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A comparative study of writing proficiency between an Austrian CLIL and mainstream EFL class with regard to vocabulary.

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Despite the generous support of others, any remaining mistakes and deficiencies are mine alone.

Declaration of authenticity

I confirm to have conceived and written this Master thesis in English all by myself. Quotations from other authors and any ideas borrowed and/or passages paraphrased from the works of other authors are all clearly marked within the text and acknowledged in the bibliographical references.

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Abbreviations and symbols

used in this thesis

BiLi	Bilingualer Sachfachunterricht
CBI	Content-based Instruction
CLIL	Content and Language Integrated Learning
	CLIL student
CLIL-E	CLIL English native speaker(s)
CLIL-G	CLIL German native speaker(s)
CLT	Communicative Language Teaching
D	difference (between adjusted and original samples)
$\overline{D}$	mean difference
df	degrees of freedom
EAA	Englisch als Arbeitssprache
E	English
EFL	English as a foreign language (mainstream);
	mainstream student
EFL-G	(mainstream) German native speaker(s)
FL	foreign language
G	German;
	grammar
H_0	null hypothesis
H_a	alternative hypothesis
L1	first language (= native language, mother tongue)
L2	second language (= foreign language)
M	mean

$n, \ n_1, n_2$	number of subjects in a given sample
p	p-value
p.c.	per cent
RF	relative error frequency
S	spelling
$s, \ s_1^2, \ s_2^2$	variance of a given group
S_{D}, s_d	standard deviation
SOS	Structural Oral Situational Language Teaching
SPSS	Statistical Package for the Social Sciences
t	t-value
$t_{n-1; \ 1-\propto}$	critical value for paired t-test
$t_{n_1+n_2 -2; \ 1-\propto}$	critical value for unpaired t-test
TTR	Type-token ratio
V	vocabulary
$\bar{x}_1, \bar{x}_2$	group means
α	alpha-level, significance level
*	erroneous
¥	omission

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1. Introduction

In a multilingual society, foreign language learners often need to meet stringent linguistic requirements for various professional and academic fields. A high level of linguistic competence in a foreign language is essential for pursuing a successful career in both the local and the global economy. One effective way to encourage the use of foreign languages at a young age is through educational programs. *Content and Language Integrated Learning (CLIL)*[1] represents a commonly used approach to foreign language instruction that utilizes the target language as a means of instruction for other academic subjects. Although many foreign languages can be promoted by CLIL education, this study will exclusively focus on English instruction.

Constant exposure to language prepares students for the rising demands that their future professional careers will place on them and familiarizes them with a natural way of using a language. Acquiring a language for productive usage, such as writing, is more challenging than for receptive knowledge, but it is crucial to acquiring high proficiency in that language. This study will investigate the writing proficiency of two sets of secondary level students, one instructed using mainstream methods and the other using CLIL methods. The vocabulary range and lexical errors[2] identified in written samples from these students serve as the primary focus of this research. In order to account for the varied backgrounds of the participants, a questionnaire has been created to obtain relevant demographic information.

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[1] Even though 'CLIL' is the most common term used in Europe when referred to classes with English used as an instruction language in content subjects, there are various names for this kind of schooling. I will use the terms 'CLIL' and 'bilingual' program interchangeably since the distinctions in names, if any, are not relevant to my study. I do not intend to compare individual bilingual programs with one another, but with a mainstream class. The same applies to the use of the terms 'mainstream' and 'EFL', which I will use equivalently. For a detailed distinction between *bilingual* schooling and *CLIL* see Section 4.1

[2] In this thesis no distinction is made between the use of *error* and *mistake* since the differences between them are not of research interest. For the sake of completeness, however, the distinct definitions are given by Peterwagner (2005: 6) who describes 'errors' as "result[ing] from gaps in knowledge of the learners' target language", and 'mistakes' as "the learners' inability to use what they actually know of the target language".

This study addresses the following questions:

- ❖ Do CLIL students show a larger vocabulary range than mainstream EFL students?
- ❖ What differences in writing proficiency do native English and German speakers in the CLIL and EFL classes demonstrate?

The first part of this paper establishes the theoretical background for this study, and focuses on the construct of vocabulary and its use by CLIL and EFL learners. It also discusses the concept of lexical competence and gives a description of the two types of schooling under investigation. The second part of the thesis is devoted to the empirical research and presents a description of the empirical framework, the stages of analysis, and the results of the research revealing the differences in writing proficiency of the two groups of students.

Chapter 2 introduces the concept of vocabulary, its core component words and how they are related. It further discusses the topic of collocations since they present major difficulties to students learning new lexical expressions.

Chapter 3 discusses the process of learning vocabulary in the EFL classroom. It describes Brown and Payne's (1994) model for achieving productive knowledge of a word and states the most relevant approaches to vocabulary instruction (Coady 1997). The chapter outlines the historical progression of EFL learning and subsequently looks at foreign language learners' lexical competence with regard to their mental lexicon. It examines the lexical challenges students encounter and finally discusses spelling ability and its connection to lexical learning.

Chapter 4 introduces CLIL methods, including lexical learning strategies and various types of vocabulary input offered in CLIL classrooms. It covers the relevant facts about CLIL education in Austria and looks at the complex topic of lexical competence, as well as challenges faced by CLIL learners, both high proficiency foreign language learners and native speakers.

The final chapters discuss the empirical research. Chapter 5 covers the process of data collection and analysis of students' writing samples and questionnaires. Chapter 6, discusses the findings from the statistical analysis of the writing samples.

2. Defining vocabulary

Language teaching specialists generally agree that vocabulary is one of the most important aspects for foreign language learners to acquire since it is critical in conveying the meaning of a message. Vocabulary, in the abstract, represents a set of words for a language or a set of words that its speakers might use (Hatch & Brown 1999: 1). As the core components of vocabulary, words show close relations between each other on semantic as well as syntactic levels. Hence, a word includes more than just the meaning it conveys by itself because surrounding words may influence the meaning of an expression, which language learners must always be sensitive to.

A word as a "single unit of language" (*Oxford Advanced Learner's Dictionary* 2000: 1490), conveys meaning on its own and is not part of any linguistic pattern that might change the word's meaning in connection with other words. When using a language, however, combinations of words are formed, which may express a different meaning than the individual words convey by themselves. Therefore, the terms 'lexeme' or 'lexical item' seem more appropriate when referring to the use of words, in that they can refer to both "a separate unit of meaning" and "a group of words" (Widdowson 1996: 129).

True knowledge of a language involves both knowing the individual meanings of words as well understanding their semantic connections. Foreign language learners need to be consciously aware of the various meaning relations between words and include this complex information in their lexicon in order to successfully acquire the language. The semantic relations between words include the *syntagmatic* and *paradigmatic* dimensions, both of which contribute considerably to the lexical knowledge of a language.

Paradigmatic relations among words are represented by the vertical axis, which means they demonstrate "relations of contrast" (Fawcett 2000: 42)[3]. Words that do not occur

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[3] Carter and McCarthy (1988: 163) refer to lexical cohesion on the vertical axis as 'reiteration'. It "refers to different types of lexical item which, some in a more general sense than others, share the property of being related to a single common referent".

in the same sentence but that could potentially replace other words show a paradigmatic relation, such as *synonyms, antonyms* and *hyponyms*. Synonyms are words that express a similar meaning but that cannot always be interchangeably used since they may differ, for example, in terms of register. Antonyms relate to "the concept of polar opposition or contrasted words" (Wagensommer 2002: 17), and can be differentiated between 'gradable' and 'non-gradable' antonyms (cf. Yule 1996: 118). While gradable antonyms imply a relation between words (e.g. *old – young*), non-gradable antonyms include two extremes, of which one means the opposite of the other (e.g. *female – male*). An alternative distinction between different types of antonymy is made when referring to 'complementarity', 'converseness' and 'gradable antynomy' (e.g. Hedge 2000: 115). While gradable antonyms carry the same meaning as stated by Yule, complementarity implies "clear-cut" oppositions that correspond to Yule's non-gradable antonyms, and converseness involves the relations between two words that imply each other (e.g. *husband – wife)*. Hyponymy refers to a hierarchy including superordinate and subordinate words (ibid.: 116), where one includes the other, as is the case with *rose* and *flower*. The knowledge of paradigmatic relations between words is particularly useful for foreign language learners being assessed on lexical richness.

Syntagmatic relations between words represent a horizontal axis and, therefore, mean the collocational pattern of a language. *Collocations* "are made up of more than one word and are lexically and/or syntactically fixed to a certain degree" (Nesselhauf 2005: 1). Since learning lexical chunks is considered essential for the production of spoken and written language, collocations play a crucial role in lexical competence. They can be described according to two perspectives, one of which is the 'frequency-based approach', the other one the 'phraseological approach' (ibid.: 11f). The former considers collocations as "the co-occurrence of words at a certain distance" (ibid.: 11), and differentiates between collocations that occur frequently and those that occur infrequently in a corpus. Thus, the frequency-based approach emphasizes the importance of "computational analysis of syntagmatic relations" (ibid.:12). In the latter approach collocations are referred to "as a type of word combination, most commonly as one that is fixed to some degree but not completely" (ibid.). Sinclair (1991: 170), who represents the frequency-based approach, describes collocations as the words that are

co-occurring in a text "within a short space" meaning approximately four words on each side of a particular item (Nesselhauf 2005: 12). Those words are termed 'collocates' and do not necessarily have to be syntactically related but simply need to occur in a sequence. Depending on their frequency, Sinclair differentiates between 'significant' and 'casual' collocations. With regard to the phraseological approach, Cowie, a major proponent, differentiates between 'composites' and 'formulae', both of which represent word combinations that involve syntactic relations. Formulae serve a pragmatic function, such as social formulae in greetings, enquiries or invitations (e.g., cf. Cowie 1994: 3169; Peters 1983: 11). Composites, on the other hand, contain collocation patterns and fulfill "a primarily syntactic function" (Nesselhauf 2005: 14). Since composites are considered to be "semantically specialized, or idiomatic" (Carter & McCarthy 1988: 133), some can vary in *transparency*, meaning they carry either literal or figurative meaning. Transparency refers to "words whose meaning can be determined from the meaning of their parts, e.g. 'doorman'" (Laufer 1989: 11), while *deceptive transparency* involves the figurative meaning of words. Other composites are defined by their level of *commutability*, indicating "whether and to what degree the substitution of the elements of the combination is restricted" (Nesselhauf 2005: 14). While some collocations contain words that are easily interchangeable, others include figurative language items that cannot be substituted by alternative expressions (for a more detailed account see ibid.: 14f).

Knowledge of collocations is considered essential for learners when acquiring a foreign language. Surprisingly, however, Nesselhauf has found that the time of exposure to the foreign language does not correlate with students' higher proficiency in collocational knowledge:

> the more years learners have been exposed to English in the classroom, the fewer collocations they produce in relative terms. (ibid.: 235)

Similarly, it has been claimed that intensive exposure to a language on a regular basis is the only effective way to acquire a substantial command of figurative language. Based on collocational research, Arnaud and Savignon (1997) conducted a study with highly proficient

foreign language speakers of English and university-level L1 speakers in order to test them on their knowledge of idiomatic expressions (for a more detailed account see 1997: 157-173). The native speakers in this study performed better than the foreign language speakers, and the conclusion for this outcome was "that constant exposure to the language is necessary to acquire idiomatic knowledge" (Coady 1997: 282).

The use of vocabulary is essential in conveying the main idea of an utterance and therefore plays a crucial role in language learning. However, acquiring knowledge of the meaning of words is not sufficient if one wants to use a language in context. In order to become proficient, the meanings of individual words as well as the complex semantic and syntactic relations between them need to be learned. Lexical competence is also influenced by learners' paradigmatic and syntagmatic knowledge since the use of reiterations (Carter & McCarthy 1988) and collocations result in a greater lexical richness of language. Figurative expressions represent a major challenge to foreign language students as the expressions are not transparent in meaning and learning them requires constant exposure to the target language.

3. Vocabulary learning in the EFL classroom

Increasingly, research in vocabulary emphasizes the importance of lexical learning in foreign language classrooms[4] (cf. e.g. Albrechtsen, Haastrup & Henriksen 2008; Coady & Huckin 1997; Singleton 1999). This section will outline the main approaches to L2 learning strategies and describe a number of factors affecting vocabulary learning.

Vocabulary in the EFL classroom plays a very important role since it is crucial to conveying meaning and expressing one's ideas. Hence, students consider *words* to be important and are keen to learn them (Leki & Carson 1994; Sheorey & Mokhtari 1993 referred to in Coady 1997: 274). According to Coady (cf. 1997: 274), however, teachers generally feel that grammar is more difficult to acquire, and thus should receive a greater amount of attention. Vocabulary is viewed as something generally acquired incidentally[5] and therefore does not require as much teaching effort.

In order to become proficient in a language, vocabulary instruction is crucial for students. Coady (1997: 275) summarizes the 'main approaches to L2 vocabulary instruction', the most relevant paths foreign language learners follow when acquiring new vocabulary. Generally, the only opportunity mainstream students have to practice their language skills is in the foreign language class. This severely limits the degree to which new words can be acquired for productive use through incidental learning only. Quite often, therefore, learners need to intentionally study words in order to successfully acquire them. This process is emphasized in the following vocabulary learning approaches:

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[4] It is worth noting here that learning a foreign language (FL) means acquiring a non-native language outside the country where it is officially used; as compared to a second language (L2), which represents a non-native language that is officially spoken in the country where it is learned. However, since the similarities between SL and FL will be considered more significant than their differences in this study, the terms will be used interchangeably.

[5] For a more detailed description of *incidental* learning see Section 3.2.

1. Contextual acquisition approach
2. Strategy instruction
3. Development plus explicit instruction
4. Classroom activities (cf. Coady 1997: 275-281)

The first approach posits that foreign language learners need only context from which to draw new vocabulary. For the *contextual acquisition approach,* intentional vocabulary instruction is not needed to learn vocabulary because students learn vocabulary, as well as spelling, through extensive reading input (cf. ibid. 275, see also Krashen 1989). A major proponent of L2 learning exclusively through context is Krashen, who argues for the importance of the *Input Hypothesis*, which theorizes that a language can only be acquired through exposure to comprehensive input (cf. Krashen 1989; Lightbown & Spada 1999: 39).

Pertaining to vocabulary learning through reading, research suggests that the amount of incidental vocabulary learning "can become big if learners read large quantities of comprehensible text" (Nation 2001: 149). Although contextual vocabulary learning has been demonstrated to have a positive effect on L2 acquisition, Coady (1997: 229) suggests that beginners of a foreign language cannot simply start learning vocabulary through reading input alone since "they do not know enough words to read well". Consequently, he divides vocabulary that is encountered through reading into three 'developmental categories' (ibid.: 231):

- Vocabulary of which the form and meaning are automatically recognized, even without context, and which contains medium-to-high frequency words that a learner has already acquired through frequent exposure (sight vocabulary);
- Vocabulary of which the form and meaning are familiar to some degree but are only recognized when encountered in context; it contains less frequent words that have often been acquired incidentally through extensive reading;
- Vocabulary of which the form and meaning are unknown and which has to be guessed from context, looked up in a dictionary, or just left uncomprehended (cf. ibid.: 231f).

Coady's second category is *strategy instruction*. The question is whether foreign language students are able to acquire vocabulary through context alone. Since a foreign language is often learned for academic purposes (ibid.: 286), students want to achieve a high proficiency level within a few years. Hence,

> [s]tudents find it very useful to be given strategies for improving their learning and to be made aware of both content and methodological goals and processes. (ibid.)

This approach acknowledges that context is a major source of lexical learning but direct learning strategies are still needed to support foreign language learners. High proficiency learners were found to use more vocabulary learning strategies than low proficiency learners (cf. Ahmed 1989 referred to in Coady 1997: 277). Advanced learners of a foreign language appear to use contextual learning as well as vocabulary strategies for acquiring new lexical items.

The third position that Coady mentions is *development plus explicit instruction*. This approach is typically intended for beginners of a foreign language because it supports the explicit instruction of high-frequency vocabulary items. This strategy is recommended for the early stage of acquisition whereas later stages require more context-based approaches (Coady 1997: 279).

The final vocabulary learning strategy emphasizes the importance of *classroom activities* since mainstream students are usually exposed to a foreign language only during class. Language activities should be age-appropriate for the learner and appeal to their needs (cf. Allen 1983 referred to in Coady 1997: 281). Classroom activities can be applied to any teaching method as long as the teacher considers the level of language proficiency of the students. Since classroom activities should focus on different types of learners as well as their different sensibilities, activities are supposed to appeal to 'anchors' (Gerngross & Puchta 1995: 108), such as the auditory, visual, kinaesthetic and second visual (orthography). In this way, students experience words with multiple senses and are more likely to memorize them.

The number of distinct lexical learning strategies described above indicates that foreign language learners must gradually acquire vocabulary by being exposed to different forms of *input*. Input is

> the way in which vocabulary presents itself to learners, for example through teacher presentation, reading words in texts, learning words during peer exchange, or through self-access work of some kind. (Hedge 2000: 118)

Vocabulary input is determined by the features of *frequency, pronunciation* and *contextualization* (cf. ibid.: 188ff). Previously it was noted that the frequency with which a new word occurs in a text is crucial, in the sense that materials that include the same word multiple times are easier for foreign language students to understand. *High-frequency words* are generally the most essential words for a learner to acquire because "these words cover a very large proportion of the running words in spoken and written texts and occur in all kinds of uses of the language" (Nation 2001: 13). Frequency of input is also beneficial to students' foreign language proficiency since the "[r]epetition of words in materials can aid the process of lexical inferencing" (Hedge 2000: 119).

Another feature of input is *pronunciation,* which is of great importance for foreign language students. Since learners are not constantly exposed to the target language, they rely on pronunciation practice in class. This means learners should be provided with a model of pronunciation in order to become familiar with the correct intonation of words. *Contextualization*, the third feature of input, is advantageous for inferring meaning from context. When learners gain higher language proficiency, they are able to infer a word's meaning from its context, since they are able to understand the language surrounding it.

The various factors that affect vocabulary learning in the foreign language class need to be considered by the teacher, who also needs to be aware that L2 learners have different academic needs than students learning their L1. Although different types of learner personalities prefer different lexical learning strategies, it is important that students are exposed to various kinds of instruction in order to successfully acquire productive knowledge of words.

3.1. Describing EFL

The different strategies used in the EFL classroom today relate to historical trends in foreign language learning. The development of lexical learning from a historical point of view reflects the role of vocabulary within different pedagogical frameworks. It is seen that vocabulary has been increasing in importance with regard to teaching a foreign language. This section provides an overview of distinct historical trends in EFL teaching, which together constitute the basis of the type of schooling under investigation in this research:

- Grammar-Translation Method
- Direct Method
- Structural Oral Situational Language Teaching (SOS)
- Audiolingualism
- Communicative Approach
- Natural approach

The *Grammar-Translation Method* was the preferred method in teaching classic Latin and Greek and placed special emphasis on the intellectual content of materials. This method was also applied to the teaching of modern languages in the 19th century and pushed students to acquire a language but never actually use it productively. The role of the student was to be the "passive recipient" (Glauninger 2001: 13) whose only task it was to produce translations of the language. A teaching session might include the presentation of a grammatical rule, followed by translation exercises (Richards & Rodgers 2001: 6). Bilingual word lists and dictionaries were common tools of the Grammar-Translation Method since this approach did not consider contextual presentation of language as important, seeking only to provide new grammar constructions and isolated words. This was problematic, as the method of translating every single item of a language cannot always be perfectly applied to modern languages without altering the meaning. This approach, therefore, was not appropriate for gaining productive knowledge of a language but rather for the acquisition of syntactic rules and relations of words. The Grammar-Translation Method was heavily criticized and gave rise to the *Reform Movement*, which was in favor of a more natural way to learn a language and stressed teaching spoken languages.

One approach that emerged from the Reform Movement was the *Direct Method*. The 'direct' transfer of meaning from one language to another was emphasized over literal translations, and was introduced towards the end of the 19th century. Since spoken language was the major input in class, using the language as a means for communication was the primary goal of such instruction. The presentation of oral language input in context helped students acquire spoken language, which was a radical change from the Grammar-Translation Method . A language was no longer acquired simply as an exercise in translation and grammatical rule, but instead to become fluent. Students adopted a more active role in this approach, which made the Direct Method more suitable for foreign language instruction as it is thought of today.

The *Structural Oral Situational Language Teaching (SOS)* represented another development initiated by the Reform Movement and was introduced at the beginning of the 20th century. Zimmermann (1997: 9) refers to this approach with two different methods, namely the *Reading Method* and *Situational Language Teaching*. The former focused on learning language through reading and was supposed to teach high-frequency words. The first time in history that lexical learning was considered to be an important aspect of second language teaching (ibid.: 10). The latter put emphasis on the structure of language and utilized situation-based classroom activities to support meaningful language production. SOS was introduced to provide the oral approach of the Direct Method with a "more rigorous scientific foundation" (Glauninger 2001: 21), which was represented by teaching grammar in an oral classroom environment. Richards and Rodgers describe the main characteristics of SOS as follows:

1. Language teaching begins with the spoken language. Material is taught orally before it is presented in written form.
2. The target language is the language of the classroom.
3. New language points are introduced and practiced situationally.
4. Vocabulary selection procedures are followed to ensure that an essential general service vocabulary is covered.
5. Items of grammar are graded following the principle that simple forms should be taught before complex ones.
6. Reading and writing are introduced once a sufficient lexical and grammatical basis is established. (Richards & Rodgers 2001: 39)

Classroom activities are supposed to elicit meaningful communication by connecting new words to authentic situations, and having students comment on their actions. Talking about those actions represents the authentic part of learning since the comments are supposed to be real (cf. Hornby 1950: 98f). It remains unclear, however, if classroom activities convey real situations or not. SOS does not explain grammatical rules or vocabulary to students; instead language rules need to be "deduced from the way the structure or the word is used in a given situation" (Glauninger 2001: 23). Thus, it is an instructor-centered method which does not allow students to ask for explanations and only has learners repeat new language structures presented to them.

Repetition is a common feature of the *Audiolingual Method (Audiolingualism*, which became popular in the 1950s. Learners listen to 'model dialogues' (Richards & Rodgers 2001: 64), either played from a tape or read by the teacher. Students repeat phrases from the dialogue while paying attention to pronunciation, intonation and fluency. The repeated phrases contain language structures for students to use during classroom activities, which are mostly "pattern drills of different kinds" (ibid.: 65).The most common techniques in Audiolingualism are dialogues and drills in which the teacher focuses on correct pronunciation and corrects errors in students' speech immediately. Since students are just instructed in certain language structures and do not actively participate in any conversation, Audiolingualism is also criticized as a "teacher-dominated method with the teacher's role being central and active" (Glauninger 2001: 39). This approach does not generally help facilitate the acquisition of communication skills that can be applied outside the classroom, as listening to 'model-language' prevents students from ever participating in real-life conversations. Taking part in a conversation requires "an information gap or an opinion gap" (ibid.: 35) to make communicative language teaching possible.

When Audiolingualism began to receive increasing criticism in the 1960s, further instructional methods were proposed, resulting in a new approach called the *Communicative Approach* or *Communicative Language Teaching (CLT).* The previous emphasis on structure was shifted to communication, and communication proficiency and fluency in speech became more important than form and accuracy. The concept of language as communication is based on the work of Hymes (1972) and his *communicative competence,*

and Halliday's (1973, 1975) external functions of a language. In class, students are exposed to communicative input and, therefore, encounter contextualized language; erroneous language is accepted as a natural part of the language learning process. The language used is supposed to be meaningful and involve the four skills of speaking, listening, writing and reading. CLT uses activities that require students to spontaneously communicate with each other, such as information-gap activities (cf. Larsen-Freeman 2000: 129) in which learners give feedback to their partners and, at the same time, adopt the role of a teacher. The class teacher acts as an interdependent participant within the learning-teaching group. Moreover, the teacher functions as an organizer of resources and a guide within activities (Breen & Candlin 1980: 99) and facilitates the communication processes between the participants and the texts. All in all, CLT represents a relatively learner-centered approach in which communication proficiency is emphasized over accuracy of speech.

