two control variables (learners' non-verbal intelligence and socio-economic status). The results of the regression analyses showed that CLIL remained a significant predictor of the learners' receptive

knowledge of verb-noun collocations in Dutch after considering the impact of the other variables. The learners' SES, the number of years they spent learning the TL, and their receptive and productive vocabulary knowledge were also significant predictors. As for English, the only remaining predictive variable of the learners' receptive collocational knowledge was their global receptive vocabulary knowledge.

The results derived from these studies largely corroborate our first and third hypotheses. In fact, the **CLIL learners of English and Dutch showed a higher phraseological competence at the productive and receptive level.** This was shown by a greater use of phraseological units in their written productions and by a higher level of accuracy of their phraseological language. Regarding their receptive knowledge, the CLIL learners significantly scored better at the multiple-choice test, although we have seen that the educational setting was not the only significant predictor of the learners' knowledge of verb-noun collocations. **However, the results do not seem to support our second hypothesis since the phraseological language of the CLIL learners did not develop substantially after two consecutive years of TL learning.** Both CLIL and NON-CLIL learners of English actually increased their phraseological production, but the latter more than the former. The NON-CLIL learners of Dutch increased their production of phraseological units, while a decrease was found in the CLIL group. There was no clear improvement in the accuracy of their phraseological language.

A first observation that can be made on the basis of the different studies carried out in the present doctoral dissertation is that **the difference between the CLIL and the NON-CLIL learners is recursively greater in Dutch than in English.** In fact, our preliminary study on the learners' general written proficiency (Chapter 4, Section 4.2.) had already pointed out a greater disparity between the learners of Dutch than between the learners of English, and this appeared to be confirmed at the phraseological level. Moreover, Hendrikx (2019) observed the same tendency while carrying out her doctoral research on the acquisition of intensifying constructions by the same learners. One possible explanation could lie in the socio-economic background of the learners. Van Mensel et al.'s study (2019) into the socio-economic profile of the participants revealed that the differences between the groups were even more substantial in Dutch, with the Dutch CLIL track being the most 'selective' (as already mentioned in Chapter 7). This may thus explain the larger differences found at the linguistic level between the two Dutch learner groups. Another possible reason might be related to the learners' motivation and attitudes towards the TL – Chapter 2, Section 2.4.2. discussed the paramount role of such

learner-related variable in S/FLA. Besides, De Smet's (forthcoming) doctoral research on socio-affective factors carried out in the framework of the project revealed different findings according to the TL. In fact, the learners of English reported significantly more enjoyment and less anxiety (De Smet, Mettwie, Galand, Hiligsmann & Van Mensel, 2018) as well as more positive attitudes and a higher motivation (De Smet, Mettwie, Galand, Hiligsmann & Van Mensel, submitted) than the learners of Dutch. In sum, the fact that the Dutch CLIL track seems to appeal to learners coming from more privileged families, combined with the fact that English is associated with positive emotions and a higher motivation (no matter the educational approach), probably partly explains the greater differences found between the learners of Dutch at the linguistic level.

Second, although a series of positive linguistic outcomes were found in favor of the CLIL groups throughout our different studies, the longitudinal results did not live up to our expectations. In fact, **the CLIL setting did not seem to speed up the progress in phraseological competence of the learners, as we would have expected.** The additional hours of TL input the CLIL learners received during two consecutive school years did not seem to be sufficient to widen the gap between them and their NON-CLIL peers. Second language settings – where learners are immersed in a L2 environment for an extended period of time – probably remain the best language learning contexts in order to develop a native-like command of phraseological language since they provide learners with maximum opportunities for repeated exposure to multi-word units (Groom, 2009; Reppen, 2009). Nevertheless, introducing variability in the task (e.g. changing the text type or genre) could have brought about larger differences or have uncovered different types of development. As suggested in Gentil and Meunier's (2018) longitudinal study on nominalizations in L2 academic writing, whilst controlling for genre allows to compare the evolution of use of a specific linguistic feature, collecting writing sampled from a different genre can provide interesting insights related to varying genre demands.