The *Natural Approach* is considered an example of the communicative approach (e.g. Richards & Rodgers 2001) and was introduced in the 1980s by Krashen and Terrell (Krashen 1985; Krashen & Terrell 1983). The emphasis of the Natural Approach is placed on lexical learning, which should be gained incidentally through natural language exposure. This approach at first seems very similar to the Direct Method in that they both value the principles of L1 acquisition. Unlike the Direct Method, however, the Natural Approach tries to achieve foreign language acquisition through exposure to the natural language and not through "monologues, direct repetitions and question-and-answer techniques" (Glauninger 2001: 88). The basis of the Natural Approach is provided by Krashen, who created a model of second language acquisition. He provided five 'hypotheses' constituting the 'monitor model': (1) the acquisition hypothesis; (2) the monitor hypothesis; (3) the natural order hypothesis; (4) the input hypothesis; and (5) the affective filter hypothesis. With regard to the *acquisition hypothesis*, Krashen differentiates between language 'acquisition' and 'learning'. In order to successfully *acquire* a language, learners need to be naturally exposed to linguistic input. *Learning*, on the other hand, refers to consciously trying to learn a language, and is therefore not as effective as unconsciously acquiring it. The *monitor hypothesis* concerns the 'learned system' of a language, which

> acts only as an editor or *monitor*, making minor changes and polishing what the acquired system has produced (Lightbown & Spada 1999: 38),

and, thus, focuses more on producing correct speech. With his *natural order hypothesis* Krashen compares the process through which a second language learner and native speaker acquire a language, and notes that they "seem to acquire the features of the target language in predictable sequences" (ibid: 39). The *input hypothesis* further connects L1 and L2 learning by suggesting that a language can only be acquired through exposure to comprehensible input. Finally, the *affective filter hypothesis* demonstrates how "motives, needs, attitudes, and emotional states" (ibid.) adversely affect language acquisition. According to Krashen's affective filter hypothesis, a teacher should try to reduce any anxiety that learners may have about speaking and involve them in activities that elicit their interest in order to acquire new words.

Those five hypotheses describe what Krashen considers important for second language teaching, and they are often described in connection with content-based learning (see Chapter 4). It should be noted, however, that there are deficiencies in his model, such as the over-simplification of language acquisition and the lack of language output. Speaking is essential to language acquisition and cannot be ignored when teaching a foreign language. The distinction Krashen makes between learning and acquisition,

> that the two cannot occur together, but only either the one or the other, depending on the learning situation, has not been proved by empirical evidence yet. (Glauninger 2001: 92)

Over time, the importance of vocabulary in EFL instruction has increased significantly. Starting from purely theoretical origins, grammar instruction was the major aim in foreign language teaching. The Grammar-Translation Method provided new lexical items in isolation or in bilingual word lists, and only taught vocabulary when presenting a grammatical rule (cf. Howatt 1984: 136). The Direct Method offered an approach to present new vocabulary in a spoken context. Lexical learning through speaking activities was also emphasized in the Audiolingual Method; however, students were not able to transfer acquired knowledge to conversations outside the classroom (Richards & Rodgers 2001: 65). Natural exposure to lexical items only became an essential part of foreign language teaching with the communicative approach. Vocabulary in the Natural Approach and in Communicative Language Teaching has been considered the "bearer of meaning" (Boyd Zimmerman 1997:

15), which assigns vocabulary knowledge the major role in language learning. The transition from 'lexicalised grammar' to 'grammaticalised lexis', as suggested by Lewis (1993: 89), has occurred in most of today's EFL classrooms. Thus, during the course of history it can be seen that language teaching has shifted its focus from grammatical syllabi (e.g. Thornbury 2004: 14) to more lexical syllabi (e.g. Carter 1998: 225).

3.2. Lexical competence of EFL students

Learners' level of language proficiency is a factor influencing the metacognitive strategies students use when learning new vocabulary. This section will deal with the concept of lexical competence and strategies employed when encountering lexical challenges. Since learners' writing proficiency is closely connected to their spelling abilities, this section will also be dedicated to lexical competence and its importance for a learner's orthographical knowledge.

Lexical knowledge is only one aspect of *linguistic competence*. As an umbrella term, linguistic competence includes a broad set of skills, such as grammar, pronunciation, spelling and vocabulary range and can be described as the

> knowledge of all aspects of what is traditionally regarded as 'the language system' or 'grammar' and it traditionally concerns aspects of linguistic knowledge that do not extend beyond the sentence level. (Dalton-Puffer 2007: 279)

In order to see how the concept of lexical competence has changed over time, two models suggested at two different points in history are described here. The first model, designed by Richards (1976), consists of eight assumptions that characterize the typical linguistic concerns of the mid-1970s:

1. The native speaker [of a] language continues to expand his vocabulary in adulthood, whereas there is comparatively little development of syntax in adult life.
2. Knowing a word means knowing the degree of probability of encountering that word in speech or print. For many words, we also know the sort of words most likely to be found associated with the word.
3. Knowing a word implies knowing the limitations imposed on the use of the word according to variations of function and situation.
4. Knowing a word means knowing the syntactic behaviour associated with that word.
5. Knowing a word entails knowledge of the underlying form of word and the derivatives that can be made from it.
6. Knowing a word entails knowledge of the network of associations between that word and the other words in language.
7. Knowing a word means knowing the semantic value of the word.
8. Knowing a word means knowing many of the different meanings associated with the word. (1976: 83 quoted from Meara 1996b: 1f)

Meara comments on this model, saying that the first assumption only refers to L1 speakers who, according to Chomsky (1969), achieve a complete understanding of the L1 syntax by the age of seven. Assumption two concerns the use of "computational analysis of large corpora" (Meara 1996b: 2), and assumption three involves discourse and pragmatics. In the fourth point, Richards refers to the "short-lived development in syntactic theory -- case grammar", which disappeared soon after Richards' study was published. Assumptions five and six concern the morphology of words and the semantic relations between words such as synonymy, antonymy and other paradigmatic relations (Seregély 2008: 25; Sylvén 2004: 36). Seven and eight both concern the semantic aspects of knowing a word. The eighth assumption represents a gap in the available research at the time, as it has no scientific basis. (Meara 1996b: 2). Meara suggests that Richards' study does not provide an accurate account of lexical proficiency from a modern viewpoint, as it was based on obsolete research, and does not provide a thorough account of lexical knowledge. Meara criticizes the incomplete account of vocabulary, stating that

> [t]here is nothing in the list which relates in any obvious way to the problem of active versus passive vocabulary, for instance. Nor is there anything in the list which relates to vocabulary growth or to vocabulary attrition. Nor is there anything which relates to the conditions under which words are acquired, and so on. (ibid.: 3)

Richards' view contrasts with more current perspectives on lexical proficiency such as Henriksen's (1999) model on "Three dimensions of vocabulary development". Henriksen considers three bases for lexical competence: *partial to precise knowledge*, *depth of knowledge* and *receptive to productive use ability*. She distinguishes between three individual dimensions of lexical competence as compared to Richards, who gave "a description of many separate traits including all aspects of word knowledge" (Henriksen 1999: 304) in order to achieve "a balanced position between the global[6] and separate trait view" (ibid.).

The *partial-precise knowledge dimension* distinguishes between *partial knowledge*, which helps learners to recognize words but not necessarily reflect on their meanings (ibid.: 305), and *precise knowledge,* which learners need in order to fully understand the meaning of a word and be able to explain it, pronounce it and suggest its alternate forms (ibid.). The *depth of knowledge dimension* emphasizes the "complexity of vocabulary knowledge" (ibid.) and refers to paradigmatic and syntagmatic relations between words that learners need to become proficient in when developing lexical competence. The final part of lexical proficiency that Henriksen describes is the *receptive-productive dimension*, which involves recognizing an item and using it actively.

Henriksen discusses the connections between the three dimensions of lexical competence and notes that each of them involves a separate development of knowledge. The continuum of partial-precise knowledge implies "a move of progression from rough categorization or vagueness to more precision and mastery of finer shades of meaning" (ibid.: 311). It is not always necessary to achieve such precision, since full understanding of a word is not needed to understand the meaning of a text. Similar to the first dimension, the depth of knowledge relates to the semantic knowledge of words, indicating that both concepts are underlying to a 'semantization process' (ibid.: 312). The second dimension concerns network building and emphasizes the knowledge of morphology, syntax, collocations and meaning potential (Beheydt 1987: 57). In the final dimension, delimiting productive and receptive knowledge is difficult, since a limited number of words from the receptive knowledge will eventually

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[6] Meara (1996a) proposes the 'global' view including only the two dimensions *size* and *organization* of lexical competence*.*

become available for productive use (Henriksen 1999: 313). Compared to the first two dimensions, the last is not as concerned with semantics but with the access of words from different kinds of knowledge. Nevertheless, the three continua are related to each other and the acquisition of vocabulary, a complex process involving numerous linguistic aspects.

Henriksen's model of lexical competence shows the broad concept of vocabulary learning, whereas Richards' view includes many separate components. According to Meara (1996a quoted from Henriksen 1999: 304), "the latter is impracticable because more traits are continually added", suggesting that Henriksen's model of three continua of knowledge is a more accurate way of describing lexical learning.

A learner encounters various methods of lexical learning in the foreign language classroom. The two primary methods for acquiring new words are through *intentional* and *incidental* learning (Hatch & Brown 1995: 368; Hulstijn 1997: 203f). Incidental learning can be described "as the type of learning that is a byproduct of doing or learning something else", whereas intentional learning is "designed, planned for, or intended by teacher or student" (Hatch & Brown 1995: 368). A similar distinction is made when referring to *intuitive* or *impulsive* language learning on the one side, and the *reflective* learner on the other (e.g. Ridley 1997: 98f). Both types of learner personalities represent extreme cases on a continuum of performance strategies. Intuitive learners prefer to deduce the meaning of unknown words from context without rigorously monitoring their actions and are willing to take risks when producing speech. They are less inhibited than reflective learners, who prefer conscious and intentional learning. It should not be assumed that students who adopt incidental or intuitive learning strategies are more proficient in lexical learning than students who use reflective or intentional learning techniques, but it is likely that the former do not have to expend as much effort on learning vocabulary. Both incidental and intentional strategies are important for EFL learners but they are used in different situations. When students are learning English as a foreign language, classroom instructions are important for learning new vocabulary intentionally because English is not provided outside of school. Of course, some incidental learning can occur in the EFL classroom as well, particularly when learners engage in communicative learning, where they are more likely to pick up words and memorize them than when learned intentionally. Incidental learning is often more

advantageous for students since it helps them to retain words more easily than if they were introduced during teaching instruction (cf. e.g. Hulstijn 1997: 204; Nation 2001: 232).

Research shows that incidental learning from reading (cf. Hatch & Brown 1995, Nation 2001, Read 2002, Singleton 1999) provides an excellent source of new vocabulary. Compared to reading, writing not only requires students to understand words but also to use them actively. According to Albrechtsen, Haastrup and Henriksen (2008: 5), reading skills and writing competence constitute the core of literacy training. On closer examination it becomes apparent that they are concerned with different kinds of vocabulary, namely 'productive' and 'receptive'. The traditional terms of 'active' and 'passive' have been criticized for inaccurately portraying the role and value of reading and listening, since these are not necessarily passive skills. Consequently, the vocabulary connected to those skills should not be regarded as passive either (Belyayev 1963 referred to in Hatch & Brown 1995: 370). *Receptive* vocabulary includes words that are recognized and understood when read or heard, but cannot be produced in speech or writing due to a lack of knowledge about pronunciation or spelling, for instance. *Productive* vocabulary, on the other hand, includes words that students can understand *and* produce correctly. Since personal factors and motivations vary with every learner, productive knowledge can be achieved more easily with some learners than with others.

Brown and Payne (1994 referred to in Hatch & Brown 1995: 373-391) create a model of learning new vocabulary, showing the individual stages learners go through in order to reach the stage of productive knowledge of a word:

(1) having sources for encountering new words

(2) getting a clear image

(3) learning the meaning of words

(4) making a strong memory connection between the forms and meanings of words

(5) using the words (cf. ibid.: 373)

The *source of new vocabulary* is crucial for the incidental learning of a word. In the case of foreign language learning, this means that students mostly encounter unknown words within the domain of school, for example, when engaging in conversations with others or

reading texts which include unfamiliar vocabulary. Some students are more aware of instances of new words than others, which is mostly due to differences in "natural learner interest or motivation" (ibid.). Another important factor is the frequency with which the words are encountered. Bunker (1988 referred to in Hatch & Brown 1995: 410f) shows that students are more able to understand texts when new words are used consistently and repeated more than five times. The need to learn a new word might be greater when the word occurs multiple times in various sources since the learner's perception of its importance will likely increase.

When students encounter new vocabulary, they are more likely to retain it if they see similarities between the target language word and their L1 corollary. Similarities between the two languages can help the learner memorize the word form. Formal relationships between languages relate to *cognates* which represent "words which have the same or very similar form in two languages" (Hatch & Brown 1995: 128). Although these words can be easier to learn than 'noncognates' (Pavlenko 2009:10), which do not show any similar linguistic features across languages, similarities between an L1 and L2 word can also result in errors that are due to written form confusions (Hatch & Brown 1995: 380).

Getting the word meaning is closely connected to the previous step since students are often eager to learn a word's meaning after becoming familiar with its form. Understanding the meaning of a word is usually associated with learning vocabulary (ibid. 382) and can be achieved through multiple means. Learners can ask others for advice who might know the meaning of a word. However, if beginners of a language ask more proficient speakers for a word meaning, the more advanced learners might adjust their answers to make it more understandable. "The kinds of definitions given by adults to children change [...] with the age of the children and the words to be learned" (ibid.: 383). This phenomenon is particularly noticeable in foreign language classrooms where teachers "automatically monitor their vocabulary choice, selecting high frequency words, using little slang [and] few idioms" (ibid.: 401), in order for students to be more likely to understand instructions. 'Teacher talk' (e.g., cf. ibid.: 402; Ellis 1985: 145f; Krashen 1981: 128ff; Singleton 1999: 50; Neulinger 2008: 23) usually involves general terms with which students are already familiar but can nevertheless "serve as a possible source for vocabulary learning" (Hatch & Brown 1995: 402). Similarly,

research shows that native speakers naturally make adjustments and give clarifications for nonnative speakers (ibid.: 384). Another process for learning a word's meaning is consulting a dictionary. Preferences for different kinds of dictionary also change according to a learner's language proficiency.

> There seems to be natural progression in the type of dictionaries or glosses that learners prefer. They seem to go from picture dictionaries, to bilingual dictionaries, and then to monolingual dictionaries and thesauruses. (ibid.: 383)

High proficiency in a language is not only beneficial to understanding monolingual glosses but also to guessing the meanings of words through their context. Extensive research has been conducted in students' ability to *infer* a word's meaning from its context (e.g. Carter 1987; Haastrup 1991, 2008), and most agree that it is closely related to a learner's foreign language proficiency.

> The process of lexical inferencing involves making informed guesses as to the meaning of a word in the light of all available linguistic cues in combination with the learner's general knowledge of the world, her awareness of the co-text and her relevant linguistic knowledge. (Haastrup 1991:13)

Guessing represents an effective strategy for learning vocabulary and can only be applied to situations where words are used in context, since the learner needs to infer meaning from textual clues.

After becoming familiar with the form and meaning of a new vocabulary item, the fourth stage of Brown and Payne's model emphasizes the importance of *consolidating word form and meaning in memory,* which is a crucial step towards achieving productive knowledge of a word. This step requires the use of different memory strategies and mnemonic devices such as the 'keyword method' (for a more detailed account see Hatch & Brown 1995: 387f). Another frequently used tool for memorizing the form and meaning of a new word is the use of a word list, which, despite its reputation of being obsolete, is still commonly utilized in foreign language classes.

The final step of *using a word* refers to the fundamental difference between receptive and productive knowledge, where the learner must actually apply the word in context. Once a learner uses a new word in a productive way, the odds of remembering it are higher than remembering a word recognized only by its form.

> In addition to increasing confidence and receptive knowledge, use of words seems to be necessary for students to test their knowledge of collocations, syntactic restrictions, and register appropriateness […]. (ibid.: 391)

In sum, Brown and Payne's model represents the steps learners follow when achieving productive knowledge of a new word (cf. Brown and Payne 1994 referred to in Hatch & Brown 1995: 373-391).

3.2.1. Mental lexicon

Language learners need to have working knowledge about the phonological, semantic, morphological and syntactic information of a word in order to store it in their mental lexicons. A learner's lexicon, therefore, shares many similarities to a dictionary since both include information about a word's meaning, its pronunciation, its use and about other words related to it (cf. Finegan 2008: 35). Thus, vocabulary cannot stand by itself since it is always combined with other linguistic aspects.

> [T]he biggest difference between a book dictionary and the mental lexicon is that the latter contains far, far more information about each entry. (Aitchison 1994:13)

As a learner's aid a dictionary contains complex information about a word that a learner has yet to acquire. The knowledge of vocabulary is displayed individually by every learner, which is particularly noticeable when drawing a comparison between low and high proficiency learners who make use of different learning strategies. The more advanced learners become, the more emphasis should be placed on teaching words in semantically associated networks (cf. Carter 1987: 188), since advanced learners, like L1 learners, learn semantic

groups of words more easily than beginners. Foreign language learners, on the other hand, tend to establish phonological connections between languages (cf. Laufer 1989: 17). At early states of language acquisition, the semantic and phonological links between L1 and L2 occur very frequently because literal translations are common among beginning learners (cf. Carter 1987: 156). Another difference in the way L1 and L2 learners demonstrate linguistic competence is that native speakers simply display learning strategies automatically, while foreign language learners have to consciously recall them. Since EFL learners are usually restricted to using the language in class and only during a limited amount of time per week, it is evident that they make use of other learning strategies than L1 learners and, consequently, need more time to acquire a foreign language. Furthermore, L2 learners with a low proficiency in the foreign language often prefer to draw parallels between the two languages and connect target language words to their L1, whereas advanced learners demonstrate the ability to access both the L1 and L2 words independently without making any literal translations. Hulstijn explains the methods of retrieval that different learners use with the following example:

> It may well be that an English speaker who has just embarked on the learning of French as a foreign language, wanting to express the French word for the concept war, can retrieve the French word *guerre* only via the native equivalent *war*. With increasing proficiency and fluency, however, this learner may reach a stage in which *guerre* can be accessed directly from the concept war. In a stage of even further mastery of the foreign language, the meaning of *guerre* may obtain conceptual features not shared by the meaning of L1 w*ar*. […] In situations of fast translation, this learner might then end up linking the two words *guerre* and *war* directly with each other, hardly even accessing the concepts at all. (Hulstijn 1997: 211f)

3.2.2. Limitations of lexical competence

The complex system of lexical competence is significant for language learners when they encounter a lack of lexical knowledge. Before these 'lexical gaps' (Read, Alderson & Bachman 2002: 63) can be filled, learners come up with a strategy to compensate for their lack of knowledge. It is very typical for foreign language learners to borrow features from their L1

and include them in the target language in order to cope with these challenges. This method of combining features of an L1 and L2 into one is called the stage of *interlanguage* and is part of the foreign language learning process. The term interlanguage was coined by Selinker (1972) as a means of describing the "intermediate states […] of learner's language as it moves towards the target L2" (Saville-Troike 2006: 40f). In order to convey their message, students try either consciously or unconsciously to obtain the required vocabulary item from an alternative source (i.e. their L1).

When transferring linguistic features between two languages L2 learners often produce more literal translations of words in the early stages of language learning, assuming "that for every word in their mother tongue there is a single translation equivalent in the second language" (Blum-Kulka & Levenston 1983: 133). In some cases similarities between L1 and L2 can be helpful for learning a foreign language; in other cases the transfer of L1 features to the L2 system results in erroneous language constructions. *Positive transfer* occurs when both languages demonstrate similar linguistic features and the learner's native language therefore can facilitate learning (Claucig 2005: 36). *Negative transfer*, on the other hand, results from the negative effect features from the native language might have on the acquisition of the target language (ibid.: 37).

The different communication strategies L2 learners employ when encountering lexical challenges depend upon their relative language proficiencies. The more proficient L2 learners become, the less often they use their L1 to compensate for lexical gaps. Færch and Kasper (1983: 52f) divide *communication strategies* into two types: *reduction* and *compensatory.* While some learners make use of reduction strategies when encountering lexical gaps and avoid what they intended to say, others use compensatory strategies and aim to deliver their message by means of circumlocution or word coinage. It seems plausible to advanced foreign language learners to use their L2 when struggling with gaps in vocabulary since they are generally familiar with the language, and lack only the correct use of a language item. Beginners, on the other hand, are not fluent in their L2 and might have problems expressing their meaning. They are, therefore, more likely to switch back to their L1 and translate words literally.

Lexical errors occur very frequently with foreign language learners. Native speakers consider those errors to be the most irritating for understanding (cf. James 1998: 144). According to James (ibid: 152), those errors can be categorized into *interlingual* and *intralingual* errors. While the former occur due to interference with the learner's L1, the latter are based on deception of the target language knowledge. An example of an interlingual error caused by negative transfer from German is 'to *make pictures' instead of 'to take pictures'. Here the learner creates an interlingual error because he assumes that the target language English uses the same expression as the German expression 'Fotos zu machen'. According to Norrish (1983: 26), literal translations and idiomatic expressions are classified as interlingual errors. An intralingual error can be seen in 'coffee **cames* out *from his nose' where the student produces a developmental error by using his knowledge of the English language and incorrectly adding the 3rd person singular –s when using a verb in the past tense.

The distinction between *developmental* and *interference errors* is made by Dulay and Burt (1947 referred to in Carcía 1991: 107). Whereas developmental errors, as demonstrated in the example above, occur naturally in a learners' foreign language development, interference errors are caused by learners' L1 knowledge. That means that, unlike interference errors, developmental errors are also made by learners when acquiring their L1. They usually happen according to the same patterns and are not related to the acquisition of other languages. The higher that learners' proficiencies develop, the fewer errors they produce; this applies to both interference and developmental errors.

3.2.3. Spelling skills

Research on spelling ability has been slowly growing as a result of increasing research on L2 vocabulary acquisition and indicates that writing proficiency seems to be connected to learners' orthographical knowledge. Since a learner's knowledge of spelling is crucial for lexical processing, spelling has always been closely related to reading ability (cf. Brown & Ellis 1994: 5). Reading requires learners to process language differently from writing since L2 needs to be transformed into L1, whereas in writing a learner's L1 needs to be translated into the target language. With regard to productive knowledge the *dual-route model of spelling* is of great importance to information-processing since it describes learners' cognitive processes as they apply to spelling. It demonstrates two ways in which the spelling of a word can be produced; one is the 'direct', 'addressed' or 'lexical' route, the other is through the 'assembled' or 'sound-to-spelling translation' or the 'non-lexical' routine (ibid.: 6).

The lexical route helps learners to recall information about familiar words, which means they produce a correct spelling pattern when a word is already known. The assembled translation does not draw from stored words but instead uses knowledge about how certain sounds are spelled and produces words accordingly. This latter method can also be used for spelling unknown words. However, when applying the assembled method to 'irregular' words it is easy for learners to produce phonologically plausible misspellings (Barry 1994: 32f). Regardless, there is a clear connection between lexical, phonological and orthographical knowledge since skills in vocabulary (range) and phonology are beneficial when spelling words.

Learners of both L1 and L2 naturally make more spelling mistakes at the early stages of acquiring a language. High spelling proficiency is often difficult to achieve in English since "[r]elationships between the sounds and the spelling of English words are notoriously inconsistent" (ibid.: 28). According to the dual-route model, learners need to store a high number of words in their mental lexicon in order to produce their spelling correctly. Thus, it seems that the lexical route is the preferred method for producing words. However, people utilize the assembled route as well, as can be seen in occasionally produced misspellings

(ibid.: 31). Findings from this study support the notion that participants use both the lexical and assembled method to spell words. Examples for phonologically plausible misspellings caused by the assembled method are '*parc' ('park') or '*weard' ('weird'), both seen in this study.

The assembled method is often used when spelling new words or 'nonwords' (Brown & Ellis 1994: 6) as it is not possible to use stored information about unknown words from the lexicon. It is also a reliable way to spell 'regular' words, i.e. words containing a "sound-to-spelling correspondence" (Barry 1994: 32). Barry explains the roles of the two separate methods operating within the dual-route model as follows:

> For English, it would not be unreasonable to suppose that the lexical route is either faster or more dependable than the assembled route, which would ensure that most spellings of words are produced by the lexical system, with the assembled route being used only as a 'back-up' when attempting to produce rare or new words. […] That we can spell many frankly irregular words correctly and can manage to spell new words and nonwords is certainly consistent with the notion that we have at our disposal both a lexical and an assembled spelling system. Furthermore, the fact that we may sometimes misspell words in a phonologically plausible fashion indicates that we may sometimes rely upon assembled spelling. (Barry 1994: 33, 35)

Similar to high and low proficiency in lexical learning, spelling differentiates between *good* and *poor spellers*, of whom the former are described by Moseley as someone who

> can spell a great many words, irrespective of spelling regularity and even if a word's meaning is not fully understood. Good spellers can spell new words by analogy, applying a wide range of linguistic principles some of which they may have acquired through using dictionaries. (Moseley 1994: 461f)

Good spellers are learners who produce correct spelling of words they know, as well as of irregular and unknown words by applying their linguistic knowledge. Poor spellers, on the other hand, have restricted phonological knowledge and are generally unable to produce the correct spelling of words they are not familiar with. Difficulties that all spellers have to face, however, are *developmental misspellings* that Siegel (1994: 94) differentiates as 'phonological misspellings' and 'non-phonological misspellings'; this, of course, stresses the

significance of phonological processing in spelling. Other research has emphasized the role of visual information for spelling (cf. Stanovich & West 1989; Gowsami 1992 referred to in Siegel 1994: 99) demonstrating that exposure to printed materials is beneficial to learners' spelling skills. It is reasonable to believe that both phonological and visual processes contribute to a learner's spelling ability. The higher a learner's spelling proficiency develops, the more phonological rules are acquired by the learner. That means that

> [g]ood spellers at all ages display a better understanding of phonological rules and orthographic patterns than poor spellers, and more frequently use a phonological as opposed to a visual approach to spelling. (Siegel 1994: 99)

Regarding spelling errors, one can draw a distinction between 'competence' and 'performance' errors (Houghton, Glasspool & Shallice 1994: 366). While competence errors are related to deficiencies in knowledge and will reoccur every time the incorrect spelling is made, performance errors do not reoccur regularly because they are due to 'slips'. Learners can correct their mistakes in performance since they have accurate knowledge of the correct spelling of the word but are unable to execute the spelling process. On a metacognitive level, Coleman (1931: 9) refers to learners' 'spelling consciousness', which is a type of knowledge that calls the writer's attention to possible misspellings in his text. Spelling consciousness only helps writers detect performance errors since those errors are not caused by a lack of knowledge; competence errors on the other hand usually remain undetected.

Regarding English and German native speakers, research has indicated that English L1 learners misspell fewer words in their L2 German than in their L1 (cf. Upward 1992 referred to in Moseley 1994: 460). Moreover, it seems that major difficulties in spelling were caused by silent letters, the neutral vowel 'schwa' and by double consonants (ibid.). It appears that the English spelling system causes problems for both L1 and L2 learners, possibly due to the English orthography. German has a much more "reliable guide to pronunciation" (Rollings 2004: 41) when compared to the irregularities of the English orthography. One factor contributing to the inconsistency of the spelling system in English is the historical influx of loanwords. Another factor is the constant change of spoken language compared to the relatively stagnant writing system. This 'conservatism in writing' (Rollings 2004: 43) makes it

difficult for language learners to draw clear parallels between pronunciation and spelling. Rollings identifies the problem as follows:

> Spoken forms have largely been anglicized, but written forms very much less so. There have also been considerable changes in pronunciation, both of individual words, native as well as foreign, and of certain sound sequences occurring in certain contexts, but again the general tendency has been for spellings not to change. (Rollings 2004: 43)

It appears that conservatism in writing has caused many loanwords to preserve their original spellings, while the pronunciation of words has adjusted to spoken English. For learners, this means that memorizing words, and consequently recalling them via the lexical or visual process, is the only way they can ensure that the spelling of a word is correct.

A prevalent theme in this chapter has been lexical competence and its numerous components that develop according to the increasing language proficiency of learners. Foreign language students start learning a language by associating their L1 and L2, and only slowly move towards the high proficiency state of recalling very complex information about words and connecting them to semantic L2 networks. Errors in learners' texts can be caused by deficiencies in performance as well as by natural language development. Similar to the occurrence of lexical errors, the development of interlanguage and the use of different kinds of transfer occur naturally and are significant stages of foreign language learning. The spelling of a word can be produced by lexical and phonological knowledge of learners, which shows the close relationships between different kinds of lexical competence.

4. Vocabulary learning in the CLIL classroom

This chapter opens with a discussion of vocabulary acquisition in a bilingual schooling program (i.e. *Content and Language Integrated Learning*) and gives a definition of CLIL, and outlines the aims and benefits the program offers. The final part of the chapter will focus more closely on the topic of lexical competence with regard to both foreign language CLIL students and English native speakers since L1 and bilingual[7] learners constitute a significant part of the CLIL class in this study. The goal of this chapter is to illustrate some of the distinctions between lexical learning in CLIL and traditional EFL classrooms and to reveal their differences in writing proficiency.

Since CLIL follows a 'natural' method of language instruction, it encourages incidental learning, which is considered beneficial to vocabulary acquisition. The *Natural Approach* by Krashen and Terrell (1983) outlines the process of naturally acquiring a language (for a more detailed account see Section 3.1.) and emphasizes the comprehension of vocabulary without which language acquisition would not be possible (cf. 1983: 155). The idea of exposure to authentic language and incidental learning is still represented in today's CLIL classrooms.

> Incidental learning via guessing from context is the most important of all sources of vocabulary learning. This is particularly true for native speakers learning their first language. It should also be true for second language learners, but many do not experience the conditions that are needed for this kind of learning to occur. (Nation 2001: 232)

CLIL tries to emulate the conditions that are needed for incidental learning. Since lexical learning can also be determined by a learner's personal interests and motivation, it is influenced by the use of English as a means of instruction in content subjects. For example, it seems plausible that learners who are interested in history will acquire English words in a history class more easily because students

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[7] Although the term 'bilingual' is a very general term for speakers of two languages, it will be used throughout this study. For an account of the distinction between various types of bilingualism see Section 4.2.1.

learn a second language more successfully when they use the language as a means of acquiring information, rather than as an end in itself. (Richards & Rodgers 2001: 207)

Incidental learning of new vocabulary plays a crucial role in CLIL education because, as a "dual-focused educational context" (*CLIL Compendium* 2001), language is not learned through direct instruction but rather through conveying subject matter. The use of the expressions 'content teaching' and 'language learning' (Abuja 2007: 17) seems very appropriate since the English language is *learned* by *teaching* the specific content of a subject. As CLIL aims to encourage vocabulary learning, achieving high proficiency in lexical knowledge requires

enormous amounts of input and types of language exposure that are not readily available to the foreign language learner. (Henriksen 2008: 63)

It should be noted that CLIL students face a considerable challenge when being instructed in a foreign language. Understanding the language *and* the subject matter conveyed demands intense concentration of foreign language learners. Activities that link several skills are considered to be more authentic since in the real world *speaking*, *listening*, *writing* and *reading* are often combined. Thus, students in CLIL classes might have to listen to the teacher and take notes, read a text and write about it, or talk about subjects they heard or read about (cf. Richards & Rodgers 2001: 208). In order not to overburden them, teachers try to adjust their speech to be more understandable to students. In addition, they simplify the content and try to include other media to assist in presenting subject matter (cf. Abuja 2007: 21), which shows that learning vocabulary in the CLIL classroom is encouraged by various methods. The prolonged duration of exposure time to "comprehensible and meaningful input" (Dalton-Puffer & Smit 2007: 9) engages the students in communication and enables them to learn vocabulary by using the language regularly. Although foreign language learners will always profit more from vocabulary teaching since they are not constantly surrounded by English outside school, Coady found empirical evidence that native speakers profit from vocabulary instruction as well (cf. 1997: 281). Hence, it can be seen that vocabulary instruction is beneficial to both L1 and L2 learners in a bilingual program.

In summary, it seems likely that both L1 and L2 speakers profit from incidental as well as from intentional learning. CLIL combines lexical learning through language instruction and content teaching, which makes it a superior approach when compared to traditional EFL teaching with regard to vocabulary acquisition.

4.1. Defining CLIL

Content and Language Integrated Learning (CLIL) is considered an advantageous method of linguistic instruction, since it naturally combines content and language learning. Various countries and types of school use different terms when referring to content-based teaching. Since this study was conducted at a Viennese gymnasium, this section will describe the main stages of CLIL development in Austria and also point out different kinds of challenges CLIL presents to schools.

As the name implies, *Content and Language Integrated Learning* uses a foreign language to teach subjects such as Biology, History and Geography. Additionally, language classes are offered in order to further the students' linguistic development. Although English is the most frequently used language in Austrian CLIL education, some schools also offer French, Spanish or Italian, for instance, to teach content subjects. The purpose of introducing CLIL in the European Union is to encourage the use of various languages within an educational context. CLIL education is supposed to present a complementary approach to the traditional way of foreign language teaching, utilizing an instruction language that students are not constantly exposed to outside the classroom. This makes CLIL different from non-European approaches, such as the bilingual program in Canada (cf. Cummins & Genesee 1985), since CLIL does not involve using a second language but a foreign language[8].

When using a foreign language in content subjects, the focus of teaching and learning is on content rather than on the accuracy of speech. This type of education is most commonly referred to as *CLIL* but different terms exist for programs that emphasize the use of a foreign language in content classes. Among the most frequently used ones are *Content-based*

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[8] For a description of the terms *second language* and *foreign language* see Section 3.

Instruction (CBI), *Dual Language Programs*, *English Across the Curriculum*, *Bilingual Teaching*, *Bilingualer Sachfachunterricht* (BiLi) and *Englisch als Arbeitssprache* (EAA) (cf. Dalton-Puffer 2007: 1). CLIL is the most frequently used label in Europe among foreign language experts.

CLIL is by now a well-established name in Austria but has not fully supplanted the term EAA (cf. Abuja 2007: 16), defined as

> the use of English (or any other FL) in teaching situations ranging from short projects to bilingual education throughout the whole school year. (ibid.)

Similar to CLIL, this method does not suggest the constant use of foreign language instruction. A more significant distinction can be drawn between the terms CLIL and Bilingual Teaching since CLIL in Austria is commonly known as the instruction of mainly German-speaking students through a foreign language for certain periods, while Bilingual Teaching implies that half of the class consists of English-speaking natives while the other half are German native speakers (cf. *Eurydice* 2006: 5). Interestingly,

> [s]chools in which CLIL is employed for a considerable time and in more than 50% of the subjects could (arbitrarily) be called 'bilingual schools' in Austria. (Abuja 2007: 17).

Learning a foreign language in Austria has become more and more popular during recent decades. Since German is the major language of instruction in Austrian schools, using a language other than German outside foreign language classes seems very appealing to students. CLIL, therefore, attracts plenty of students at both a primary and secondary level.

As sketched in Abuja (2007: 14ff) the development of foreign language teaching in the Austrian school system begins with the first appearance of foreign language education in the 1960s. It slowly established itself until 1983/1984, with one lesson per week at the upper primary level. At the secondary level, starting in the 1980s students were able to choose one or two optional foreign language classes. At the upper secondary level compulsory attendance of one or two foreign language classes began in the 1990s, while a third or fourth language was optional. In 1991 the Austrian program EAA was established for

secondary education. EAA was soon replaced at some schools by the term CLIL which was coined in 1994. Austrian schools state different motivations for introducing CLIL to students, such as increasing linguistic ability, the increased reflection on the usefulness of the foreign language through use in the subject, better preparation for the future and for professional careers, and improving the learner's communicative competence in the foreign language (ibid.).

CLIL not only provides students with advantages but schools themselves profit from CLIL education as well. *Eurydice* demonstrates some of the reasons for schools to introduce CLIL education:

> Schools may decide to launch CLIL pilot projects for a variety of reasons. They may wish to emphasise their firm commitment to foreign languages, explore methodological aspects of CLIL, engage in competition with neighbouring schools to attract more pupils, thereby enhancing their reputation and prestige, or receive extra resources from the authorities (such as financial support for native speaker teachers or better equipment). Their teaching staff may also be very highly motivated as regards work in CLIL type provision. (*Eurydice* 2006: 9)

Teaching with the assistance of native speakers of the target language is highly motivating for students. Assistants usually do not hold a degree in teaching but provide an interesting perspective on the foreign language. Austrian CLIL instructors are often English language teachers who hold a second degree in a content subject. While they are not required to have an additional qualification for teaching CLIL, they do have to devote greater effort to it than teaching regular EFL classes, for reasons which will be described in detail later on in this section.

Even though native speakers might speak their language more fluently and, one might presume, better than non-native speakers, Dörfler (2006) claims in her investigation into the use of L1 and L2 in Austrian EFL classrooms that

[n]on-native speaking teachers know more about the level of knowledge of the students and about the difficulties German-speaking learners face in the process of acquiring a new language. He [an Austrian teacher] considers this a problem with language assistants as they often use more advanced vocabulary at a beginners' level where the outcome is hopeless. (Dörfler 2006: 89)

Dörfler (2006: 90) continues that while native-speaking assistants are mostly unable to explain linguistic rules in an understandable manner to students, their assistance is nonetheless valuable because they can serve as a model for pronunciation and fluency of the language. Team teaching seems like an effective tool since the native-speaking assistant can support the Austrian teacher by providing authentic language input while the teacher can focus on the pedagogical aspects of teaching. Another advantage of the native speakers' presence in the classroom is the fact that using English seems more meaningful to the students (cf. ibid: 90).

Though natural language input by native speakers is utilized to improve the students' target language skills, it is but one of the benefits that CLIL offers for learners. The *CLIL Compendium* lists the following as the main reasons to include CLIL in the classroom:

- Improve overall target language competence
- Develop oral communication skills
- Deepen awareness of both mother tongue and target language
- Develop plurilingual interests and attitudes
- Introduce a target language (*CLIL Compendium* quoted from Dalton-Puffer 2007: 10)

Those points primarily referring to language learning do not represent the only goals of CLIL education since content learning through the medium of language is seen as another substantial benefit of CLIL. One concern that teachers have expressed about content and language, is the use of appropriate teaching materials (cf. Gierlinger 2007: 96). Gierlinger (ibid.: 81) claims that "[t]here is hardly any suitable material around; on the contrary, teachers have to create their own materials at their own costs". The concern about the appropriate balance between content and language has also been voiced. Since teachers frequently adjust their speech, another argument against CLIL is that a simplification in

speech might result in a "reduced cognitive complexity of the subject matter presented" (Dalton-Puffer 2007: 5). Contrary to this sentiment however, research has indicated that CLIL students outperform mainstream students in various abilities (e.g., cf. Mehisto, Marsh & Frigols 2008: 20; Van de Craen et al. 2007: 270f). A possible explanation for the superior performance of CLIL students over mainstream students could be the clearer explanations of the subject matter by CLIL teachers.

Further concerns about CLIL include the so-called 'natural' way of acquiring the target language, which nevertheless still does not replace the acquisition experienced by learning "in the street" (Dalton-Puffer 2008: 148). In addition, the relationship between student and teacher talk has been found to be very unbalanced and dominated by the teacher lecturing and asking questions (ibid.: 18). It seems plausible that there are numerous similarities between mainstream and bilingual classes that cannot be compensated for by simply teaching subject matter in a foreign language. According to some research, there have not even been differences detected between CLIL and non-CLIL students (cf. Lasagabaster 2008: 33).

Negative aspects of CLIL usually relate to other issues, however. According to Gierlinger, CLIL teachers lack support from external sources as there is hardly any methodological support or external incentive, such as adequate wages. To be fair, though, the large number of investigations into CLIL have in fact found differences in performance between CLIL and EFL students. Thus, it seems that CLIL indeed has its advantages but it still lacks support from pedagogical authorities for the teachers (ibid.).

4.2 Lexical competence of CLIL students

By exposing students to different kinds of linguistic input and connecting various aspects (e.g. semantics, syntax, phonology, etc.) of language, CLIL tries to provide as much comprehensive learning as possible for a teaching method. L1 speakers are able to apply the rules of their native language without paying attention to them and display linguistic competence by having an intuitive grasp of the linguistic, cognitive, affective and sociocultural meanings expressed by language forms (Stern 1983: 342, 343).

With regard to foreign language learning, Dalton-Puffer differentiates between individual language competences that are affected by CLIL and those that are hardly affected by it. As compared to syntax, writing, informal/non-technical language, pronunciation and pragmatics, skills like vocabulary, morphology, creativity, emotive/affective outcomes and receptive skills are positively influenced by CLIL (cf. 2008: 143). Other research has also indicated that CLIL students demonstrate a wider use of lexis (Mewald 2007: 161) and display fewer lexical transfers and direct borrowings from their L1 than their EFL peers (cf. Ackerl 2007: 9f). Previously it was mentioned that Lasagabaster (2008: 33, see Section 4.1.) did not find any differences in performance between CLIL and EFL students. After having considered the various components of linguistic competence, it is apparent that findings need to be described more specifically since linguistic competence is comprised of a wide variety of abilities. However, according to Dalton-Puffer (2008), students' lexical knowledge has indeed been found to benefit from CLIL teaching.

Regarding the cognitive processes in a learner's mental lexicon it was noted earlier that a native speaker's lexicon associates words semantically, while "the connections between words in additional languages are primarily phonological" (Laufer 1989: 17). That means that L1 and high proficiency L2 learners are not as prone as mainstream EFL learners to confuse words that sound similar. The more familiar learners become with a foreign language, the more they are able to use a word in a productive way. Using language actively is considered an advanced stage of learning and is encouraged by CLIL. Thereby, CLIL students usually have more opportunities to make use of the target language and apply vocabulary to different contexts, which is beneficial to lexical competence and using L2 as a separate system.

4.2.1. Bilingual learners

Bilingual speakers in the (bilingual) CLIL classroom who speak the target language as their mother tongue usually show high lexical proficiency in both languages. Singleton gives the following definition when referring to bilingual subjects in his research:

> subjects with high levels of proficiency in more than one language – including (but not uniquely) subjects with two or more languages which they have acquired more or less simultaneously from infancy or very early childhood. (Singleton 1999: 168)

When referring to bilingual speakers, the distinction between different types of bilingualism is significant; moreover, the learners' environment represents an important factor as well.

> If pupils are to become bilingual they must be allowed to develop their communicative skills in the second language in relation to all the normal everyday situations encountered by children who share the same environment but for whom this language happens to be the preferred language. (Dodson 1985: 12)

Dodson refers to learners' second language environment in which speakers aim to acquire the target language in addition to their L1. The learners' environment does not represent the only crucial factor when describing bilingualism, however. It cannot be assumed that bilingual speakers who have acquired a second language during their lives and have become fluent in it, demonstrate the same lexical organization as bilingual speakers who have grown up using two languages equally. According to Carrasquillo and Rodríguez (2002: 67), two broad types of bilingualism can be distinguished, namely 'balanced' and 'dominant' bilingualism. The two types of bilingualism refer to speakers who have achieved a relatively equal proficiency in both languages, and speakers who have one dominant language. With regard to bilingual students, a balanced bilingual is "[a] child who can understand the delivery of the curriculum in either language, and operate in classroom activity in either language. (Baker 2001: 8). The receptive and productive knowledge of both languages should therefore be equally important. Dominant bilinguals who acquire an additional language in an L2 environment and demonstrate higher proficiency in one language than in

the other, correlate with 'additive' or 'subtractive' bilingualism (Carrasquillo & Rodríguez 2002: 67). The former means that speakers have added another language to their L1 but this additional language is not going to become their dominant language. The latter implies a rather unfavourable scenario since an additional language is used as the dominant language but will never be fully acquired. At the same time, the L1 is affected by attrition, which means that speakers will never achieve high proficiency in either their L1 or L2.

> The term *first language (L1) attrition* refers to a change in the native language system of the bilingual who is acquiring and using a second language (L2). This change may lead to […] interferences from the L2 on all levels (phonetic, lexicon, morphosyntax, pragmatics), a simplification or impoverishment of the L1, or insecurity on the part of the speaker manifested by frequent hesitations, self-repair or hedging strategies. (Schmid & Köpke 2009: 210)

Thus, it cannot always be assumed that bilingualism implies increased language proficiency since some studies also reveal negative effects caused by bilingualism (cf. Lee 1996: 506). Balanced bilingualism has been shown to be more advantageous to lexical competence than dominant bilingualism. Moreover, it has been found that balanced bilingual children perform better than monolinguals and 'unbalanced' (i.e. dominant) bilingual children in specific tasks related to cognition and metalinguistics (Carcía 1990: 104). Thus, being equally proficient in both languages is more beneficial than having a dominant language.

Even though it has been claimed that high proficiency learners are less likely to associate their L1 and L2 lexicon, lexical gaps in knowledge and lexical transfers can still occur (cf. Jarvis 2009: 102). Lexical transfers take place through the following processes:

> (1) the formation of learned cross-linguistic associations and
> (2) processing interference (ibid.)

The first process is caused by transfers from one language to another via "established mental links between stored representations of elements" (ibid.). The second process is due to "the activation of words […] in one language when the speaker is trying to use another language" (ibid.), and is not caused by associated links in the lexicon but happens

independently. Hence, bilinguals have not proven an ability to separately access their language systems since both systems are constantly activated, even if they are not used productively (cf. ibid.: 105). It is important to note, however, that lexical transfers can be negative as well as positive, and bilinguals often experience advantages through cross-linguistic associations when translating from one language to another because they are familiar with similarities between certain lexical items.

4.2.2. Differences in lexical competence between CLIL and EFL learners

The final part of this section is dedicated to some of the differences in lexical competence between CLIL and EFL students with regard to writing proficiency and errors. Mewald (2007: 161), who conducted a study involving CLIL and mainstream students, notes that written samples from CLIL students showed a "resourceful use of lexis as well as variation in sentence structure and creativity"; moreover, they demonstrated "more variety and they were more elaborate". EFL texts, on the other hand, did not show as much variety and seemed rather "straightforward and simple". CLIL students included more word types, namely nouns, verbs, adjectives and adverbs, while EFL students mostly included nouns and verbs in their texts. Mewald (ibid.: 162) concluded that the types of vocabulary mistakes made showed that CLIL pupils were more likely to take risks than EFL students. That means that students in CLIL classes "have a more relaxed attitude towards mistakes" since risk-taking implies that learners are willing to produce language even if their lexical knowledge is not totally adequate.

Dalton-Puffer (cf. 2007: 230) has shown that vocabulary errors are the most common error types among foreign language learners in CLIL classes. Through the constant use of the foreign language in class, CLIL students regularly encounter lexical gaps. Consequently, the way CLIL students react to a lack of lexical knowledge is different than how EFL students react, since CLIL students were more willing to accept those gaps and fill them as compared to their mainstream peers (cf. ibid.: 281).

> [T]he increased readiness of CLIL students over EFL students to acknowledge lexical gaps is one of the main qualitative differences between the two. (ibid.)

While lexical errors are a major part of the natural process of foreign language learning, native speakers of a language usually create other kinds of error in other categories. Native speakers tend to have difficulty in spelling and punctuation (Blue 2000: 98); vocabulary errors that L1 speakers make usually relate to the errors in the choice of lexical items, which are caused by a desire to sound "academic and formal" (ibid.: 103). Other errors included in native speakers' writings are often caused by phonologically plausible misspellings, for example *affect/effect*, *it's/its* or *there/their* (cf. ibid.: 106), which can result from the sound-to-spelling translation or assembled route of the dual-route model of spelling described in Section 3.2. Those findings seem a little surprising, as one would assume that native speakers had less difficulty in spelling. Thus, teachers attribute the deficiencies of native speakers in spelling to carelessness and poor education (ibid.: 110).

In summary, CLIL has positive effects on vocabulary learning by offering students a variety of different language inputs that appeal to multiple skills and provide an authentic learning environment. Both incidental and intentional learning play an important role for L1 and L2 students, although the two groups of speakers demonstrate different mental organization with regard to lexical competence. Bilinguals, already speaking the target language as an L1, adopt a special role since they show superior skills to other learners when being equally proficient in both languages, but experience cognitive disadvantages when possessing unbalanced language skills. Foreign language learners profit from being around native speakers of the target language, such as their peers or teaching assistants, which results in increased learning motivation. It has been shown, however, that CLIL is not the pinnacle of foreign language education as it still displays several weaknesses. Nevertheless, content-based teaching is still a preferable method to mainstream schooling because it regularly exposes learners to more L2 input.

5. Empirical study

5.1. General description

This study investigates the differences in writing proficiency between two Austrian 8th grade English language classrooms, one of which is a mainstream (EFL) class, the other one is CLIL. The chapter opens with a brief account of the study's methodology and the aims of the empirical analysis, following which a description is provided of the school context including the bilingual program and a portrayal of the students participating in the study. The chapter then proceeds with an account of the data collection procedure. This study uses two methods of investigation, obtaining data both through the evaluation of written texts and the analysis of questionnaires, designed separately for both the teacher and the students. The findings of the data primarily include results regarding students' writing proficiency and vocabulary range. Errors in the students' texts are discussed and the relative performances of the mainstream and the bilingual classes are analyzed. Statistical testing is used to verify the relative significance of findings about the differences between the groups of learners. The results of the empirical research, including the data collected from students' texts and questionnaires, are presented in Chapter 6.