While the cross-sectional study revealed a clear **advantage in the CLIL groups** in terms of frequency of production of phraseological units, this was **less obvious regarding the accuracy of their phraseological language.** Despite the fact that CLIL learners made fewer phraseological errors on the whole, a look at the different types of phraseological errors produced by the learners showed that some mistakes were equally found in the CLIL and NON-CLIL learners' productions (e.g. wrong selection of (non-)existing words in English, creation of deviant verbs, or prepositions missing in Dutch) (see Chapter 5). Also, no substantial

development in the quality of the learners' phraseological productions was noticed. This is in line with prior research on the (development of) phraseological competence of TL learners in general; accuracy very often tends to lag behind and to be an almost inevitable negative consequence of an increased phraseological productivity. In our case, this is possibly related to the informal nature of the tasks; the learners were asked to write as spontaneously as possible to a friend about a casual topic. Besides, they were repeatedly reminded of the non-evaluative character of the exercises. It may also be due to the CLIL approach itself, that is characterized by a more natural and communicative way of learning and that would therefore favor fluency over accuracy and an explicit treatment of errors. As mentioned in the theoretical part of this thesis (see Chapter 2, Section 2.3.3.), research into the CLIL classroom discourse has actually pointed to a lack of form-focused feedback. Significantly more language errors are found in the productions of CLIL learners (Hampl, 2011) and errors appear to be much less treated in CLIL than in traditional TL classrooms (Lochtmann, 2007; Schuitemaker-King, 2012). When attention is paid to accuracy in CLIL lessons, this is mostly done implicitly (Dalton-Puffer, 2007; Hampl, 2011); very few instances of metalinguistic feedback were reported in CLIL compared to NON-CLIL settings (Schuitemaker-Ring, 2012). An analysis of the data collected from the classroom observations made in some of the schools participating in the project (which goes beyond the scope of the present thesis) could probably support or reject this hypothesis.

Third, the follow-up study carried out in Chapter 7 demonstrated how **crucial** it is **to consider a number of other variables when researching CLIL**. The regression analyses actually showed that, at least for the learners' receptive knowledge of verb-noun collocations, it is their general (receptive) vocabulary knowledge that turned out to be the best and strongest predictor. That study also showed that part of the variability between the learners remained unexplained (especially for those learning English), which means that other variables still need to be taken into account. Actually, we cannot state with certainty that the better results found in CLIL in the present thesis are necessarily due to CLIL per se. It may be that the CLIL approach crystallizes a number of factors that are favorable to language acquisition and the present research design does not allow us to rule them out. One of the most obvious factors is the **greater exposure to TL input**. As we have seen in Chapter 2, *usage-based approaches* consider input as key to a target-like acquisition of the language. The extra hours of exposure provided in CLIL may have reinforced the *entrenchment* of multi-word units in the learners' mental lexicon. Another possible factor would be related to the fact that CLIL appears to attract learners with a **'better' profile**. Even though no official selection procedures are permitted in

French-speaking Belgium, Van Mensel et al.'s study (2019) into the socio-economic profile of the learners involved in the project (and therefore in the present thesis) seemed to demonstrate the existence of (self-)selection processes, with CLIL schools attracting learners from socially privileged families. Their study showed that the two learner populations (CLIL/NON-CLIL) significantly differed in terms of socio-economic background and school trajectory; the CLIL learners are coming from families with a higher socio-economic background and tend to be more successful at school (less repetitions of school years). The learners' **motivation** can arguably be taken into account too. What we know from the project's research line on socio-affective aspects is that the CLIL learners who took part in the study experienced less anxiety, reported more positive attitudes towards the TL and displayed a higher motivation to learn the language than their NON-CLIL peers (De Smet et al., 2018; submitted). Causal relationships between socio-affective factors and the acquisition of phraseological units have not been clearly established, but a study carried out by Dörnyei, Durow and Khawla (2004) recognized motivation as one of the factors influencing the learning and use of phraseological language. Other explanations may relate to educational aspects, such as **teaching practices**. It may be that the CLIL learners' attention has been more explicitly drawn to phraseology as part of explicit vocabulary teaching. In fact, observations made in some classrooms showed a CLIL teacher (native speaker of Dutch) explicitly drawing his learners' attention to the phraseological behavior of words in the feedback he gave to them after an oral exercise and expanding his learners' vocabulary by encouraging them to find synonyms. This teaching practice undoubtedly fosters language processing and acquisition, as we have seen that *explicit learning* or *focus-on-form* activities are as important for the acquisition of phraseological units as *implicit learning* or a more *focus-on-meaning* type of instruction for word combinations that are not very *frequent, salient, or prototypical*. In sum, while the amount of exposure to the TL clearly plays a role, findings observed in the other research lines of the project and related to socio-linguistic, motivational and educational aspects show how important it is to take a more holistic approach to CLIL, as a large number of factors seem to be at work.