This study examines different aspects of the writing abilities of 8th grade students (i.e. students approximately 14 years of age) who are currently being taught using two different methods of English-language instruction, namely mainstream EFL and CLIL (for a description of these approaches see Chapters 3 and 4). Of particular interest to this study is whether or not students of the bilingual program have a decisive advantage over mainstream students in English vocabulary development. Also examined are various aspects of spelling skills and different kinds of error relating to writing proficiency. Ultimately, the aim of this study is to investigate these aspects of writing proficiency in the two different English classes in order to test the following claim: Students of the CLIL classroom outperform mainstream students in different aspects of writing proficiency.

Concerning restrictions on the investigation into writing proficiency, one can claim that comparing students' writing abilities alone does not necessarily prove that performance differences are due solely to English language instruction within the scope of schooling, especially given the relatively small amount of information gathered about the students' ethnographic and linguistic backgrounds. For practical reasons, the investigation was conducted using texts from two groups of 16 and 22 participating students; this allowed data to be obtained quickly and served the purpose of a small-scale study. It is therefore inaccurate to assume, that a small-scale study like this examines enough data to over-generalize findings beyond the participants. Nevertheless, the study does present evidence supporting the hypothesis that CLIL students have an advantage over their EFL peers to the effect that they are considerably more exposed to English language input within the school domain and that the writing proficiency of participating CLIL students exceeds the EFL learners' with regard to vocabulary range.

5.1.1. Description of the school

The empirical research was conducted at a Viennese Gymnasium where language samples of students from two different 8th grade English language classrooms were collected. The school is known for its three different types of schooling with emphasis on physical, economical and bilingual education. In order to test the hypothesis that students in bilingual schooling possess better skills in writing than traditional EFL students, a CLIL class was chosen and compared to a non-CLIL class.

5.1.2. The bilingual program

The bilingual branch at the school is characterized by the use of English and German as equivalent instruction languages; teaching with the assistance of an English native speaker is an inherent part of the program. Students are simultaneously instructed in English and trained in using a foreign language themselves by giving presentations and using the

language in all kinds of situations with peers. This method of learning can be beneficial for students in several ways, including fluency in speaking and cultural openness.

The school allows anyone to apply to the bilingual program. The program is particularly attractive for children whose native language is English, but also children of other native languages, such as German, if they attended bilingual education before for instance. For the school to ensure that a child is skilled enough to be admitted to the bilingual branch, each prospective student has to participate in an "introductory talk" (*Eurydice* 2006: 7) to demonstrate their oral language abilities.

Since the bilingual classroom at the school contains both native-speaking learners of English and foreign language learners, the latter are exposed to English not only during class but also outside the classroom when talking to their peers. The school, therefore, puts emphasis on personal relationships between students of different cultural and linguistic backgrounds in order to encourage them to communicate in the foreign language.

The teacher of the class was provided with a questionnaire designed to gain insight into teaching a bilingual class and information about the differences from a mainstream classroom. The teacher was supposed to give written statements to various topics referring to the two classes. She answered the questionnaire after the students' writings were produced. Having taught both CLIL and mainstream classes in English and History over the past twelve years, she did not have to undergo any special training in teaching CLIL. Furthermore, she considers bilingual teaching with the assistance of a native speaker to be advantageous since it offers a different perspective on teaching and enables them to mutually prepare for class.

Her experience suggests that, in general, the focus of traditional EFL class instruction is on linguistic exercises and students require more explicit explanations of grammatical rules. In contrast, CLIL classes are far more concerned with content. In the teacher's experience, CLIL students tend to be able to write longer texts at a younger age than EFL students. Moreover, they deal with more English literature to develop reading skills and gain exposure to new vocabulary, whereas in EFL classes she mostly uses the intended course book or vocabulary lists to teach reading and vocabulary. She feels the greatest difference between the two

groups of students is the "natural flow of the language". The questionnaire, including all questions asked, can be found in Appendix 2.

5.1.3. Description of the participants

Having mentioned some general differences between the two types of classes, this section presents some of the data regarding basic background information of the students. This information is obtained from the questionnaire, in which questions 1 to 7 ask for the students' and their parents' native language(s), languages spoken in everyday life, and the foreign languages they speak. Students are asked to state the country in which they were born, which countries they have lived in and for which time period, and what countries they have attended schools in.

Students' native languages

The bilingual program is characterized by its poly-lingual students' backgrounds. Figure 1 illustrates the breakdown of the CLIL and EFL classes by the different native languages of students:

Figure 1:   Native languages in CLIL and EFL class
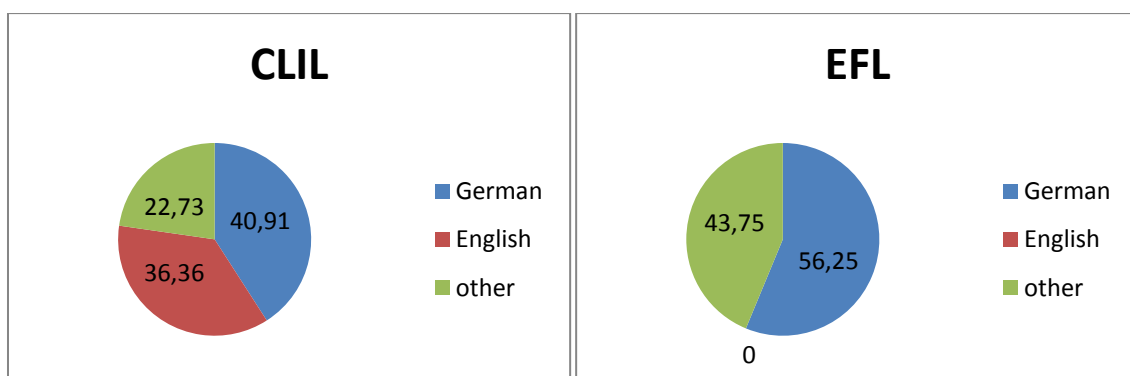
The bilingual class contains a range of different mother tongues. Eight out of 22 students of the CLIL class state English as at least one of their native languages; of these eight, five describe English as their first language, and three describe both German and English as their

native languages. The number of English native-speaking students in the class represents 36.36 percent of the total. The largest group of students' first languages is German, with nine out of 22 students stating it as their native language (40.91 percent). Even though different mother tongues might influence students' writing proficiency, this research primarily focuses on German and English. Thus, other languages spoken as a first language in this class are grouped together and labeled as 'other'. Including one student of Polish background, one Filipino, one Hungarian and two Malayalam, the native languages of 22.73 percent of the CLIL class are neither German nor English.

The linguistic makeup of the mainstream class is also varied. In contrast with the CLIL class, none are of English origin but it does include students with native languages such as Turkish (12.5 percent), Serbian (18.75 percent), Albanian (6.25 percent) and Croatian (6.25 percent). Needless to say, a considerable number of students speak German as a first language (nine out of 16 , or 56.25 percent). In other words, the mainstream class contains 56.25 percent of German native-speaking students as opposed to 43.75 percent of non-native speakers of either German or English.

Native languages of students' parents

The numbers stated above must be critically examined because students' linguistic background is often influenced by more than just their first language. Learners are conditioned by their parents' linguistic and cultural backgrounds, as well as the culture they themselves grow up in. In the CLIL class, most students note that at least one of their parents speaks German as a native language (68.18 percent). By contrast, 36.36 percent of students say that at least one of their parents learned English as a first language. Interestingly, it is not the 36.36 percent of English native-speaking students who describe one of their parents as being an English native. The discrepancy is explained by the following: one out of the eight English native-speaking students states that both his parents speak German as a first language, while one Malayalam student indicates that one of his parents is a native English speaker. Again, for the purpose of this study, distinguishing between native languages other than English or German is not crucial. None of the parents of EFL students speak English as a native language, and eleven out of 16 (68.75 percent) indicate that at least one of their parents speaks German as a native language.

Students' birthplaces and temporary residence

Another factor of interest to the study is the students' birthplaces and whether or not they have grown up in or spent a considerable amount of time in an English-speaking country. 20 out of 22 students in the CLIL class were born in Austria (90.9 percent). Only two students were born elsewhere, one in Germany and the other in the United States of America. With regard to the students' temporary residence in English-speaking countries (in this case between four months and five years), two (9.09 percent) claim to have lived and attended some educational institution in the USA, and three (13.64 percent) in England.

The majority (93.75 percent) of mainstream students were born in Austria, while only one student was born abroad. One student states that he lived in Mexico and South Africa for two years each. Obviously it is not safe to assume that students acquire significant English language skills by spending periods of time abroad or by attending educational institutions in foreign countries. Nevertheless, the issue is relevant to this research and, as such it should be noted that one of the students received education in the aforementioned countries for two years as well.

Use of English in domains of everyday life

In order to analyze the use of languages in everyday life, Cooper's (1971) concept of a 'domain' is used to distinguish between the different contexts in which students use language. Of particular interest is CLIL and EFL students' relative use of English in several domains, namely school, friends, fun, family, and home, which is depicted in the following figure:

Figure 2:   *CLIL and EFL students' daily use of English in various domains (%)*
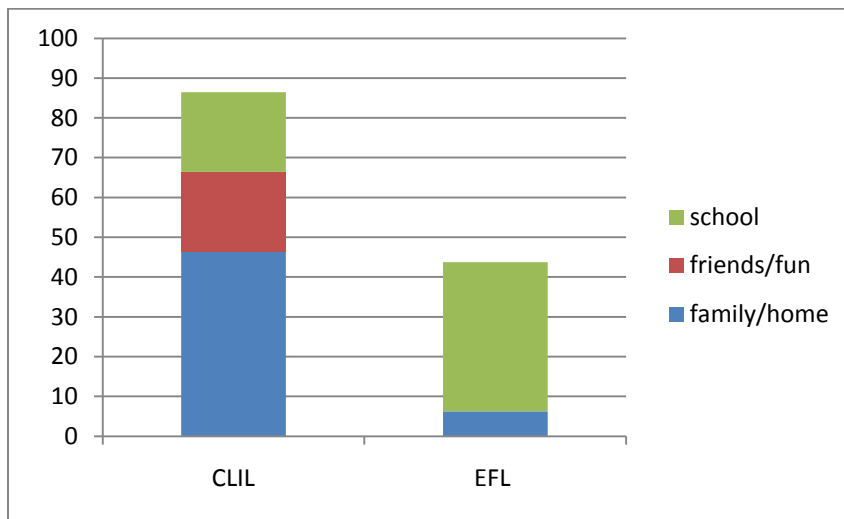
The figure shows that considerably more students in the CLIL class use English on a regular basis than do students in the EFL class. 19 out of 22 CLIL students (86.36 percent) use English on a daily basis as compared to only 7 students (43.07 percent) in the mainstream class. English usage amongst CLIL students is divided amongst the following domains: family/home (47.37 percent), friends/fun (21.05 percent) and school (21.05 percent). In contrast, the domains the EFL students use the language in are 'school' (37.5 percent) and 'family/home' (6.25 percent).

Students could state multiple languages that they use daily. Their responses show that large majorities of both CLIL and mainstream students use German on a daily basis. Responses show that 100 percent of the CLIL students use German on a daily basis with the domains 'family/home', 'friends' and 'school' being cited by 31.8, 27.3, and 22.7 percent, respectively. This result is not surprising since students live and attend a school in a German-speaking country. On the other hand, it was unexpected that only 81.25 percent of EFL students claim they use German in everyday life. That means that three out of 16 students in this class state that they do not use German regularly. Moreover, seven out of 16 students (43.7 percent) use a language other than German or English.

<u>Starting point of English language learning</u>

The collected data indicates how long students have been learning English. Table 1 displays these findings:

Table 1:   Time period of English language acquisition of CLIL and EFL (%)

	L1	(pre-) primary level	secondary level	other
CLIL	36.36	59.09	4.55	-
EFL	-	75	18.75	6.25

Eight out of 22 CLIL students (36.36 percent) have been learning English to some degree since they were born. The majority (59.09 percent) started learning English in institutions like kindergarten, nursery school or primary school (here generalized as '(pre-) primary level'), and have therefore been learning English for at least five years (eleven at the most). Only one student started to learn English in secondary school, and thus has the least experience with the language.

Similar to the CLIL class, most students in the mainstream class started to learn English early, with 75 percent beginning in primary school. Three out of 16 students (18.75 percent) started in secondary school (i.e. approximately three years ago), and one student makes the somewhat ambiguous statement, "seit ich denken kann". This coupled with the fact that he does not state English as his native language in the beginning qualifies his response as 'other'.

This section presented some of the general background information obtained from the questionnaire. Later sections will address students' linguistic achievement, motivation and personal attitudes towards English in greater detail (see Section 6.2.).

5.2. Data collection and analysis

This section will provide a description of the test administration and an explanation of the task chosen to be carried out by the students. It will also outline the individual steps of the analysis of the students' written samples and the questionnaires.

In regards to the investigation of students' writing, the significant factor of organizational matters needs to be addressed. Organizational and ethical matters are critical factors to consider when conducting empirical studies and need to be carefully planned in advance. Concerning the practical level of this research, it was important to ensure that all participants work under similar conditions. The two groups include students of approximately the same age (i.e. around fourteen years old), are at the same educational level and are exposed to a similar learning environment. In this case conducting the research at the school required the approval of both the CLIL and mainstream teachers and the principal of the school. Information sheets for the participating students needed to be issued, which provided introductory information and explained the goals of the research. In order to meet ethical standards, sufficient information was provided for the students, explaining the aims and methods of the study and ensuring participants' anonymity (cf. Hyland 2003: 250). Information sheets intended for parents indicated they had the right to withdraw their child from the study, although none of the parents ended up doing so. The information sheets for both students and parents were written in German to provide intelligibility (samples are included in Appendix 1). The questionnaires provided to both the CLIL and mainstream classes were also written in German in order to make sure each student could fully understand the questions as they were intended and not get irritated by unknown English terms.

I collected the data at the school in November 2009. I was not present during class when the teachers carried out the task with the two groups since I tried to avoid influencing the students in any way and wanted the writing task to be as natural as possible. The teachers had prepared copies of the tasks to give to the students, so that they could write their short essays on them and eventually forward the texts to me.

5.2.1. Choice of material and collection of data

5.2.1.1. Students' texts

The actual writing task performed by the students was an assignment chosen with the teacher's advice and deemed to be appropriate for both the CLIL and mainstream class. The two groups of students usually work with different materials in their English classes, so the teacher provided me with an instructor resource book, *Bildungsstandards in Österreich, Fremdsprachen, Englisch, 8. Schulstufe; Aufgabenbeispiele II* (Version September 2005), which contained plenty of appropriate writing tasks to choose from. All students were provided with the same writing task that asked them to produce a diary entry according to the provided prompt. As Read (2002: 198) suggests, "if the task is intended to elicit a fluent sample of writing […] without advance preparation, it makes sense to set a familiar topic that is related to the learners' experience". A diary entry was selected as an appropriate assignment that students from varied cultural backgrounds and age groups could easily relate to. As with any writing assignment, it is always possible that some learners will misunderstand the prompt or fall "victim to an unseen ambiguity in the task," (Hyland 2003: 224) but for the most part students should be able to write a short text about their day fairly easily. The prompt included a photograph and the initial sentence of a diary entry saying "I had a fantastic day today", and supplied students with clear instructions about how long the texts should be (i.e. between 100 and 120 words). It is interesting to mention here that only seven out of all 38 students in both classes (18.42 percent total) produced a number of words within the indicated range.

5.2.1.2. Questionnaire

As already mentioned above, the questionnaire is in German in order to avoid misunderstandings. In addition to the demographic background information dealt with above, the questionnaire also includes various questions about learners' dealings with the English language. This section lists the purposes of the questions, while a more detailed description of the analysis and marking scheme of the questionnaire will be given in Section 5.2.2.2.

Question (8) 'Wie beschäftigst du dich außerhalb der Schule mit der englischen Sprache?' is a multiple-choice question which offers the students different options to choose from, concerning English music, television, literature, conversations and traveling. Additionally, the question requires an open answer asking the students with whom they usually have English conversations, and to which countries they travel and use English. This question is designed to obtain information about whether the different kinds of schooling (i.e. CLIL or mainstream) have any influence on the personal interests of the students or vice versa.

Question (9) 'Welche Rolle spielt Englisch in deinem Leben?' seeks to discover if students of the bilingual program assign greater meaning to English than mainstream students, both inside and outside of school. Multiple-choice answers are used to determine the relative importance of English to the student as compared to German, and students are given the opportunity to add additional reasons for using English. The same question (10) is then asked with German substituting English in order to have a comparison between the two major languages in this study. However, since some students state neither English nor German as their mother tongue, an additional question (11) concerning their native language (if differing from English or German) is added asking how frequently they use it. The purpose of this question is to examine the differences in students' attitudes towards the English language and preferences for other languages.

Question (12) asks students to self-assess their language proficiency in English, concentrating on skills in speaking, writing, listening comprehension, reading comprehension, vocabulary

range and grammar. The special emphasis of this question is on the abilities in writing and vocabulary range in order to compare their evaluation to the final results.

The next questions included in (13) are addressed to CLIL students only and ask when they started attending a bilingual program, and how they would rate the progress they have made since then. These two questions are designed to obtain information about the students' learning experience and self-assessed progress through the CLIL program.

The next four questions aim to gain insight into how content students are with the type of schooling they attend (both CLIL and mainstream): Question (15) offers four different options to choose from, ranging from very content to very discontented; in Question (16), students are asked if they would recommend the branch of schooling they are in; Questions (17) and (18) elicit open-ended statements by students on what they personally like or dislike about their type of schooling.

Question (19) asks for the grades the student received in English and German on his or her most recent report card. A direct comparison between the self-assessed skills of the students and their grades is problematic; the self-assessment required in this questionnaire focuses on 6 specific language skill sets, while a teacher's grade is a broad reflection on a student's overall performance in an academic course and is not necessarily a good indicator of specific abilities. Therefore, while no direct connection between the two assessments can be established, the results provide an interesting comparison between a student's perceived language ability and actual performance in a course.

The last part of the questionnaire further examines some of the issues discussed in the theoretical part of this thesis. Question (20) is used to assess how students use English words that they encounter in their everyday lives in television, music, literature and conversation. Question (21) is related to question (20) and asks students for their reactions when encountering unknown English words. Here, one of the answer options pertains to inferring the meaning of unfamiliar words from their context which is an important characteristic of good foreign language learners (cf. Haastrup 1991: 13; Henriksen 2008: 25). Other choices available for this question include ignoring unknown words, asking someone

who might know the word, or consulting a dictionary, which is strongly connected to additional research on dictionary consultation (cf. Bensoussan 1983; Coady & Huckin 1997; Nation 2001). The aim of Questions (22) and (23) is to provide information on the different groups of students in the CLIL and mainstream class and their preference for different kinds of dictionary.

The final item of the questionnaire (24) asks students how they react when one of their peers uses an English word incorrectly. The purpose of this question was to investigate the students' attitudes towards the correct use of English since CLIL classrooms are said to "use the foreign language free of the pressure for linguistic correctness" (Dalton-Puffer 2007: 205).

5.2.2. Analysis Procedure

This section discusses the methods used in analyzing the students' texts and explains how certain language items are assessed, and includes criteria for errors and examples of various error categories. The chapter opens with an account of the analysis of the students' written samples, and concludes with an analysis of various items in the questionnaire.

5.2.2.1. Students' texts

For the analysis of the written samples, the focus is on the differences in writing abilities between the CLIL and mainstream class. In order to obtain information about the vocabulary range of the two groups, a device for measuring the total number of words and number of different lexical words used in the texts is needed. The *type-token ratio* (TTR) is intended to measure lexical variation in writing. There are different tools available, such as 'WordSmith Tools' (Scott 1997) and 'AntConc' (Anthony 2006), the latter of which was applied to this study to gain information about the types and tokens included in the writing. 'AntConc' attains the TTR by dividing the number of types (i.e. total number of different lexical words) by the number of tokens (i.e. total number of words in a text) and, thus, indicates a high or

low degree of lexical variation (i.e. between 0 and 1). TTR can become less reliable when applied to texts which differ noticeably in length, since the more words a student uses, the lower the variation will be (cf. Read, Alderson & Bachman 2002: 202). For the purpose of this study, however, which includes short texts of relatively similar length. Additional information about the number of and types of errors in the TTR analysis will be included later in the thesis (see Sections 6.1.1. and 6.1.2.).

Studies on differences in language errors between L1 and EFL students show that EFL learners' writings usually contain more vocabulary mistakes, whereas spelling errors are the most common type of error in English native speakers' texts (cf. Blue 2000: 103, 105). In order to understand the types of errors referred to in this study, definitions of the applied error categories need to be provided.

It is crucial for intra-rater reliability to be "internally consistent: that is, each examiner should agree with him or herself marking the same performance on a different occasion" (Alderson, Clapham & Wall 1995: 135). Three broad categories of error can be defined for this study, namely 'vocabulary', 'spelling' and 'grammar'. Vocabulary errors include both syntagmatic and paradigmatic errors, meaning that incorrect collocation patterns and incorrect or omitted lexical items all fall into this category. The spelling errors category concerns any type of erroneous spelling that can be attributed to a lack of knowledge of how to spell a word or to carelessness while writing. Grammar errors represent a variety of different mistakes, such as an incorrect choice of tense, a misuse of person (first, second or third) or a misuse of number (singular or plural). Mistakes involving syntactical rules (e.g. the use of gerund instead of the infinitive) and syntactical structure (i.e. word order) are also included in the category. The cause of grammar errors can sometimes be the overgeneralization of already acquired knowledge, such as using a regular verb ending (e.g. '–ed') with irregular verbs.

Since some language items are inherently ambiguous, assigning errors to one category is not always simple. As such, in addition to the three categories of vocabulary, spelling and grammar errors, some types of errors detected in this research are best considered blended errors (i.e. 'vocabulary/spelling', 'vocabulary/grammar' and 'spelling/grammar'). Other

findings in the literature report difficulties in categorizing errors as well, such as Arnaud (1989 quoted from Read, Alderson & Bachman 2002: 97) who "was unable to show that vocabulary – or grammar, for that matter – existed as a separate construct". For the purpose of the analysis in this study, instead of using six categories of errors, blended errors are counted at half the value in both categories (a 'vocabulary/grammar' error, for example, is counted as .5 vocabulary and .5 grammar); in this way the three broad error categories can be maintained. Section 6.1.2. provides an account of errors included in the texts to see the differences between CLIL and EFL students.

Some examples contained in the texts need to be listed here in order to understand how they are analyzed. Since the writing task required writing a diary entry, many students used very colloquial language. For this analysis, informal or spoken language items, such as 'Haha', 'Oh' or 'Yummy', are counted as regular words as long as they represent an existing word in English (acc. to 'Macmillan English Dictionary' 2002). Proper nouns, such as 'Jessica', 'Prater' or 'Kärnter Street', are counted as regular words as well. When students use variant spellings, for example 'flavour' and 'flavor', the words are counted as different types by the computational program. During the course of analysis, these spellings were changed in order to achieve reliable results. Since 'AntConc' treats all letters as lower case, and since the proper use of capital letters is not directly relevant to this study, incorrect usages of capital letters (e.g. 'I hit the *Ball really hard') are ignored. On the other hand, if a student omits a word, it is categorized as a (paradigmatic-) vocabulary error (e.g. 'one o'clock *¥ afternoon'). If a mistake occurs more than once in the same text and affects the same lemma (such as '*make pictures' and 'this picture was *made'), it is only counted once. However, when a similar mistake occurs and affects different words (or lemmas) in the same text, the mistake is marked more than once (e.g. 'we went shopping, *playing football and *having fun' instead of 'we went shopping, played football and had fun'). Most words only contain one mistake, however, when a combination of errors occurs they are counted multiple times; such is the case in the sentence, 'And her mother **make this wonderful picture' instead of 'And her mother took this wonderful picture'). Here the word 'make' is affected by two types of errors, namely one tense error (i.e. grammar) and one vocabulary error ('make' instead of 'take'). That combination of errors is easier to classify than others, such as the 'grammar/spelling' error, 'I had to *shot balloons', where it is difficult to determine whether

the student is unable to form the past tense of 'shoot' or has just made a spelling mistake. In this case, the mistake is counted as .5 grammar and .5 spelling. The category of 'vocabulary/grammar' primarily comprises syntagmatic collocational errors that are difficult to define as a clear error category. This group of errors includes the use of wrong prepositions (*at the evening), personal pronouns (I was making *my ready) or articles (buy *an ice cream). As a final note, the introductory phrase of the task , 'I had a fantastic day today!', is not included in the analysis of the students' writing samples.

5.2.2.2. Questionnaires

The questionnaire contains 24 items, each providing the students with different response types, including multiple-choice, open-ended questions and questions that blend these two options. The investigated questions deal with independent background variables and need to be analyzed according to specific coding principles. The coding of items "involves converting the answer into a *numerical score*" (Dörnyei 2003: 98), which means that every response option in closed-ended questions corresponds to a number. As for open-ended questions "the task is to condense the detailed information contained in the response into a limited number of categories" (ibid.: 99). In order to obtain the results for each question, all answers of one questionnaire item corresponding to the same number are added up and divided by the number of students in the group (e.g. 22 CLIL students, 9 CLIL-G, etc.); the outcome of the questions can either be expressed in absolute numbers or percentages (e.g. *nine out of 16 students* or *56.25 percent of EFL students speak Turkish as a native language*). The latter is helpful when comparing groups containing a differing number of students (e.g. *59.09 percent of CLIL students and 75 percent of EFL students have been learning English at least since primary level)*.

Questions (1-7) ask students for information about the native and foreign languages they speak, their birthplaces and countries of temporary residence. Since the number of stated countries and languages is limited, it is feasible to categorize and evaluate the stated answers.

Question (8): Wie beschäftigst du dich außerhalb der Schule mit der englischen Sprache?

For the evaluation of this question, the numbers 1 to 4 are assigned to the different options according to their potential frequency: 'gelegentlich' becomes 1, 'mehrmals im Monat' becomes 2, 'mehrmals die Woche' becomes 3, and 'täglich' becomes 4. For traveling, the different options are 'selten', 'einmal im Jahr', 'mehrmals im Jahr' and 'mindestend einmal im Monat' and correspond to 1 to 4, respectively. Every option provides additional options to select in regard to how often students engage in those activities. Each activity is analyzed separately according to frequency and illustrated for the different groups of students. The findings of the question in Section 6.2. will depict the results for students and leisure activities along the scale from 1 to 4.

Questions (9-11): Welche Rolle spielt Deutsch/ English/ deine Muttersprache in deinem Leben?

All three questions are numerically coded according to a similar scheme. The available responses for the questions referring to English and German are assigned the numbers 1 to 5. Four of them represent multiple-choice options which are 'Ich spreche nur English wenn es für die Schule sein muss' (1), 'Ich spreche English regelmäßig, auch außerhalb der Schule' (2), 'Ich spreche English und Deutsch gleich oft, beide sind wichtig' (3) and 'Ich spreche meist English, English ist mir wichtiger als Deutsch' (4)[9]. The last option is an open-ended question for which the students' answers need to be classified according to different reasons they give for using the language. Question (11) asks students for their mother tongue, if different from German or English, and how frequently they use it. Again, the given options are multiple-choice answers (coded with the numbers 1 to 4) which are complemented by one open-ended question in which the answers can be categorized into a limited number of responses. The multiple-choice answers include 'Ich spreche meist meine Muttersprache, diese ist mir wichtiger als Deutsch oder English' (1), 'Ich spreche meine Muttersprache regelmäßig, auch außerhalb der Schule' (2) and 'Ich spreche meine Muttersprache gleich oft wie Deutsch und English, alle drei sind wichtig' (3). The last option given is 'Ich spreche meine Muttersprache nur aus bestimmten Gründen. Zum Beispiel:'. Students' answers here can often be generalized as belonging to the 'friends' category. Surprisingly, two (Austrian) students pick 'Ja' when asked if their native language is different from English or German,

[9] For Question (10) 'Deutsch' is substituted for 'English' and vice versa.

and state "Österreichisch" as their mother tongue, both choosing the answer 'Ich spreche meist meine Muttersprache, diese ist mir wichtiger als Deutsch oder Englisch'. Naturally these results are not counted as a foreign language, since in my study Austrian German is included in the German language.

Question (12): Wie schätzt du deine Englischfähigkeiten in den folgenden Bereichen ein? Beurteile dich selbst nach Schulnoten:

Students are to assess themselves according to the Austrian school grades 1 to 5 in the fields of 'Sprechen', 'Schreiben', 'Hörverstehen', 'Leseverstehen', 'Wortschatz/Vokabular' and 'Grammatik'. Since the grades are numerical, no further analytical coding is necessary. The analysis for this question primarily focuses on the comparison between the skills of writing and vocabulary and the individual outcomes of the students' texts.

Question (13): Wie würdest du deine Verbesserung deiner Englischkenntnisse bewerten?

The first sub-question asks the students if they attend the bilingual program of the school; only if the students choose 'yes', is the question analyzed further. The next sub-question is 'Wenn ja, seit wann besuchst du bereits den bilingualen Zweig?'. The short answers given by students either state the number of years of learning experience or the level of school (e.g. primary school) they started attending the program. Those can easily be summarized and assigned to categories such as 'primary level'.

The next question also only applies to CLIL students and asks 'Wenn ja, wie würdest du deine Verbesserung deiner Englischkenntnisse bewerten?'. Three options are given that are coded with the numbers 1 to 3, namely 'Ich habe mich im Vergleich zu früher sehr verbessert seitdem ich den bilingualen Zweig der Schule besuche' (1), 'Ich erkenne, dass ich wenige Fortschritte gemacht habe' (2) and 'Ich sehe keinen Unterschied in meinen Englischkenntnissen seitdem ich den bilingualen Zweig besuche' (3). The outcome of analysis can be described in percentages, for instance *63.6 percent of CLIL students say they have achieved considerable progress.* While there is a clear preference for one particular answer, it was surprising to see that each of the provided options was selected by students.

Question (15): Wie bist du mit dem jetzigen Unterrichtsschwerpunkt zufrieden?

The answers available for this question are 'sehr zufrieden' (1), 'eher zufrieden' (2), 'eher unzufrieden' (3) and 'unzufrieden' (4). Two students were unclear with their answers, as they positioned their cross between the provided answers. In these cases the answers were counted as .5 for each of the two closest options. Question (16) relates to the prior question by asking 'Würdest du ihn weiterempfehlen?', which can be answered by choosing either the 'Ja' (1) or 'Nein' (2).

Questions (17) and (18): Gibt es etwas, das dir an deinem Unterrichtsschwerpunkt besonders gefällt/ nicht gefällt? Wenn ja, was?

The short answers by students can be analyzed by putting them into categories such as 'native speaker input', 'imbalance of instruction languages' and 'pronunciation deterioration'.

Question (19): Welche Noten hattest du im letzten Zeugnis in den folgenden Gegenständen?

This question inquires about the grades received in the subjects' German and English courses. As discussed in Section 5.2.1.2., one might wish to relate these grades to students' self-assessments (Question (12)) but an accurate comparison between these is not justifiable since the overall grade of a subject and students' self-assessment are based on different metrics (compare Section 5.2.1.2.).

Question 20: Wo triffst du meist auf englische Wörter, die du nicht kennst?

The marking scheme for this question codes the provided answers with the following numbers: (1) = 'Fernsehen', (2) = 'Musik', (3) = 'Bücher, Zeitung', (4) = 'In Gesprächen mit anderen Leuten'. The additional option for the students to give a different response only results in one answer category ('English dialect'). Additionally stated answers such as 'Fachbücher' are implied by (3) of this questionnaire item and, therefore, do not represent a separate category; these answers were not counted in the analysis since students who gave the answer 'Fachbücher' also chose (3) ('Bücher, Zeitung') as a response.

Question 21: Wie reagierst du wenn du im Englischen auf ein unbekanntes Wort stößt?

The numbers 1 through 4 are assigned to the multiple answer options the students were offered: (1) = 'Ich ignoriere es weil das Wort wahrscheinlich nicht wichtig ist', (2) = 'Ich suche die Bedeutung des Wortes im Wörterbuch', (3) = 'Ich frage jemanden, der es wissen könnte (Mitschüler, Lehrer, Freunde, Familie, etc.)' and (4) = 'Ich versuche die Bedeutung durch ihren Zusammenhang zu erraten'. The last option, 'anderes.' only results in one further category stated by students which is 'Internet' (5). Another student provides the the answer 'frage Vater, der ist Englischlehrer', which can clearly be assigned to answer (3) and, therefore, is not counted as a separate answer category.

Question 22: Benützt du Wörterbücher?

The marking scheme provided for this question is: (1) = 'Ja, regelmäßig, auch privat', (2) = 'Ja, aber nur für die Schule' and (3) = 'Nein, ich benütze nie Wörterbücher'. For the last option 'Ich benütze Wörterbücher aus anderen Gründen, zum Beispiel:' students mention 'Hausübung' or 'Schularbeiten' which are both included in option (2), and thus do not require additional categories.

Question (23): Welche Wörterbücher benützt du?

This question offers the two options of monolingual English and bilingual German – English dictionaries ((1) = 'Deutsch – Englisch' and (2) = 'einsprachige Englischwörterbücher'). For 'andere Wörterbücher, zum Beispiel:' most CLIL students mention 'Deutsch – Französisch Wörterbuch' since the additional foreign language in the CLIL class is French; given that this analysis focuses on German and English, this response is not counted. 'iPod' is another answer stated under the last option, which can be categorized as a type of 'electronic dictionary' ('other').

Question 24: Wie reagierst du wenn ein Mitschüler ein englisches Wort falsch benützt oder falsch ausspricht?

The students were provided with multiple answers which are 'Ich korrigiere ihn obwohl ich weiß was er meint' (1), 'Ich ignoriere es weil ich auch so verstehe was er sagen will' (2) and 'Ich frage nur nach wenn ich nicht verstehe was er meint' (3). No additional answers are

stated under the option of 'anderes:' so the final coding includes only the three originally provided answer categories.

6. Findings of the data

The previous sections provided detailed information about the conditions under which research was conducted, the choice of materials and the analytical process. The first part of this chapter examines the results of the analysis of the written part of the study, reporting on the quantitative overview and different errors made by the students, while the second part will focus on the outcomes of the questionnaires.

6.1. Findings of students' texts

6.1.1. Quantitative overview

The database of written texts by students contains 5,492 tokens, consisting of 970 types. The 22 CLIL students produced 2,792 tokens, as compared to the 16 mainstream students who wrote 2,700. The mean number (M) of tokens per CLIL student is 126.9, 24.6 percent less than the 168.75 per EFL student. Given the specified range of 100 to 120, the average CLIL student participating in the study produced a number of words closer to the indicated range than the average EFL student.

The overall results from the text analysis are illustrated in the following table. It also includes the scores and mean scores of tokens, types and type-token ratio for the groups of German native speakers in the CLIL class (henceforth referred to as 'CLIL-G') and EFL class ('EFL-G') and CLIL English native speakers ('CLIL-E').

Table 2:   *Count of tokens, types, TTR*

	total	CLIL	CLIL-E	CLIL-G	EFL	EFL-G
tokens	5492	2792	1039	948	2700	1340
M	138.16	126.9	129.8	105.33	168.75	148.9
types[a]	970	671	369	325	587	393
M[b]	80.05	80	83.6	69.56	90.31	84
TTR						
M[c]	.5888	.6339	.6451	.6367	.5437	.5670

[a] types calculated by 'AntConc' include types obtained from entire number of texts
[b] M is calculated by dividing the sum of types included in each text by the number of students
[c] M is calculated by dividing the sum of TTR by the number of students

'AntConc' counts 2,792 tokens produced in the CLIL class including 671 types. If one wants to look at the mean score (M) for types to indicate the average lexical variation of a student's text, one cannot just divide the number of types measured by 'AntConc' by the number of students since the tool measured the different types included in the texts altogether. In other words, the program counts all types produced by students into one list of types, so assuming the word 'and' occurs in every student's text, it is counted as only one type for the texts altogether and would result in a distorted M after dividing it by the number of students. In order to avoid this discrepancy, the M of the CLIL students is calculated by adding up the individual scores of types and dividing each by 22; this results in an average value of 80 types per text (whereas dividing the overall number of 671 types as counted by 'AntConc' by 22 would obtain a false result of 30.5 types). Figure 3 illustrates the individual scores of CLIL and EFL students:

Figure 3:   *Ranking of individual scores of tokens and types*
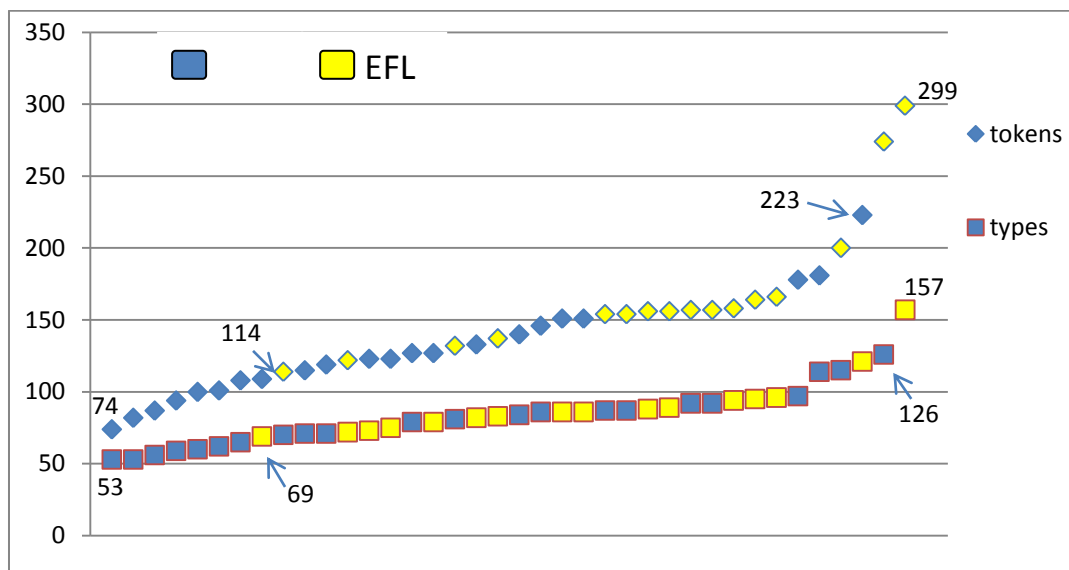
The figure shows that texts by EFL students are mostly situated in the upper part of the individual ranking of tokens, which means that EFL students in this study produced longer texts than their CLIL peers (between 114 and 229 tokens for EFL students, as compared to 74 to 223 tokens for CLIL students). Similarly, the individual scores of types are mostly higher for EFL students who produced texts containing between 69 and 157 types, while CLIL students' texts contained between 53 and 126 types.

This represents an unexpected finding since texts by EFL learners contain considerably more types and tokens than their CLIL peers' texts. Since both classes carried out the same writing task, this discrepancy could be explained by the manner in which the teachers explained the instructions for the task. It is possible that they may not have emphasized the importance of remaining within the indicated range of words included in the prompt.

The absolute number of types and tokens, however, does not truly indicate how broad the students' vocabulary range is. In order to reveal this, one needs to gain the TTR mean score by dividing every student's number of produced types by the number of tokens, and subsequently adding them up and dividing by 22; this yields an M of .6339 for CLIL, as compared to the average TTR for all participating students, which is .5888. This indicates that the CLIL students' texts show higher lexical variation than average.

Since an important distinction in this study is drawn between native speakers of German and English, the analysis obtained the scores for tokens, types and TTR in their texts as well, producing the following results: CLIL-G wrote 109.5 tokens and 69.56 types on average in their texts, resulting in a TTR of .6367. The average CLIL-E student produced 129.8 tokens and 83.6 types, which presents a TTR score of .6451.

In order to compare the EFL class to the CLIL class, it can be noted that the average TTR indicates a lower score of lexical variation (.5437) in the former, with a total of 2700 tokens and 587 types. The M for tokens and types of the whole class is 168.75 and 90.31, respectively. The average score for the EFL-G class is 148.9 tokens and 84 types; it is, therefore, longer than the average written text of a mainstream student but containing fewer types. The TTR mean for EFL-G is .5670 and, thus, higher than the average TTR of the entire EFL class.

Comparing the overall results of the CLIL to the EFL class, it can be noted that the average texts of EFL students contain more tokens (i.e. greater length) than the average CLIL text. Similarly, the average EFL-G produces longer texts than the average CLIL-G. Even though the average text of EFL students contains a higher quantity and tokens and types than the average CLIL text, the TTR does not indicate a higher score for lexical variation in this class. Figure 4 illustrates the individual TTR scores of CLIL and EFL students:

Figure 4:   Ranking of individual TTR scores
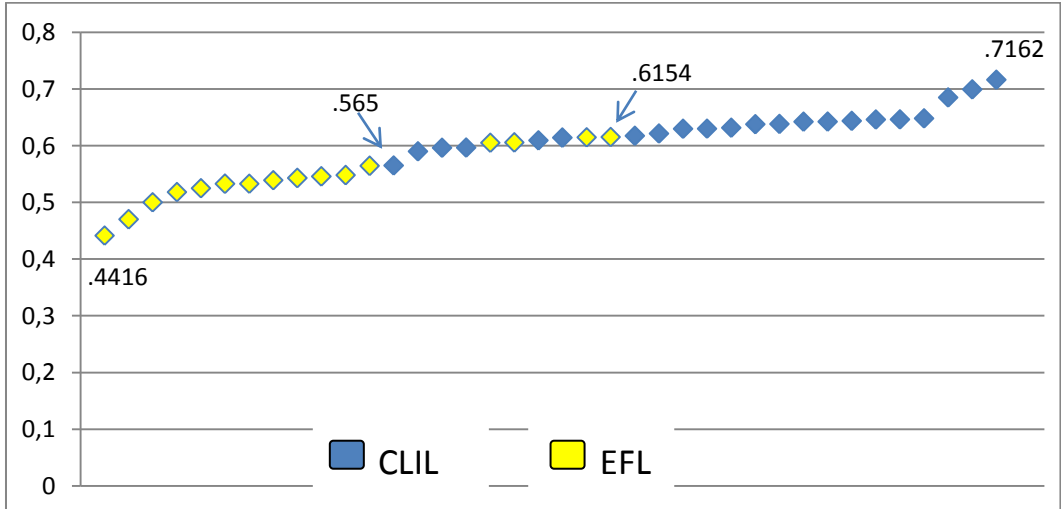
When looking at individual TTR results it becomes apparent that most CLIL students achieved higher TTR results than their EFL peers. TTR scores of CLIL students range from .565 to .7162, while TTR scores in the EFL class range from .4416 to .6154.

6.1.1.1. Individual results

The previous section discussed the overall rankings of students' tokens, types and TTR scores. Those descriptions served to illustrate the division of the classes' outcomes but could not be ascribed to particular students. This section will examine the individual performances of some of the participants.

In the CLIL class the two texts containing the smallest and largest number of tokens, respectively, show a large difference in length. The shortest text contains 74 tokens, while the longest text contains 223. The CLIL student producing the text with the highest number of 223 tokens also includes the highest number of types (i.e. 126) in the CLIL class; the student producing the shortest text includes the smallest number of types (i.e. 53).

Similarly, the findings from the mainstream classroom reveal that both the texts with the highest and lowest number of tokens show the highest and lowest number of types, respectively. The shortest and the longest texts vary greatly in length (114 tokens compared to 299 tokens), as well as in the number of types (69 types compared to 157 types).

The text containing the smallest number of tokens (i.e. 74) was written by a CLIL-G student. The highest number of tokens was produced by a (Serbian) EFL student, who also wrote the text with the most types. The texts with the lowest number of types were written by a CLIL-G and CLIL-E. Even though the shortest texts including the fewest types and tokens were produced in the CLIL class, the TTR generally shows higher lexical variation in CLIL texts (M= .6339) than in EFL texts (M= .5437). Moreover, when looking at the different groups of students, the English-speaking natives (CLIL-E) show a higher TTR (M= .6451) than German-

speaking natives of the CLIL class (M= .6367), and than their peers in the EFL class (EFL: M= .5437; EFL-G: M= .5670).

One can compare the types and tokens produced in the separate classes and groups of students but it would not be reliable to jump to conclusions that one group demonstrates greater language proficiency than the other. For this purpose, several components must be considered, such as the number of written errors (see Section 6.1.2.) and the statistical grounding.

6.1.1.2. Statistical testing

On the basis of numbers stated above one might be tempted to say that CLIL students perform better in writing with regard to lexical variation than EFL students. However, the variation in the mean scores alone is not enough to justify this conclusion; the differences in overall results could be affected by unusually high or low scores of a small number of students and as such, further statistical analysis is necessary. The application of statistics is crucial to prove the "genuine difference between two or more groups" (Rietveld & van Hout 1993: 15) since statistical testing determines "with a specified (low) degree of uncertainty that the variation between group means is not based on chance" (ibid.). For this purpose the *t-test* is applied to the results of the two classes. It statistically evaluates the mean scores of the CLIL and EFL class and indicates if there is a significant difference between them. Usually a significance level of .05 is used to decide if a hypothesis can be accepted or rejected. That means that "[t]he .05 level or 5% level is the probability of incorrectly rejecting the null hypothesis" (ibid.). The *null hypothesis* (H_0) used here predicts that there is no significant difference between the two groups; the *alternative hypothesis* (H_a), on the other hand, states that there is, in fact, a difference. Since this study intends to compare the means of two independent groups, the independent (unpaired) sample t-test is utilized. The assumptions for using the independent t-test with a small-sample ($n_1 < 30$, $n_2 < 30$)[10] confidence interval (95%) are "a normal distribution of the variable and a fairly similar standard deviation in the two groups" (Sylvén 2004: 71). The *standard deviation* (s_d) is the

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[10] For a more detailed description of *small-sample procedures* see McClave & Sincich (2003: 385-390).

measure of variability of a sample statistice. The square of the standard deviation corresponds to the *variance* which is the first important consideration when conducting a t-test.

Depending on the homogeneity of variance, different formulas are applied to the data samples in order to achieve statistically significant outcomes. The results of the *Levene-Test* provided by the *Statistical Package for the Social Sciences (SPSS)* indicate if the variance of groups is equal or unequal. The assumption of equal and unequal variance requires the use of different formulas for the independent t-test to achieve satisfactory results. Although the results for this research are automatically calculated by the computational program *SPSS*, this section will outline the relevant statistical formulas used in this study.

The first step in applying a t-test is formulating correct hypotheses. In this case the null and alternative hypotheses predict the following:

H_0:   The level of writing proficiency between the CLIL and EFL class does not show any significant difference.

H_a: The level of writing proficiency between the CLIL and EFL class shows a significant difference.

The procedures for independent sample t-tests require the calculation of the standard deviation which shows the relation between all values within a sample and the mean score. Depending on the assumption of variance of groups, the formula

$$s_d = \sqrt{\left(\frac{1}{n_1} + \frac{1}{n_2}\right) \cdot \frac{s_1^2 \cdot (n_1 - 1) + s_2^2 \cdot (n_2 - 1)}{n_1 + n_2 - 2}} \quad \text{(DGQ 1993: A 3.6, 19)}$$

for equal variance, and

$$s_d = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}} \quad \text{(Janssen \& Laatz 1999: 298)}$$

for unequal variance can be used to calculate the standard deviation.

The formulas include the variables n_1 and n_2 which denote the number of students in the two groups. The variance of the groups are represented by s_1^2 and s_2^2. Since the variance equals the square of the standard deviation, it is the sum of the squared distances from the mean divided by the *degrees of freedom*. The degree of freedom (df) is described as "[t]he number of observations that are free to vary when restrictions on the data are taken into account" (Rietveld & van Hout 1993: 4), and in case of homogenous variance, are equal to the sum of sample sizes ($n_1 + n_2$) minus 1 in each group. This results in ($n_1 - 1$) degrees of freedom in the first group and ($n_2 - 1$) in the second group; the degrees of freedom are then $n_1 + n_2 - 2$. In the case of this study, some results are based on equal variance, others on unequal variance; therefore, an additional formula is needed to obtain df. When the variance is considered unequal, the formula is more complex and represented as

$$df = \frac{\left(\frac{s_1^2}{n_1}+\frac{s_2^2}{n_2}\right)^2}{\frac{\left(\frac{s_1^2}{n_1}\right)^2}{n_1-1}+\frac{\left(\frac{s_2^2}{n_2}\right)^2}{n_2-1}} \text{ (ibid.).}$$

In order to achieve significant results, one still needs to calculate the test value t to find out if it exceeds the critical value and represents a significant difference between the two groups. After determining df and *α-level* of .05, distribution tables can be used to determine the critical values of t (e.g. McClave & Sincich 2003: 809). If the calculated t-value exceeds the critical value, the difference between the two samples is large enough to be significant and H_a can be accepted. The statistical significance can also be obtained through *SPSS* but if one wants to calculate the t-value according to a formula, the following ratio is of great importance: $t = \frac{\bar{x}_1 - \bar{x}_2}{s_d}$. For equal and unequal variance, respectively, the formulas are

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\left(\frac{1}{n_1}+\frac{1}{n_2}\right) \cdot \frac{s_1^2 \cdot (n_1-1)+s_2^2 \cdot (n_2-1)}{n_1+n_2-2}}} \text{ and } t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1}+\frac{s_2^2}{n_2}}}.$$

The formulas demonstrate that t is calculated by dividing the differences between group means ($\bar{x}_1 - \bar{x}_2$) by the standard deviation. In order to find out if the calculated t-values of

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this study exceed the critical values of the chosen significance level of .05, the above stated formulas need to be applied to the various results achieved by the CLIL and EFL students.