A series of **limitations** have to be noted. A first limitation relates to the fact that only one methodology was used to analyze the learners' productive phraseological language (see Chapter 4, Section 4.6. for a reminder of the extraction and classification procedure). The approach adopted in this doctoral research was mostly based on frequency and the classification made according to the type of phraseological unit (cf. Granger and Paquot's 2008 taxonomy). It gave us interesting insights into the frequency, variety and accuracy of the learners' phraseological

language. However, literature shows that research carried out in the field of phraseology may yield different findings according to the criteria selected by the researcher for distinguishing between phraseological units and non-phraseological ones (Granger & Paquot, 2008). A study carried out by a Master's student (Dupal, 2018) made it possible to apply a different methodology (and therefore different selection criteria) to the same learner written data as the ones used in the present thesis. The *IdiomSearch* tool² was used to extract and classify the phraseological units produced by the learners. Based on a 200-million token corpus of reference, the tool retrieves and classifies the learners' phraseological units according to two different criteria: frequency (frequent/not frequent) and degree of fixation (fixed/partly fixed/very fixed), the latter criterion giving an idea of the complexity of the phraseological units produced by the learners. The study allowed the extraction of about 30% more phraseological units, but the general findings remained the same for frequency of use and variety (the phraseological errors were not analyzed). A follow-up study (Meunier & Bulon, in preparation) on additional data also allowed us to show that using two different methodologies when analyzing the same learner data yielded similar results in this case, which reinforces the validity of the results found in the present thesis. A second limitation concerns our longitudinal study, which consisted of only two data collection points (Chapter 5). Actually, our research might not be considered as 'longitudinal' for some authors. Ployhart and Vandenberg (2010, p. 97) define longitudinal studies as: "emphasizing the study of change and containing at minimum three repeated observations on at least one of the substantive constructs of interest". Given the amount and variety of data that had to be collected for the different research lines of the project, it would have been quite challenging – both for the participating schools and the research team – to collect more longitudinal data from the learners. Moreover, a period of 18 months has passed between the two data collection points, which leaves room for potential changes to take place. In addition, Hendrikx' doctoral research (2019) focusing on the acquisition of intensifying constructions by the same learners also included a longitudinal study that revealed the same tendencies as those presented in the present manuscript, which also reinforces our findings. A last limitation has to do with the receptive tests (Chapter 6). The test used for English has been the object of seven empirical studies aiming at its design, its use and the evaluation of its effectiveness and has eventually been reported to yield valid and reliable scores of receptive knowledge of English collocations with upper-secondary school Swedish learners

² Colson, J. P. (2017). The *IdiomSearch* Experiment: Extracting Phraseology from a Probabilistic Network of Constructions. In R. Mitkov (Ed.), *Computational and Corpus-Based Phraseology. EUROPHRAS 2017. Lecture Notes in Computer Science* (pp.16-28). Springer, Cham.

(Gyllstad, 2007). No tried and tested receptive test could be found for Dutch, though, and even if a pre-test was carried out with first year university students, the reliability of the results for Dutch may be reduced. Having said that, both tests seem to have been able to distinguish between CLIL and NON-CLIL learners' collocational knowledge, which is what we wanted to achieve.

Current (post-thesis) work is being carried out to investigate the learners' **spoken phraseological language** in the two language learning conditions (CLIL and NON-CLIL) and to make a comparison with their written phraseological language. Studies comparing CLIL and NON-CLIL learners' phraseological written competence are scarce, but those looking at their spoken phraseological productions and comparing these with their written productions are, to our knowledge, inexistent. According to Paquot and Granger (2012, pp. 142-143), "in spite of the flurry of learner-corpus-based studies on the L2 phrasicon, some important areas are still largely underexplored [...] there is a need for more investigations of the L2 spoken phrasicon which is interesting in its own right but will also allow for useful comparisons with the L2 written phrasicon". As more quantitative and qualitative analyses need to be carried out (see Bulon, forthcoming), the study has not been the object of an empirical chapter in the present thesis. It is however interesting to mention that initial results show that, when we compare the learners' written and spoken productions, we find significantly more phraseological units in the written corpus (with a significantly higher number of *referential phrasemes* and *textual phrasemes*). However, we find significantly more *communicative phrasemes* in the spoken corpus, which is consistent with this type of communication mode. When we compare the spoken productions of CLIL and NON-CLIL learners, we observe significant differences in favor of CLIL. The CLIL learners of English significantly produce more *lexical collocations* and *attitudinal formulae* than their NON-CLIL counterparts and the CLIL learners of Dutch significantly use more phraseological units in total, more *referential phrasemes* and *textual phrasemes*, and more *lexical collocations* and *grammatical collocations* than their NON-CLIL peers. Examples of *attitudinal formulae* that were exclusively used by CLIL learners of English are personal stance expressions such as *I guess (that)*, *I would prefer* or *I have to admit that*, discourse markers such as *you see what I mean* or *the thing is that*, hedges such as *kind of* or *sort of*, indirect forms such as *would you prefer* or *I thought you could*, or special conversational expressions such as *well then* or *okay well*.