With regard to lexical variation in the students' texts, the type-token ratio is a relevant variable to be tested for statistical significance. The following table displays statistical results:

Table 3:   Unpaired t-test; TTR mean scores of CLIL and EFL (α= 0.5)

subjects	$\overline{x}_1 - \overline{x}_2$	s_d	t	critical value $t_{n_1+n_2-2;\,1-\propto}$	p[11]
CLIL vs. EFL n_1= 22, n_2 = 16	.090207	.013700942	6.584	1.688	.000***
CLIL-G vs. CLIL-E n_1= 9, n_2 = 8	-.008389	.016546351	-.507[12]	1.753	.620
CLIL-G vs. EFL-G n_1= 9, n_2 = 9	.0697	.020220482	3.447	1.746	.003*

* confidence interval of 95% (less than .05)
*** confidence interval of 99.9% (less than .001)

The table indicates that there is a statistically significant difference between the TTR results achieved by CLIL and EFL students (t = 6.584, p < .001). This outcome confirms the statistical significance of the findings in Section 6.1. which emphasized the difference in TTR mean scores between the two classes (CLIL: .6339, EFL: .5437) and, furthermore, indicates that the findings are extremely unlikely to be based on chance. The table shows that the slight difference between TTR means of the German and English native speakers in the CLIL class (CLIL-G: .6367, CLIL-E: .6451) is associated with a high degree of uncertainty (t = -.507, p = .620); in this case H_0 is not rejected. As to the German-speaking natives in both classes, the t-test reveals that the variation between TTR mean scores (CLIL-G: .6367, EFL-G: .5670) is statistically significant (t = 3.447, p < .05).

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[11] p is the value that represents the calculated probability of incorrectly accepting the alternative hypothesis. $\propto$, on the other hand, is the pre-determined probability of falsely accepting H_a.
[12] For the sake of completeness the negative values are stated here. For looking up t in distribution tables the negative sign is ignored, however (cf. Avison 2007: 315).

Table 4:   Unpaired t-test; tokens and types mean scores of CLIL and EFL (α= 0.5)

	subjects	$\bar{x}_1 - \bar{x}_2$	s_d	t	critical value $t_{n_1+n_2-2;\,1-\alpha}$	p
tokens	CLIL vs. EFL n_1= 22, n_2 = 16	-41.84	13.85889367	-3.019	1.688	.005**
	CLIL-G vs. CLIL-E n_1= 9, n_2 = 8	-20.32	14.33004231	-1.418	1.753	.177
	CLIL-G vs. EFL-G n_1= 9, n_2 = 9	-39.33	9.486251809	-4.146	1.746	.001**[13]
types	CLIL vs. EFL n_1= 22, n_2 = 16	-10.31	6.924110141	-1.489	1.688	.145
	CLIL-G vs. CLIL-E n_1= 9, n_2 = 8	-14.07	9.042416452	-1.556	1.753	.141
	CLIL-G vs. EFL-G n_1= 9, n_2 = 9	-14.44	5.541059094	-2.606	1.746	.019*

* confidence interval of 95% (less than .05)
** confidence interval of 99% (less than .01)

Differences in text length between the two classes are significant, in that the mean scores of CLIL and EFL students (CLIL: 126.9, EFL: 168.7) indeed show a statistically significant difference (t = -3.019, p < .01). However, the difference in the number of tokens produced in the texts of CLIL-G (i.e. M = 105.33) and CLIL-E (i.e. M = 129.8) students cannot be proven to be statistically significant and is based on 17.7 percent uncertainty (t = -1.418, p = .177). Writing samples of CLIL-G and EFL-G, on the other hand, indicate a significant difference between the mean scores of tokens (CLIL-G: 105.33, EFL-G: 148.9; t = -4.146, p < .01).

The only statistically significant outcome with regard to types can be found in texts written by CLIL-G (M= 69.56) and EFL-G (M= 84); the probability of falsely rejecting H_0 amounts to 1.9 percent (t = -2.606, p < .05). Differences between CLIL and EFL students (t = -1.489, p = 1.45), as well as between CLIL-G and CLIL-E (t = -1.556, p = 1.41) are not considered significant.

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[13] P indicates a marginal value since it implies a confidence interval of exactly 99.9 percent. Since only values <.001 are assigned a confidence interval of 99.9 percent, p is only indicated with **.

6.1.2. Account of errors

Since the collected texts contain errors of various sorts, the analysis does not only investigate different error categories but also the number of relative and absolute errors in the text. The absolute frequency of errors in the text is the total number of contained errors, whereas the relative number of errors depends on the length of the produced text. The relative number of errors can be obtained by multiplying the number of absolute errors by 100 and "dividing the result by the total number of words written to obtain a percentage" (Norrish 1983: 104). Determining the error categories (as described in Section 5.2.2.1.) is necessary to indicate the frequency of certain errors between different groups since stating the overall error frequency in texts is not accurate enough for the aim of this study. In terms of the absolute frequency, the EFL class made more errors than the CLIL class (EFL: 131; CLIL: 106). This finding becomes even more significant after considering the relative frequency of errors in the texts, which amounts to 3.79 percent for CLIL texts, and 4.85 percent for EFL texts. Comparing the frequency of errors between German native speakers in both classes, shows that CLIL-G students (with 40 errors and 4.06 percent relative frequency), made fewer errors than the EFL-G class with 76 errors (5.67 percent relative frequency). The number of absolute errors for CLIL-E is 37 (i.e. 3.56 percent relative error frequency) and, thus, lower than for CLIL-G or EFL students.

When looking at the prevalence of different kinds of error in the CLIL and mainstream class, crucial differences can be found. The following table presents the complex findings of vocabulary, spelling and grammar mistakes with regard to the different groups of students:

Table 5:   Error categories

	CLIL				CLIL-G				CLIL-E			
	total	M	RF	p.c.	total	M	RF	p.c.	total	M	RF	p.c.
V	22	1	.79	21.57	10.5	1.17	1.07	27.63	3	.375	.29	7.23
S	62.5	2.84	2.24	61.27	20	2.22	2.03	52.63	31	3.875	2.99	74.7
G	21.5	.98	.62	20.28	9.5	1.06	.97	23.75	3	.375	.29	7.23

	EFL				EFL-G			
	total	M	RF	p.c.	total	M	RF	p.c.
V	37.5	2.34	1.39	29.76	22.5	2.5	1.68	30.4
S	35.5	2.22	1.32	28.17	20.5	2.28	1.53	27.7
G	58	3.625	2.15	44.27	33	3.67	2.46	43.4

Key: V: vocabulary
         S: spelling
         G: grammar
         total: total number of errors
         RF: relative error frequency
         p.c.: percent

Spelling accounts for the majority of errors in CLIL students' writing. Texts in the CLIL class contain 106 errors, of which 22 are vocabulary errors (21.57 percent of all errors), 21.5 are grammar errors (20.28 percent) and 62.5 (61.27 percent) are errors affecting spelling. Measuring the frequency of errors shows that CLIL students made .79 vocabulary errors, .62 grammar errors and 2.24 spelling errors for every ten written words. Comparing CLIL-G to CLIL-E students, one can see that CLIL-E students make more spelling errors (2.99 in every ten words) than CLIL-G students (2.03 in every ten words). By percentage, 52.63 percent of errors made by CLIL-G, and 74.7 percent by CLIL-E are spelling-related. Vocabulary errors occur very infrequently with CLIL-E (three errors in total, i.e. 7.23 percent of all errors by CLIL-E). In contrast, 27.63 percent of errors made by CLIL-G are vocabulary-related. With regard to individual students, the average number of vocabulary errors per student is 1.17 (CLIL-G) and .375 (CLIL-E). Pertaining to grammar, the average CLIL-G makes 1.06 mistakes per text, as opposed to the average CLIL-E with .375. Overall, the largest number of errors occurred in a CLIL-G student's text. This student's text contains a total of 13 errors, which, when divided over the length of his text, indicates an error frequency of 1.49 in every ten words. Moreover, this student produced the highest number of vocabulary mistakes (.52 for every ten words) and spelling mistakes (.75 for every ten words). The student with the

lowest relative frequency of errors is a CLIL-G as well; this student only made a single spelling mistake in his writing, and, acquired a relative error frequency score of .068.

When looking at the frequency of errors in the mainstream class, it is immediately noticeable that most students made errors in all three categories. Twelve out of 16 students (75 percent) make vocabulary, spelling and grammar errors in their texts. In contrast, only eight out of 22 CLIL students (36.36 percent) include all categories of errors in their writing. The rest of the CLIL students' writings can be classified into those containing two kinds of errors (nine students; i.e. 40.9 percent) and those containing only one kind of error category (two students; i.e. 9.1 percent).

In order to determine the significance of the findings stated above, statistical testing is required. The application of the t-test reveals differences between the groups of students with regard to produced mistakes, as the following tables demonstrate:

Table 6:   Unpaired t-test; mean scores of overall errors of CLIL and EFL (α= 0.5)

subjects	$\bar{x}_1 - \bar{x}_2$	s_d	t	critical value $t_{n_1+n_2-2;\ 1-\alpha}$	p
CLIL vs. EFL n_1= 22, n_2 = 16	-3.37	1.047559838	-3.217	1.688	.003**
CLIL-G vs. CLIL-E n_1= 9, n_2 = 8	-.19	1.775700935	-.107	1.753	.916
CLIL-G vs. EFL-G n_1= 9, n_2 = 9	-4	1.626677511	-2.459	1.746	.026*

* confidence interval of 95% (less than .05)
** confidence interval of 99% (less than .01)

Table 6 shows the results of the statistical testing applied to the number of overall errors students include in their texts. Taking all categories of errors into account, the findings indicate that the students' mean scores of errors yield 4.82 (CLIL) and 8.19 (EFL). Statistically this outcome is considered significant (t = -3.217, p < .01) and, therefore, H_a can be accepted. While the slight differences in mean scores between CLIL-G and CLIL-E are not significant (t = -.107, p = .916), the variation between CLIL-G and EFL-G (CLIL-G: 4.44, EFL-G:

8.44) is significant because it reveals a low probability (2.6 percent) that findings have occurred by chance (t = -2.459, $p < .01$).

In order to look at further differences between errors made by students, the following table demonstrates the difference in mean scores of vocabulary errors of the CLIL and mainstream class:

Table 7: Unpaired t-test; mean scores of vocabulary errors of CLIL and EFL (α= 0.5)

subjects	$\overline{x}_1 - \overline{x}_2$	s_d	t	critical value $t_{n_1+n_2-2;\ 1-\alpha}$	p
CLIL vs. EFL n_1= 22, n_2 = 16	-1.344	.498886414	-2.694	1.706	.012*
CLIL-G vs. CLIL-E n_1= 9, n_2 = 8	.792	.559717314	1.415	1.753	.177
CLIL-G vs. EFL-G n_1= 9, n_2 = 9	-1.333	.820307692	-1.625	1.746	.124

* confidence interval of 95% (less than .05)

The only statistically significant result with regard to the number of vocabulary errors is found between the differences in mean scores of CLIL and EFL students (CLIL: 1, EFL: 2.34; t = -2.694, $p < .05$). In other words, CLIL students in this study do not include as many errors resulting from the lack of lexical knowledge in their texts as EFL students. Findings on vocabulary errors made in texts of CLIL-G and CLIL-E (t = 1.415, p = .177), and CLIL-G and EFL-G (t = -1.625, p = .124) are not considered statistically significant.

The analysis further shows that most vocabulary errors concerning syntagmatic relations are made by CLIL students (69.23 percent). 36.36 percent of CLIL and 25 percent of EFL students include syntagmatic collocational errors in their texts; this, however is an insignificant result with an error probability of 50.6 percent (t = .690, p = .506). This suggests that the variance in syntagmatic vocabulary errors between the CLIL and EFL class is not significant. Similarly, the difference in produced paradigmatic errors between the two classes is not significant (t = -.495, p = .630). Nevertheless, it is worth noting that the majority of vocabulary errors regarding paradigmatic relations are made by EFL students (66.67 percent). 50 percent of

EFL students and 22.7 percent of CLIL students include paradigmatic vocabulary errors in their texts, none of whom are native speakers of English.

Table 8:   Unpaired t-test; mean scores of spelling errors of CLIL and EFL (α= 0.5)

subjects	$\overline{x}_1 - \overline{x}_2$	s_d	t	critical value $t_{n_1+n_2-2;\,1-\propto}$	p
CLIL vs. EFL n_1= 22, n_2 = 16	.622	.620139581	1.003	1.688	.003**
CLIL-G vs. CLIL-E n_1= 9, n_2 = 8	-1.653	1.257034221	-1.315	1.753	.208
CLIL-G vs. EFL-G n_1= 9, n_2 = 9	-.056	.875	-.064	1.746	.95

** confidence interval of 99% (less than .01)

Table 8 shows the differences in mean scores of spelling errors between the groups of students and reveals that the only significant result occurs between CLIL and EFL students (CLIL: 2.84, EFL: 2.22; $t = 1.003$, $p < .01$). This means that CLIL students made significantly more spelling mistakes in their texts than EFL students. Testing of CLIL-G and CLIL-E does not turn out to be significant (t = -1.315, p = .208) although the mean scores of groups showed considerable difference (CLIL-G: 2.22, CLIL-E: 3.875). Similarly, variation in mean scores of spelling errors by CLIL-G and EFL-G (CLIL-G: 2.22, EFL-G: 2.28; t = -.064, p = .95) does not turn out to be significant since the probability of error to reject H_0 is too high.

Table 9:   *Unpaired t-test; mean scores of grammar errors of CLIL and EFL (α= 0.5)*

subjects	$\overline{x}_1 - \overline{x}_2$	s_d	t	critical value $t_{n_1+n_2-2;\,1-\propto}$	p
CLIL vs. EFL n_1= 22, n_2 = 16	-2.648	.611123933	-4.333	1.688	.003**
CLIL-G vs. CLIL-E n_1= 9, n_2 = 8	.681	.471280277	1.445	1.753	.169
CLIL-G vs. EFL-G n_1= 9, n_2 = 9	-2.611	.788107455	-3.313	1.721	.000***

** confidence interval of 99% (less than .01)
*** confidence interval of 99.9% (less than .001)

Table 9 indicates the most striking results between grammar errors by CLIL and EFL students in general and between German native speakers in both classes. CLIL-G clearly include fewer grammar errors in their texts than EFL-G do (CLIL-G: 1.06, EFL-G: 3.67; t = -4.333, p < .01). Consequently, the mean score of CLIL is statistically different from EFL (CLIL: .98, EFL: 3.625) which means that the probability of error to assume that those findings are false is significantly low (t = -3.313, p < .001). In order to emphasize these findings, the t-test is also applied to the difference in mean scores of grammar errors in every ten words (i.e. relative frequency of errors). The outcome indicates statistical significance between CLIL and EFL (t = -3.710, p = .001), and CLIL-G and EFL-G (t = -2.525, p = .023) but not for CLIL-G and CLIL-E (t = 1.623, p = .133).

6.1.2.1. Adjusted texts

By analyzing the students' texts and excluding all erroneous language items, it becomes apparent that the adjusted outcomes of produced tokens, types and TTR vary from the original results. The purpose of investigating adjusted writings is to analyze language that students used correctly. Included mistakes are deleted in order to see if the results of students' unerroneous writings differ from the original results, including all erroneous language items, i.e. language of which students do not demonstrate sufficient knowledge. This section focuses on the differing results of the original and adjusted texts in order to see

how the deletion of errors affects the writing. The following table lists the numbers of deleted items according to the different groups of students:

Table 10:   Difference (D) between adjusted (*) and original types, tokens (overall numbers) and
              TTR (mean score)

	tokens*	tokens	D	types*[a]	types	D	TTR*	TTR	D
total	5250	5492	242	3042	3205	163	.5959	.5921	.0038
CLIL	2686	2792	106	1680	1760	80	.6295	.6339	.0044
CLIL-E	998	1039	41	638	669	31	.6406	.6451	.0045
CLIL-G	948	986	38	600	626	26	.6348	.6367	.0019
EFL	2564	2700	136	1362	1445	83	.5407	.5437	.003
EFL-G	1257	1340	83	704	756	52	.5630	.5670	.004

[a] number of types as sum of all types (i.e. not measured by 'AntConc')

The table shows that both the highest number of tokens (i.e. 136) and number of types (i.e. 83) is deleted from EFL texts, although without statistical testing significance of these numbers cannot be determined. The variation between the adjusted and original texts of the different groups of students cannot be determined by means of an independent t-test, however. In this case, the application of the *dependent* t-test is necessary since paired samples need to be investigated. The samples are related in such a way that each text provides two values, the first including erroneous language items and the second excluding them. The t-value in this procedure is calculated using the formula

$$t = \frac{\overline{D}}{\frac{S_D}{\sqrt{n}}} \quad \text{(Janssen \& Laatz 1999: 303)}$$

and includes the variables of sample mean difference ($\overline{D}$), sample standard deviation of differences (S_D) and the number of pairs (n). The variation of paired samples is displayed in Table 11:

Table 11:   *Paired t-test; difference between adjusted (*) and original types, tokens, TTR (α= 0.5)*

	subjects	$\overline{D}$	S_D	t	critical value $t_{n-1;\ 1-\alpha}$	p
tokens — **tokens***	**CLIL** *n* = 22	4.818	3.172	7.125	1.721	.000***
	CLIL-E *n* =8	5.125	2.850	5.085	1.895	.001**
	CLIL-G *n* =9	4.222	3.898	3.250	1.860	.012*
	EFL *n* =16	8.500	3.983	8.536	1.753	.000***
	EFL-G *n* =9	9.222	3.701	7.476	1.860	.000***
types — **types***	**CLIL** *n* = 22	3.636	2.718	6.276	1.721	.000***
	CLIL-E *n* =8	3.875	2.850	3.845	1.895	.006**
	CLIL-G *n* =9	2.889	3.898	2.911	1.860	.020*
	EFL *n* =16	5.188	3.016	6.880	1.753	.000***
	EFL-G *n* =9	5.778	2.539	6.828	1.860	.000***
TTR — **TTR***	**CLIL** *n* = 22	.0044227	.0098260	2.111	1.721	.047*
	CLIL-E *n* =8	.0044625	.0092198	1.369	1.895	.213
	CLIL-G *n* =9	.0019222	.0110879	.520	1.860	.617
	EFL *n* =16	.0030313	.0073621	1.647	1.753	.120
	EFL-G *n* =9	.0039444	.0088976	1.330	1.860	.220

* confidence interval of 95% (less than .05)
** confidence interval of 99% (less than .01)
*** confidence interval of 99.9% (less than .001)

The statistical analysis indicates a low degree of error probability in almost every paired sample, which means that most differences are statistically significant. The differences between adjusted and original texts pertaining to types and tokens are considered significant overall. Most significant, with a confidence interval of > 99.9 percent, are the results for deleted tokens and types in groups of CLIL (tokens: t = 7.125, p < .001; types: t = 6.276, p < .001), EFL (tokens: t = 8.536, p < .001; types: t = 6.880, p < .001) and EFL-G (tokens: t = 7.476, p < .001; types: t = 6.828, p < .001).

With regard to TTR results, the high difference between adjusted and original texts of CLIL students as a group is also validated by statistical testing (t = 2.111, p < .05), although this is not the case for CLIL-E students (t = 1.369, p = .213). Furthermore, variation in the TTR of texts including and excluding erroneous language is not determined to be significant by means of the paired t-test for CLIL-G students (t = .520, p = .617), EFL (t = 1.647, p = .120) and EFL-G (t = 1.330, p = .220).

The correct and incorrect usage of language by students is an important consideration. Improper language usage in writing might distort the outcome since erroneous items are still counted as additional tokens and types. Spelling mistakes could increase the value of types included in a text since each falsely used item is counted separately. Thus, correct and incorrect language is counted equally although the student might not have sufficient knowledge about the correct use of it. By utilizing the unpaired t-test the differences in mean scores of correctly used types and tokens can be obtained, and are presented in the following table:

Table 12:   Unpaired t-test; correct tokens and types mean scores of CLIL and EFL (α= 0.5)

	subjects	$\overline{x}_1 - \overline{x}_2$	s_d	t	critical value $t_{n_1+n_2-2;\,1-\propto}$	p
tokens	**CLIL vs. EFL** n_1= 22, n_2 = 16	-38.16	13.61398502	-2.803	1.688	.008**
	CLIL-G vs. CLIL-E n_1= 9, n_2 = 8	-19.42	14.0826686	-1.379	1.753	.188
	CLIL-G vs. EFL-G n_1= 9, n_2 = 9	-34.34	9.973860006	-3.443	1.746	.003**
types	**CLIL vs. EFL** n_1= 22, n_2 = 16	-8.77	6.654021244	-1.318	1.688	.196
	CLIL-G vs. CLIL-E n_1= 9, n_2 = 8	-13.08	8.74916388	-1.495	1.753	.156
	CLIL-G vs. EFL-G n_1= 9, n_2 = 9	-11.55	5.874872838	-1.966	1.746	.067

** confidence interval of 99% (less than .01)

Similar to the analysis of writing samples including erroneous language, this table shows that there is a significant difference between the mean scores for tokens in CLIL and EFL (t = -2.803, p < .01), and CLIL-G and EFL-G (t = -3.443, p < .01). The variation of scores within the CLIL class (CLIL-G and CLIL-E) is not considered significant (t = 1.379, p = .188).

Writings excluding erroneous items do not show significant variation between any groups of students with regard to types. This indicates that there is a discrepancy in findings obtained using only correct language samples and those using incorrect language samples, since the writing taking all (incorrect) words into account does, in fact, indicate a statistical difference for CLIL-G and EFL-G (see Section 6.1.1.2.). Results of TTR including only correctly used types and tokens corresponds to the previous outcomes as well (Section 6.1.1.2.) by revealing statistically significant differences between CLIL and EFL (t = 6.424, p < .001), and CLIL-G and EFL-G (t = 3.439, p < .01). Further values involved in the difference between TTR means are included in Table 13:

Table 13:   *Unpaired t-test; correct language TTR mean scores of CLIL and EFL (α= 0.5)*

subjects	$\bar{x}_1 - \bar{x}_2$	s_d	t	critical value $t_{n_1+n_2-2;\,1-\propto}$	p
CLIL vs. EFL n_1= 22, n_2 = 16	.088817	.013825809	6.424	1.688	.000***
CLIL-G vs. CLIL-E n_1= 9, n_2 = 8	-.005849	.014441975	-.405	1.753	.691
CLIL-G vs. EFL-G n_1= 9, n_2 = 9	.071722	.020855481	3.439	1.746	.003**

** confidence interval of 99% (less than .01)
*** confidence interval of 99.9% (less than .001)

6.1.2.2. Sample writing errors

Since it is not feasible to give an account of each of the 237 detected errors (106 by CLIL students, 131 by mainstream students) in this paper, this section highlights some cases that are representative for different error categories. Some of the errors are easily definable, while others are ambiguous, and more difficult to categorize.

<u>Vocabulary</u>

Findings presented by other researchers studying vocabulary errors show that nouns and adjectives are easily learned and, therefore, not likely to be misused by foreign language learners. Verbs and adverbs, on the other hand, are more difficult to learn because they do not provide the learners with mental images (cf. e.g. Ellis & Beaton 1995: 13). The results of this study seem to support these findings, as most of the detected vocabulary errors affect verbs. The texts of CLIL and EFL students contain 19 (verb-) vocabulary errors altogether. Nine out of these 19 errors are made by German native speakers (47.37 percent), and only two by English natives (10.53 percent). In other words, 10.53 percent of (verb-) vocabulary errors are produced by students speaking English as their native language, and 89.47 percent by foreign language learners (including all students having a language other than English as their mother tongue). Foreign language students in this study have few problems with nouns. The overall number of eleven misused nouns is only detected in texts of non-native speakers of English. Likewise, the texts do not contain many vocabulary errors concerning adjectives; only four adjectives are used incorrectly, and all four errors were made by foreign language learners. The analysis further shows that prepositions are problematic for learners. Collocational vocabulary errors of prepositions are made 15 times and all are made by foreign language learners (nine of whom are German native speakers). As function words, prepositions do not supply any concrete images to learners, and their use may also be responsible for important vocabulary errors in this study.

A few examples are presented here to illustrate the vocabulary problems described above. An item that is used incorrectly by students in both classes is the wrong choice of the verb in the phrase 'to take photos'. This mistake is made eleven times by nine different students, eight of whom use the verb '*make' (in multiple ways, such as 'Erin, my best friend *made a lot pictures with her camera', 'We asked an old lady to *make a picture of us' or 'This is how

this picture was *made'), and one who writes 'We *did many *weard photos'. The misuse of 'make' instead of 'take' is an example of an interlingual error and might be due to negative transfer from German, where it is correct to say 'ein Foto zu *machen'* ('to *make* a photo'). The lexical error represents an unambiguous vocabulary error and can be classified as an incorrect collocation pattern. Surprisingly, 23.7 percent of all students choose the incorrect word in this situation, even though the prompt of the writing task explicitly states 'You have *taken* the photo above' when asking students to write their diary entry based on the illustration shown on the same page[14]. Further instances of negative transfer causing vocabulary problems for students are found in examples like '*banks' ('benches'), 'football *place'* ('football *ground'*), '*stadion' ('stadium'), '*autogramm' ('autograph'), 'He *gratulated* me for the good grade' ('congratulated') and 'we looked around and *made* a little walk' ('took').

Spelling

Another type of error made by students in both classes that is easy to assign is spelling. The misspelling of '*parc' is made seven times by five different students, which amounts to 13.16 percent of all students making this mistake. This type of misspelling belongs to the group of dyslexic errors and indicates the confusion of two letters that can be pronounced similarly, as in 'park' and '*parc' (cf. James 1998: 133). Some other spelling errors in the students' texts are due to ambiguous pronunciation. The neutral vowel 'schwa' sometimes causes difficulty for students, such as in '*unfortunetly' ('unfortunately'), '*breakfest' ('breakfast') or '*resteraunt' ('restaurant'). Other misspellings due to pronunciation can be seen in the following examples: 'You could see the whole city from up *their'* ('there')*, 'At first it *seamed* *borring' ('seemed'), 'That was a great idea because we had *eaven* more ice cream at home' ('even') and 'We *did many *weard* photos' ('weird').

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[14] On a related note it needs to be mentioned here that the input from the illustration, which the students were asked to base their story on, was not considered by most students in their texts. Only 40.91 percent of CLIL students and 37.5 percent of EFL students made reference to the picture in their writing.

<u>Grammar</u>

The third broad error category is made up of grammar mistakes which affect the usage of items like infinitive and gerund. The student using the sentence 'That is why I recommended *to go to my place to watch TV' might not be aware that the verb 'recommend' requires gerund and he, therefore, should have correctly said 'That is why I recommended *going* to my place to watch TV'.

More frequently occurring is the use of the wrong tense in the texts, for example in 'I made *an really beautiful long and high pass, Kaya **get* to the ball and **kick* it with his right heel'. Here the student starts the sentence by using the past tense 'made' and, therefore, indicates that this action refers to a prior event. Then, however, he does not include the correct form of the verb in the past tense of 'get' ('got') and 'kick' ('kicked') but uses present tense. Other students struggle with forming the correct infinitive ('We had to *went* back home again and get the things') and past tense of verbs, as in 'Then I *tooked* a warm *shover* or 'We *shooted* one goal after the other'. This suggests that some learners are making an effort to include the past tense, but do not yet fully understand how to do so. Some grammar errors are marked twice since they include multiple words affected by incorrect grammar, such as in 'And then my best friend Lucy told us that she *fall in love but she *does not told* us his name'. Here the erroneous construction '**does* not **told'* includes a wrong use of both the auxiliary and main verb, which, when used correctly, should read '*did* not *tell'*.

Another word marked as a two-part mistake is '*flooes' in the sentence 'The game was almost finished, I hit the ball really hard, the ball *flooes* into the goal'. Here the word '*flooes' is affected by both grammar and spelling. This student might be unaware of how to spell the past form 'flew' but knows it represents an irregular verb; thus, he produces a "phonologically plausible misspelling" (Barry 1994: 31). However, by adding a final –s, the student indicates that he is trying to use the verb for the singular 3rd person in the present tense which is incorrect in this sentence describing a past event.

Some language items affected by multiple errors are more clearly definable than others. One writer uses the word '*biulding' ('building') when trying to refer to a sculpture (the item illustrated in the visual input of the writing task). This is clearly both a vocabulary and a

spelling mistake since the student was attempting to refer to a sculpture, and ultimately misspelled the (incorrectly selected) word 'building'.

Other errors are more difficult to categorize, particularly when the student's intent is unclear. The following erroneous sentence was made by a student who wrote about a cat: 'It was alone on the street and it was hungry, so I took it home *to me, *too gave it some food'. The significant part of the sentence in this case is '*too gave it some food'. Here, there are several possible ideas the student was trying to express. He might have used '*too' in lieu of 'also' made a grammatical mistake when using '*gave* instead of 'give'. In this case, his original intent would have been to say that 'It was alone on the street and it was hungry, so I took it home *to me, also gave it some food'. This would mean the student made one vocabulary mistake ('*too' instead of 'also') and one grammar mistake ('*gave' instead of 'give'). However, the sentence would still require the conjunction 'and' for the two clauses to be combined. Alternatively, the student might have intended to say 'It was alone on the street and it was hungry, so I took it home *to me, to give it some food'. Since incorrect punctuation is not marked in the analysis of texts, the comma between the two clauses would be ignored. This latter option seems more plausible than the first. Thus, this construction is marked with two kinds or errors, one being a spelling-vocabulary mistake ('*too' instead of 'to') and a grammatical mistake ('*gave' instead of 'give').

Vocabulary/grammar

There are further examples which are affected by more than one category of error. Since, as illustrated above, it is not always clear to which category an error belongs, three blended error categories were created (see Section 5.2.2.1.). As indicated earlier, collocational vocabulary errors frequently affect prepositions in the students' writings. Due to their strong connection to grammar, prepositions are part of the mixed category of 'vocabulary/grammar' errors. Some examples written by students include 'coffee *cames out *from his nose' ('of'), 'I was really proud *to myself' ('of') and 'My mother is so happy *about me'. The last example does not automatically indicate an error in the use of a preposition since 'to be happy about someone' is correct if the intent is to express happiness about someone's existence. In this case one needs to consider the context which the student uses the preposition in: 'Suddenly we got in the last lesson our GSK-Test back, and I have the

*grad 2! My mother is so happy *about me'. Neglecting mistakes such as word order and the word '*grad' in this case, it is apparent that 'My mother is so happy *about me' is probably not what the student intended to say, but rather 'happy *for* me' or 'happy *with* me'.

Vocabulary/spelling

Other blended errors concern the 'vocabulary/spelling' category, of which there are numerous occurrences. A representative example of this category is 'This day was the greatest day of my *live'.* It is not clear if the student made a spelling mistake ('*live' instead of 'life') or substituted the verb 'live' for the noun 'life' and, therefore, created a vocabulary error. Another example that is hard to categorize is 'It was again *a lots of fun'. The student might have intended to use '*a lot* of fun' and unintentionally added an –s, or intended to say '*lots* of fun' and incorrectly used 'a' in the beginning because the construction sounded familiar. Thus, he created a mixture of both ways instead, and created a typical vocabulary-spelling mistake.

Grammar/spelling

The final category concerns grammar-spelling mistakes as found in sentences like 'Suddenly, we *heared* an annoying sound' or 'I had to *shot* balloons'. The use of past tense verbs often causes problems in both grammar and spelling. In the former sentence, the student tried to use 'heard' but added the ending –ed, typical of regular verbs in English. In the latter sentence the student may have misspelled the verb 'shoot' by omitting 'o' or struggled when using the combination 'had to *+infinitive*' and therefore used the past form of the verb. Another type of grammar-spelling mistake is found in irregular plural endings of nouns, such as in 'In the zoo we saw *wolfs'.* Although the writer is probably just not familiar with the plural form 'wolves' we still cannot assume that this mistake is caused by the lack of spelling skills or grammar skills alone. The use of the indefinite articles 'a' and 'an' cause problems for some students as well when they produce erroneous statements such as 'we went to *an* Japanese *Restorante' or 'What *an* wonderful goal'. Again, is is difficult to know for certain whether the use of 'an' instead of 'a' is based on a spelling mistake or lack of grammatical knowledge.

The examples above represent only a small fraction of the identified errors, and are used primarily to show how errors were defined. The highest number of included errors in students' writings has been found in EFL learners' texts. Those learners also made more lexical knowledge mistakes than their CLIL peers. It is important to note that EFL texts were significantly longer, i.e. included more tokens, which correlates with the increased chance of mistakes. Even though EFL texts exceeded CLIL texts in length, they did not indicate a higher lexical range. CLIL students produced higher TTR scores than EFL learners and, therefore, outperformed their EFL peers with regard to vocabulary range in writing.

6.2. Findings of students' questionnaires

Some of the information gained through the questionnaire analysis has already been presented in Chapter 5. This section will include findings about students' personal interests regarding the English language, their linguistic performance, and how they respond when encountering difficulties in the language.

Frequency of English language hobbies among students

This question deals with how regularly students engage with English music, television, literature (such as newspapers or books) and conversation. Moreover, it asks how frequently they visit foreign countries and speak with people there, using English as a means of communication. The following figure presents the information gained from this item in the questionnaire:

Figure 5: *Frequency of English language hobbies among students*
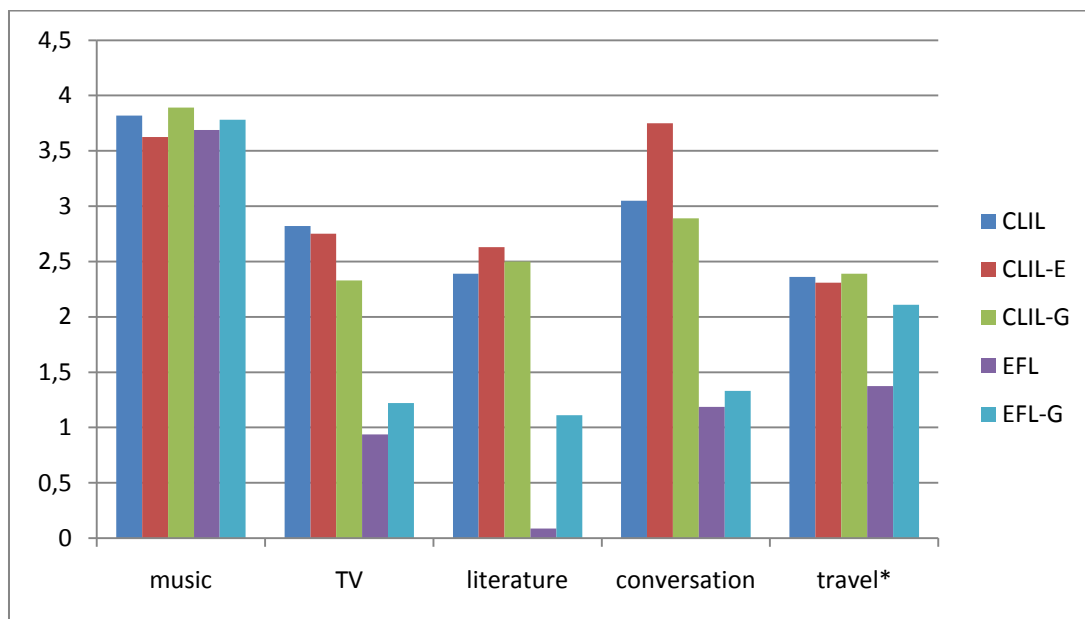
Key:	1… occasionally	*Key for 'travel':	1: rarely
	2… several times per month		2: once a year
	3… several times per week		3: several times per year
	4…every day		4: at least once a month

Immediately noticeable in this graph is the lower frequency with which EFL students pursue English language hobbies than the other groups. While most students of both the CLIL and EFL class listen to English music in their leisure time, most EFL students do not engage in English television, literature or conversation. Most frequently CLIL-E students take part in English conversation, which might be ascribed to the simple reason that English is their native language.

Role of English in students' lives

This question asks students how frequently they use English and how important it is to them compared to German. Figure 6 illustrates this result:

*Figure 6:   Role of English (E) in CLIL and EFL students' lives (%)*
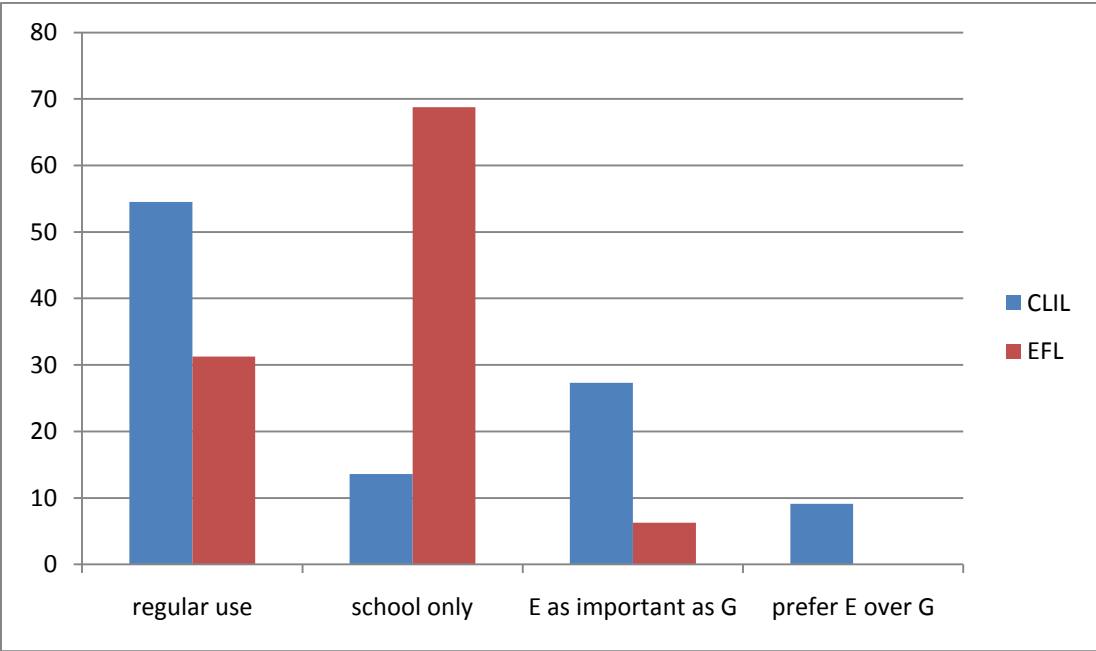
These results indicate that 54.5 percent of CLIL students use English regularly (55.6 percent of all CLIL-G; 75 percent of all CLIL-E), as opposed to 31.25 percent of mainstream students. The majority of mainstream students (68.75 percent) say they use English for school only, a much higher rate than with CLIL students, of whom 13.6 percent use English exclusively for school. Only one EFL student (i.e. 6.25 percent) considers German and English to be equally important, while 27.3 percent of CLIL students consider them equal. None of the EFL students say they prefer English over German, whereas two CLIL students (one CLIL-G and

one CLIL-E) say they do. When asked why they like to speak English, both classes give similar comments, concerning the relevance of the language in general and motivation to improve their language skills.

Role of German in students' lives

Attending a school in a German-speaking country, one might assume that students in this study use German regularly outside school. This is mostly true as the following figure demonstrates:

Figure 7:   *Role of German (G) in CLIL and EFL students' lives (%)*
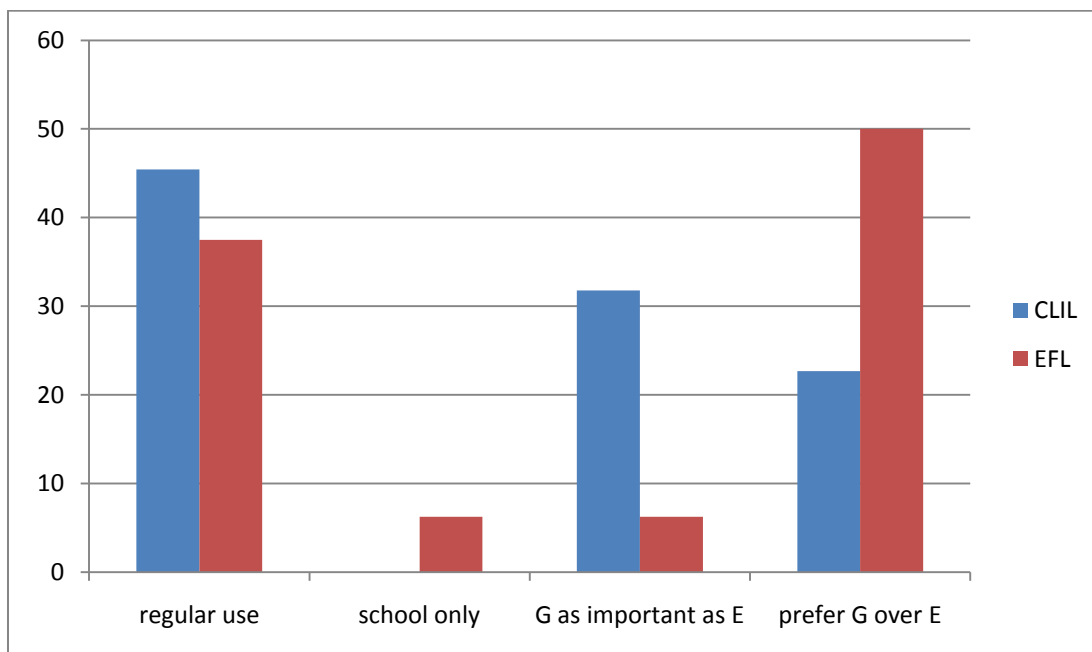
The figure shows that 45.45 percent of CLIL and 37.5 percent of EFL students use German regularly. Only one student (EFL) states he uses German exclusively for school. While 22.7 percent of CLIL students (33.3 percent of all CLIL-G and 12.5 percent of all CLIL-E) express a preference for German over English, 50 percent of EFL (half of whom are EFL-G) prefer German for communication. One EFL student says the two languages are of equal importance to him, a sentiment that seven CLIL students (31.8 percent) also express[15].

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[15] There is a minor discrepancy in outcomes between this question of German being equally important to English and the previous question of English being equally important to German.

Self-assessment of English language skills

When asking the students to evaluate their ability in various English skills, particular focus is placed on their self-assessment of general writing and vocabulary skills. The student with the lowest relative frequency of errors (.068) and an average TTR score of .6301 evaluates his general writing ability with the Austrian school grade 1, which is in line with his measured proficiency. The student showing the second lowest relative error frequency (.11) and TTR of .6383 assesses both his writing and vocabulary skills with the school grade 4. This does not conform to the findings of this research, in which this student performs quite well. The student with the highest absolute and relative frequency of errors (13 errors; 1.49 errors/10 words) and a TTR score of .6437 self-assesses himself with the grade 2 for both his writing ability and vocabulary range. The student's evaluation would be more accurate if he had not included such a large number of errors. An EFL student with the low relative error frequency of .12 and low (but average for EFL students) TTR of .5427 assesses his writing and vocabulary skills with 4 as well and, according to this study, underestimates his actual ability.

As the results of this study are acquired from only one written text per student, any conclusions drawn about the relationship between students' self assessments and actual performance cannot be justified. There are many variables that need to be considered and that cannot be taken into account in the present analysis. What these findings do suggest, however, is the fact that self-assessment does not always correspond to actual writing proficiency.

(CLIL) Students' progress

The first sub-question asks the students how long they have attended bilingual schooling. All CLIL students have been instructed bilingually at this school for at least four years. The following figure depicts the linguistic progress CLIL-G and CLIL-E students feel they have made since entering the bilingual program:

Figure 8   Progress by CLIL-G and CLIL-E since attending bilingual schooling (%)
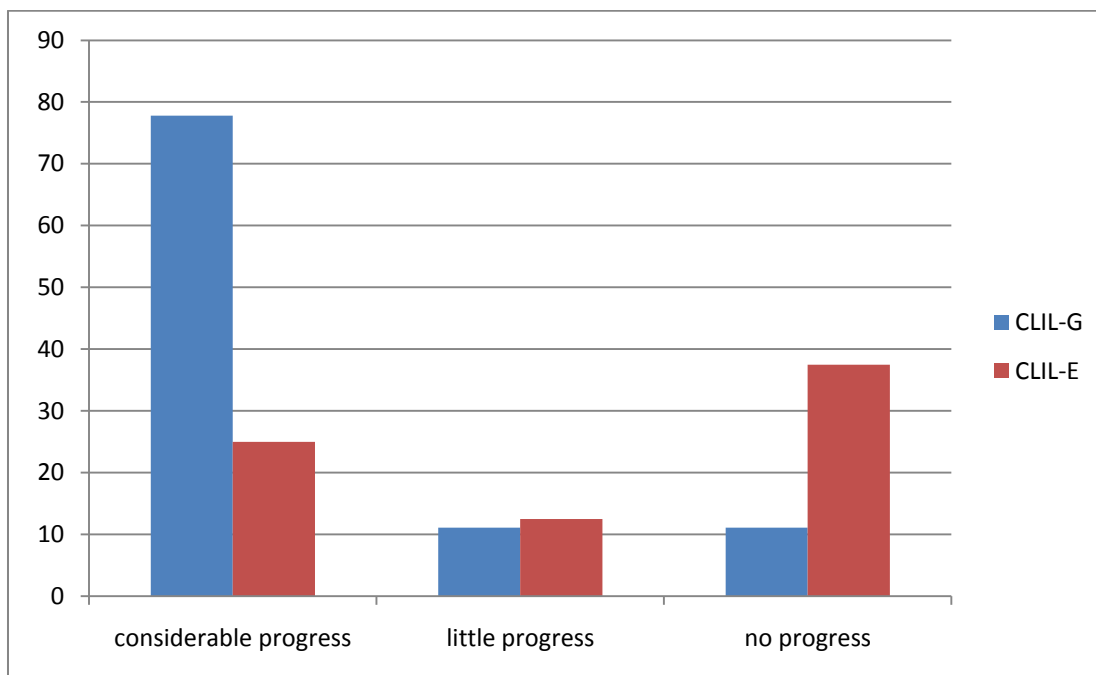
What is immediately noticeable is that the majority of students state that they have made considerable progress in English while attending the program, i.e. 63 percent, including 77.8 percent of all CLIL-G. With regard to CLIL-E, two out of eight students claim they have made considerable progress since starting the bilingual program, one says he has made little progress and three indicate that they have not made any progress. It should be noted here that two CLIL-E did not answer this question for unknown reasons. Summing up the overall results of the CLIL class, the majority (63.6 percent) say they have achieved considerable progress, 9.1 percent of all CLIL students have achieved only little progress, and four students have the impression that bilingual schooling has not helped them progress in their English language proficiency.

Unsurprisingly, the majority of CLIL-G have achieved considerable progress through bilingual schooling. They are not constantly surrounded by the foreign language outside school and might, therefore, profit notably from CLIL. It is interesting to see that many English native speakers feel they have not made remarkable progress while attending the program. This could be due to the impression of learners who are not consciously aware of the linguistic progress they make in academic language knowledge or subject-specific terminology.

Instead they focus on speaking skills or pronunciation, skills in which they are already highly proficient.

Satisfactory level of schooling

When asking CLIL students to express their level of satisfaction with their branch of schooling, 29.5 percent say they are very content with it. 63.6 percent state they are quite content with it, and 2.3 percent are discontented.

90.9 percent of all CLIL students would recommend attending the bilingual program. Analyzing this result in greater detail shows that all nine CLIL-G would recommend the program, as opposed to 87.5 percent of CLIL-E who would.

As to what students find positive about the bilingual program, 13.6 percent mention the native speaker input. Criticisms of the CLIL branch include the 'imbalance of instruction languages' and personal 'pronunciation deterioration'; it is interesting to note that this final comment was made by a CLIL-G student.

Where do students encounter most unknown English words?