Other **avenues for future research** are, among others, the potential influence of a number of other variables, as previously discussed. One of these is the teacher effect. A qualitative analysis

of the classroom observations made in some of the secondary schools is in order as we have noticed interesting practices (e.g. drawing the learners' attention to phraseology, as described above). In addition, an analysis of the data collected via the teacher questionnaires and related to the teachers' professional background (proficiency in the TL, teaching experience and training) should reveal itself interesting. In fact, we know that some CLIL teachers were native speakers of the TL, while others were not, despite their very good level in the TL. It would therefore be interesting to see whether this difference leads to differences in phraseological knowledge within the CLIL group of learners. Another important aspect related to the teachers is the methodological CLIL training. According to Paran (2013), one of the factors contributing to the success of CLIL is the teachers' education in CLIL and their understanding of the links between language and content. A recent study conducted by Alcaraz-Mármol (2018) with trained and non-trained CLIL teachers in Spain showed that methodological training made significant differences in terms of teachers' attitudes about CLIL efficiency for learning, the type of activities and materials used in class and the use of the L1. In French-speaking Belgium, no specific training is required to teach in a CLIL program but schools and teachers have collaborated with academics since 2005 to develop their own pedagogical toolkits and an 'immersion teaching certificate' can be obtained since 2014 in some universities (see Chapter 3). It is therefore possible that some teachers had received some training and others not. Closely related to this issue is the degree of commitment of the schools in the implementation of their CLIL programs. The frequency of contact and collaboration between the content teachers and the language teachers may vary from one school to another. Some schools also seem to provide for a person in charge of the coordination of the CLIL programs, but this is not always the case. The schools may also differ in the availability of material resources that are appropriate for the learning of target languages, such as language labs, computer rooms, data projectors, interactive boards, etc. A thorough analysis of the data collected from the teacher and school principals questionnaires should provide interesting insights into these matters. A last potentially relevant variable is the content of the teaching materials. In a study of the acquisition of the English passive in German CLIL and NON-CLIL learners, Möller (2017) analyzed the textbooks used in the two educational settings and found that the passive was more prevalent in CLIL materials. Another possible avenue to explore would involve a detailed analysis of transfer effects on the learners' phraseological language by means of a CIA (Granger, 1996; see Chapter 1, Section 1.5.1.2.). Traces of potential interferences from the learners' L1 (French) have been observed several times in this doctoral research and the data collected in the framework of the project lend themselves to this type of analysis. In fact, written data from native speakers of English

and Dutch have also been collected using the exact same task. Comparisons between L1 productions from learners (viz. French) and from native speakers of the target languages (viz. English and Dutch) can be made in order to identify cross-linguistic differences and possible difficulties for the learners. The TL productions from the learners (English and Dutch) can then be compared to the native speakers' L1 productions to see to what extent and how their interlanguage differs from the native speakers' L1. Finally, a comparison between the learners' L1 and TL productions can be drawn to find possible transfer effects from their L1. This would help establish transfer with a higher degree of confidence. Also, having investigated the learners' phraseological language based on production data, we only had access to 'learner-external' sequences, that is the linguistic patterns produced. The use of devices such as keystroke logging (Strömqvist, Holmqvist, Johansson, Karlsson & Wengelin, 2006), which records keyboard activities during the learners' writing process, would give us access to 'learner-internal' patterns. Previous studies' results seem to point to differences between what appears to be a phraseological unit in the learner's end product and how it is internally stored in his/her holistic lexicon (Meunier, forthcoming). Similarly, an analysis of the pauses in the learners' oral interactions would be valuable for psycholinguistic research. In fact, another accepted characteristic of phraseological units is that they are articulated in a fluent manner with a 'normal' intonation contour (e.g. van Lancker, Canter & Terbeek, 1981); in other words, they should be produced as a single intonation unit (Lin, 2010). Hesitations found between words within a phraseological unit (for example: *as a matter* (1 second pause) *of fact*) would be evidence that phraseological units are not holistically stored in the learners' mind. Another interesting avenue for research would be to replicate the study described in Chapter 5 using written data from different text genres in order to reveal different types of development in the learners' phraseological competence. Finally, it could be interesting to scrutinize the data for grammatical aspects, since a lack of focus on learner grammar development in LCR has been pointed out (Rankin, 2015).