The analysis of this questionnaire item reveals striking differences between the CLIL and EFL classes, which are illustrated in Figure 9:
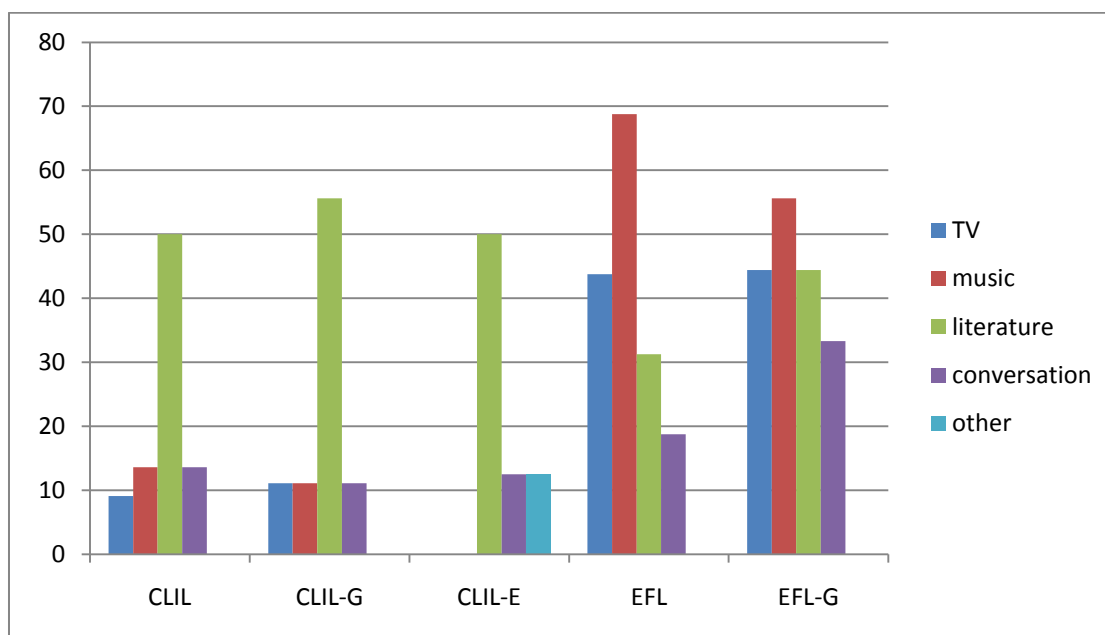
The figure shows that 68.75 percent of EFL say most of the words they do not understand occur in song lyrics; in contrast, only 13.6 percent of CLIL students say they primarily encounter unfamiliar words in music. One plausible explanation for the large proportion of EFL students noticing most of their unknown words in music could be due to the fact that they do not dedicate much of their spare time to watching English television, reading English literature or having English conversations. Since the number of activities involving the English language is much larger with CLIL students (as indicated in Question (8)), the chance is much higher that they encounter unknown words in different contexts. Furthermore, the familiarity with the informal register of the home, which CLIL-G might not have, could be another explanation. This reasoning seems to be supported by the data, as 50 percent of CLIL students (55.6 percent of CLIL-G and 50 percent of CLIL-E) say they encounter most unknown words in English books and newspapers.

Although the EFL class in general does not seem to spend as much time reading English books, watching English television programs or holding English conversations as the CLIL class does (see Question (8)), those EFL students who do select one of those three options in this question tend to be EFL-G students (television: 57.14 percent; literature: 80 percent; conversations: 100 percent). In other words, while most EFL learners who do not speak

German as their native language, associate unknown words with music only, many EFL-G students say they notice the occurrence of unknown words on television, in books and when having conversations in English. One CLIL-E student offers another answer as to where he encounters unknown words and notes: 'English dialect'. This answer does not necessarily belong to the category of 'conversation' since the student might read about dialect or listen to other people speak it.

Students' reactions when encountering unknown English words

Assuming students notice a word they are unfamiliar with, how do they react? Figure 10 illustrates the responses to this question:

Figure 10: *Students' reaction when encountering unknown words in English (%)*
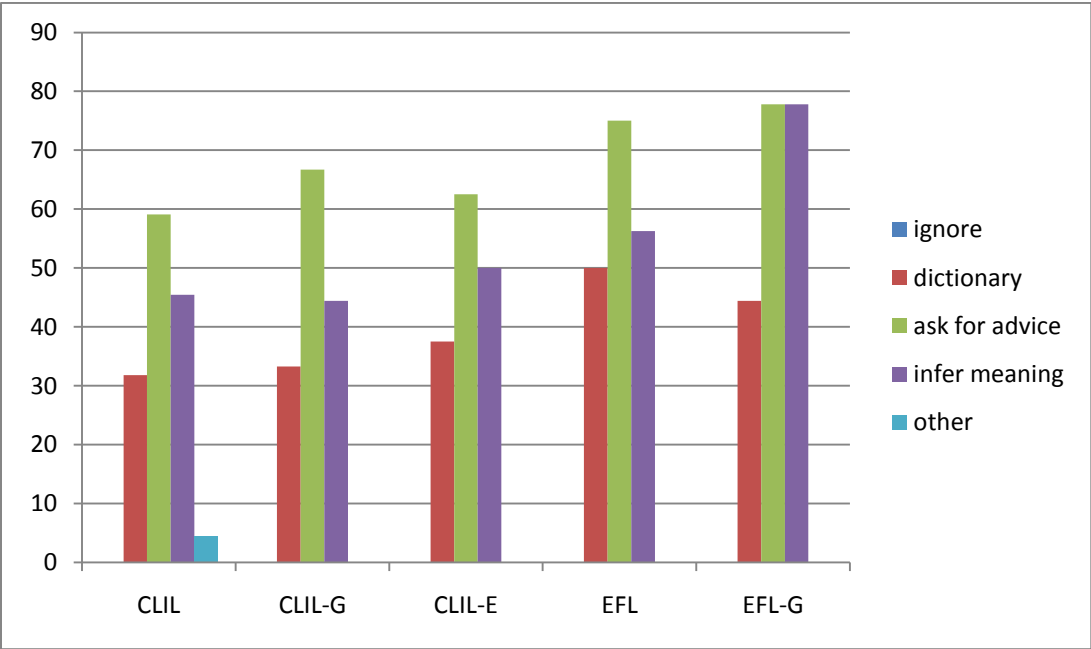
The analysis of this question shows that most students respond by saying they would ask someone who might be familiar with the word (59.1 percent of CLIL; 75 percent of EFL). None of the students would ignore a word they do not understand, but rather try to guess the meaning from its context. 56.25 percent of EFL students (including 77.8 percent of all EFL-G) and 45.45 percent of CLIL students (containing 44.4 percent of all CLIL-G) try to infer the meaning of an unknown word from the context. Findings (cf. e.g. Haastrup 1991) indicate a clear connection between a learner's linguistic knowledge and the kinds of

strategies a learner uses when guessing from context. It is shown that the level of foreign language learning proficiency affects lexical inferencing positively (cf. ibid.: 13). Since this study does not address complex questions about the participating students' overall language learning proficiency, it is not feasible to relate the outcomes of the present study to prior findings. However, a strong correlation between the depth of vocabulary and greater proficiency in guessing unknown words seems plausible and would be worth further investigation.

Another option the students could choose is consulting a dictionary. 31.8 percent of CLIL students and 50 percent of EFL students prefer looking up an unknown word in the dictionary when they are eager to find out its meaning. Of course, it is not clear how these students would react in situations with other people present whom they could ask for advice. Research on the use of dictionaries has found that "learners who were good at inferring preferred to confirm their guesses by consulting a dictionary" (cf. Hulstijn 1993 quoted in Nation 2001: 252). Therefore, one can conclude that learners' lexical inferencing and using dictionaries show some kind of relation. It is worth mentioning that one CLIL student giving an additional answer ('other') says he looks for unknown words on the internet.

Use of dictionaries

This question seeks to find out how frequently different groups of students consult dictionaries and if they use them outside of school as well. Table 14 depicts the outcome of this question:

Table 14:   *Students' use of dictionaries (%)*

	CLIL	**CLIL-G**	**CLIL-E**	**EFL**	**EFL-G**
regularly	27.3	44.4	25	56.25	66.7
school only	59.1	55.6	62.5	43.75	33.3
never	4.54	-	25	12.5	11.1

The table shows that more EFL students use dictionaries (56.25 percent) regularly (i.e. also outside school) than CLIL students (27.3 percent). While 43.75 percent of EFL students use dictionaries for school-related matters only, the majority of 59.1 percent of CLIL students say they use dictionaries for school. The findings further indicate that 62.5 percent of CLIL-E students use dictionaries exclusively for school matters, and only 25 percent use them regularly. A possible explanation for this result might be the fact that CLIL-E simply do not require the consultation of dictionaries in their everyday lives. The large number of CLIL-E using it for school only, seems therefore reasonable. Regarding the use of dictionaries of CLIL-G, 44.4 percent use dictionaries regularly, as compared to 55.6 percent of CLIL-G who use it for school. Those results do not show as much of a discrepancy as the results regarding CLIL-E because consulting a dictionary for understanding unknown English words might be more useful for CLIL-G than for CLIL-E. Significant for this outcome is the question which type of dictionary the students commonly use. Table 15 illustrates students' preferences for different kinds of dictionary:

Table 15:   Types of dictionary used by students (%)

	bilingual	monolingual	other
CLIL	72.7	40.9	-
CLIL-G	66.7	44.4	-
CLIL-E	87.5	37.5	-
EFL	93.75	-	6.25
EFL-G	100	-	11.1

While 15 out of 16 EFL students state they use bilingual German-English dictionaries[16], none of them say they are used to consulting monolingual dictionaries. In the CLIL class, on the other hand, 72 percent of students use bilingual, 40.9 percent monolingual dictionaries. To go into further detail, it can be noted that more CLIL-E (87.5 percent of all CLIL-E) than CLIL-G (66.7 percent) use bilingual dictionaries. In order to draw comparison to the fact that none of the EFL students consult monolingual dictionaries, the result is very clear: CLIL students

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[16] One (EFL-G) student says he uses his 'iPod' ('electronic dictionary'; see Section 5.2.2.2.) for translations; however, I assume he will use the old-fashioned dictionary when writing tests in class as well.

use monolingual dictionaries more often than their EFL-peers. It was found that "learners using a monolingual dictionary need to be able to interpret definitions and other information in the second language" (Nation 2001: 288). With regard to the present study, therefore, it can be assumed that CLIL students are more capable of understanding monolingual dictionary entries than regular EFL learners because they are more frequently exposed to the language and receive more input on language learning strategies. It also needs to be noted that a further answer by a student is 'iPod', which, as being a type of electronic dictionary, is included in 'other'.

Students' response to peers' incorrect use of language

The pre-selected answer options for this question concern the students' reaction to correcting improperly used language by their peers, ignoring the mistake and asking for clarification if the meaning of the utterance is not understood. Figure 11 depicts the findings of students' answers:

Figure 11:   Students' response to peers' incorrect use of language (%)
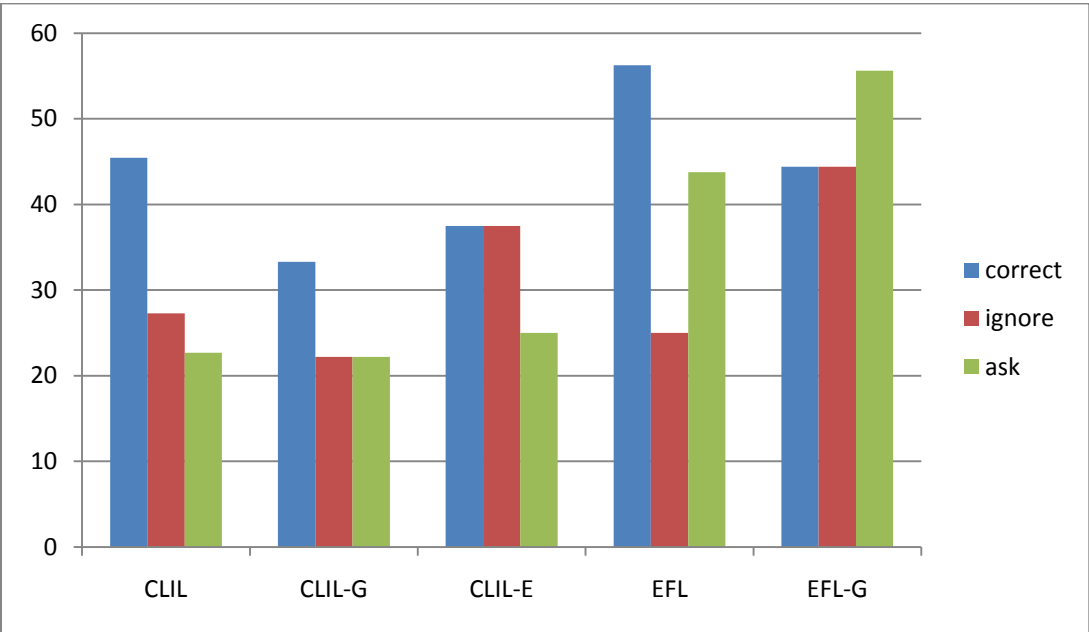
The results of this question show that 45.5 percent of CLIL and 56.25 percent of EFL students would usually correct the other person even though they know what the other one is trying to express. Regarding the CLIL class, 33.3 percent of CLIL-G and 37.5 percent of CLIL-E would

correct falsely used language by peers. Among EFL-G, 44.4 percent would correct others when noticing language errors. If a student understands the meaning of the message the other person is trying to convey, in spite of possible language errors, 27.3 percent of CLIL students and 25 percent of EFL students would ignore the error, as long as they understand the meaning of the utterance. Moreover, 43.75 percent of EFL students and 22.7 percent of CLIL students would ask for clarification in the aforementioned scenario. It needs to be borne in mind that those results concern both students with high and low proficiency in learning. An advanced learner might ask for clarification when talking to someone who has difficulty expressing his ideas, as well as a student who has problems understanding his peer due to the latter's superior language proficiency.

The data gained from this analysis was useful to get an idea about some background information about the students. In sum, looking at the findings acquired from the questionnaire, it can be seen that CLIL students are, in fact, using English more frequently outside school in the form of spare time activities and the actual use of language. This is also demonstrated in students' writings in which CLIL students include a higher lexical range than EFL learners. CLIL students, who are more frequently exposed to the target language, are more able to use it in conversational context and thus encounter a high number of linguistic expressions that mainstream EFL learners may not experience. Moreover, English native speakers attending the bilingual program might be constantly surrounded by the language at home and encounter English is numerous ways in everyday life. Also L2 speakers in the CLIL classroom utilize the target language in a more natural way than EFL students in that they use it with peers as well as in class, therefore gaining greater familiarity with new vocabulary.

6.3. Conclusion of the empirical study

The aim of this study was to detect differences in the writing proficiency of students who are instructed in two different kinds of schooling, namely CLIL and mainstream. Primarily, vocabulary range and related error categories were analyzed and compared between groups in order to reveal the lexical variation in writings. Further research interest regarded the writing ability in spelling and grammar, which was also complemented by an account of the according error categories.

Looking at the findings of the analysis, it becomes apparent that I have gained some clear results that confirm the hypothesis stated at the beginning of the empirical chapter, namely that students of the CLIL classroom outperform mainstream students in different aspects of writing proficiency. It needs to be noted, however, that assessing a student's writing performance implies more than just the evaluation of the written product. An analysis of the writing process is usually a reliable method to investigate the writing ability more closely; this is not relevant for the aims of this study though.

In the account of the investigation of writing proficiency, two methods were applied to gain information about differences between EFL and CLIL students: the analysis of writing samples and of questionnaires. The latter obtained data on students' linguistic backgrounds which are multi-lingual and, interestingly for this study, include a substantial proportion of English native speakers as well. Furthermore, the analysis of the questionnaire reveals that both native and foreign language learners in the CLIL class use English more regularly inside and outside school than mainstream students. Generally speaking, CLIL students attribute a more important role to the English language than their mainstream peers, as can be seen for instance in the greater variety of English language hobbies CLIL students engage in. The positive attitude towards CLIL is beneficial to students' English language acquisition and has a beneficial effect on their writing proficiency as can be seen in the findings of texts.

With regard to students' writing samples, the study includes the reconstruction of individual steps of analysis in order to understand the explanations as to how certain erroneous items

were marked. In the investigation of students' texts it became apparent that writings of CLIL students generally included fewer types and tokens than EFL writing but, at the same time, showed higher lexical variation. With regard to statistical testing, the difference between type-token ratio mean scores of CLIL and EFL students has proven to be significant; the same is true for analyzing the texts after excluding erroneous items. The scores of tokens, types and TTR between CLIL-G and CLIL-E do not reveal any significant variation. This shows there was no significant difference detected between writings of German and English native speakers in the CLIL class.

Referring to errors in the texts, the distribution of different types of error was striking in the sense that EFL students primarily produced grammar and vocabulary mistakes, whereas CLIL students had the most difficulty in spelling. The application of the t-test proved that the overall number of errors included in texts of EFL students was higher than with CLIL students. There was also a statistically significant variation in vocabulary errors between their texts, which shows that EFL students display poorer skills in vocabulary with regard to error production. In contrast, they included significantly fewer spelling errors in their writing than CLIL students. The most severe lack of writing proficiency turned out to be grammar-related and shows a significant difference between CLIL and EFL, as well as CLIL-G and EFL-G. Most interestingly, there was no significant variation found between CLIL-G and CLIL-E whatsoever. In other words, German and English native speakers in the bilingual classroom do not show any significant differences in writing proficiency.

Concerning limitations of the study, it is worth noting that one should not assume that the results of the analysis are applicable to other CLIL and EFL learners but it can be indicated that, in this case, CLIL students show a higher level of language proficiency in certain aspects of writings and out-of-school usage of English than their EFL peers; this statement is adequately supported by the outcome of my research.

7. Conclusion

The aim of this study was to examine the differences in writing proficiency between students instructed through *Content and Language Integrated Learning* and those who have been taught in a 'traditional' foreign language learning environment. The theoretical framework for the study was established in the first half of the thesis and examined how vocabulary is dealt with in each type of schooling. The productive knowledge of vocabulary is essential for using words successfully in context and a high level of competence in vocabulary use can only be developed if learners achieve complex paradigmatic and syntagmatic knowledge of words.

The goal of acquiring extensive lexical knowledge and the ability to use it in context present a major challenge to learners. The two types of schooling place emphasis on different vocabulary learning strategies as evidenced by the considerable amount of time dedicated to incidental learning in the CLIL classroom versus the focus on intentional learning, a necessary strategy when students are exposed to a foreign language for only a limited amount of time, in the mainstream EFL classes. Of course, both incidental and intentional vocabulary learning are significant for native speakers as well as foreign language learners in order to develop high lexical proficiency. Ultimately, CLIL supplies students with greater input related to frequency, pronunciation and contextualization (cf. Hedge 2000: 118-120) than EFL instruction.

Since CLIL utilizes various vocabulary learning strategies, learners are more able to develop lexical proficiency, which can be seen in the manner that they mentally organize lexical information. The study has shown that the higher students' proficiencies develop, the less often they use L1 transfers in order to compensate for lexical gaps. Even though foreign language CLIL students do not quite demonstrate the same linguistic proficiency as their native language peers, they do display greater language competence than mainstream EFL students and tend not to transfer native language features to the target language as often.

While the previous section has summarized the specific results of the empirical research, this final part of the thesis aims to answer the research questions stated in the introduction:

❖ Do CLIL students show a larger vocabulary range than mainstream EFL students?

CLIL students have been found to demonstrate higher lexical variation in their texts than EFL students. This has been tested using the type-token ratio, which indicated a mean score of .6339 for CLIL, and .5437 for EFL students (t = 6.584, p < .001).

❖ What differences in writing proficiency do native English and German speakers in the CLIL and EFL class demonstrate?

While the results of writing proficiency between the CLIL and EFL class in general show significant variation in the categories of lexical variation and errors included[17], significant differences have not been detected between English and German native speakers in the CLIL class. German natives in the mainstream classroom, however, performed notably lower than the German natives who have been instructed through CLIL.

❖ CLIL-G students had a higher lexical variation than EFL-G students.
❖ Overall, CLIL-G students included fewer errors in their texts than EFL-G students. With regard to specific error categories, there has been no significant difference found in vocabulary or spelling mistakes. The major deficiency of EFL-G students concerns grammatical errors in their writings, which included significantly more mistakes than CLIL-G students' writings.

In conclusion, CLIL and EFL students show significant variation in writing proficiency, while the CLIL class does not indicate significant differences between its learners. This suggests that CLIL might therefore be a more beneficial approach to language instruction for foreign language speakers than mainstream instruction, since foreign language students who have been instructed through CLIL do not demonstrate significant deficiencies in writing proficiency compared to native language learners in the same class. Furthermore, the

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[17] CLIL students performed better in every category except spelling where they had more mistakes than the EFL class (mean scores: CLIL: 2.84, EFL: 2.22; t = 1.003, p < .01).

hypothesis stated in Section 5.1., that students of the CLIL classroom outdo mainstream students in different aspects of writing ability, is confirmed, since CLIL students, regardless of whether or not they are native language speakers, outperformed EFL students.

Since this investigation represents a small-scale study, not all findings of this research may be applicable to other Austrian CLIL and EFL classrooms. Nevertheless, the results of the study have provided valuable insight as to how learners apply acquired lexical knowledge that they have gained through classroom instruction. Despite the deficiencies that CLIL has yet to overcome, the approach has been shown to be beneficial to lexical learning.

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Appendix 1

Information sheets:

1. Information sheet for students
2. Information sheet for parents

INFORMATION FÜR SCHÜLER

Liebe Schüler!

Ich heiße Alexandra Klampfl und studiere Psychologie, Philosophie und English auf Lehramt an der Universität Wien. Im Rahmen meiner Diplomarbeit für English würde ich gerne eine Untersuchung mit eurer Klasse durchführen, wobei ich mit verschiedenen, während des Unterrichts verfassten, Texten arbeiten will. Ich würde gerne Texte auswählen, die im Unterricht ohnehin geschrieben wurden, sodass ihr keinen zusätzlichen Aufwand für meine Untersuchung leisten müsst. Mein Untersuchungsziel ist es, die Sprachkompetenz verschiedener 4. Klassen zu vergleichen. Die Ergebnisse dieser Untersuchung werden anonymisiert und helfen mir lediglich dabei, das Sprachvermögen verschiedener Klassen festzustellen.

Außerdem würde ich euch gerne einen Fragebogen ausfüllen lassen, um besser über eure schulischen Interessen, Schullaufbahn und sprachlichen Hintergrund Bescheid zu wissen. Dies ist in wenigen Minuten erledigt, und würde mir helfen, meine Untersuchung durchzuführen. Natürlich werden eure Angaben im Nachhinein von mir anonymisiert, sodass man die von euch geschriebenen Texte nicht mehr auf eine bestimmte Person zurückverfolgen kann.

Mit eurer Mitarbeit leistet ihr einen wichtigen Beitrag zu einer wissenschaftlichen Untersuchung.

Vielen Dank für eure Unterstützung!

Alexandra Klampfl

INFORMATION FÜR ELTERN

Liebe Eltern!

Ich heiße Alexandra Klampfl und studiere Psychologie, Philosophie und English auf Lehramt an der Universität Wien. Im Rahmen meiner Diplomarbeit für English würde ich gerne eine Untersuchung mit der Klasse Ihrer Tochter/ Ihres Sohnes durchführen. Mein Untersuchungsziel ist es, die Sprachkompetenz verschiedener 4. Klassen zu vergleichen. Ich würde dafür gerne von den Schülern geschriebene Texte auswählen, die im Unterricht ohnehin geschrieben wurden, sodass es keinen zusätzlichen Aufwand für die Schüler bedeutet. Auch würde ich die Schüler bitten, einen von mir gestalteten Fragebogen über ihre schulischen Interessen, Schullaufbahn und sprachlichen Hintergrund auszufüllen, der für meine Forschungsarbeit hilfreich ist.

Die Ergebnisse dieser Untersuchung werden anonymisiert und helfen mir lediglich dabei, das Sprachvermögen verschiedener 4. Klassen festzustellen.

Mit ihrer Mitarbeit leisten die Schüler einen wichtigen Beitrag zu einer wissenschaftlichen Untersuchung.

Wenn Sie dazu Fragen oder Einwände haben, können Sie sich jederzeit per Email bei mir melden. Ich stehe Ihnen bei Unklarheiten gerne zur Verfügung!

Mit freundlichen Grüßen,

Alexandra Klampfl

(Email: a0404152@unet.univie.ac.at)

Appendix 2

Questionnaires:

1. Questionnaire for students
2. Questionnaire for teacher

NAME: _____

KLASSE: _____

1. Was ist deine Muttersprache? _____

2. Was ist die Muttersprache deiner Eltern?
   Mutter: _____
   Vater: _____

3. Welche Sprachen benützt du im Alltag? Wozu/ wann/ mit wem benützt du sie??

   Sprache   Zweck/Situationen/Person

   _____   _____
   _____   _____
   _____   _____

4. Wie lange lernst du bereits die Fremdsprachen, die du sprichst?

   Sprache   Seit wann lernst du die Sprache

   _____   _____
   _____   _____
   _____   _____

5. In welchem Land bist du geboren? _____

6. In welchen Ländern hast du bis jetzt längere Zeit gelebt?

   Land   Zeitraum

   _____   _____
   _____   _____
   _____   _____

7. In welchen Ländern hast du bereits eine Schule besucht?

   Wo?   Welche Art von Schule bzw. Name der Schule?   Für wie lange?
   _____   _____   _____
   _____   _____   _____
   _____   _____   _____

8. Wie beschäftigst du dich **außerhalb der Schule** mit der englischen Sprache?

   □ Ich höre englischsprachige Musik
   Wenn ja, wie oft?
           □ täglich   □ mehrmals die Woche   □ mehrmals im Monat   □ gelegentlich
   □ Ich sehe englischsprachiges Fernsehen (Nachrichten, Filme, DVD, etc.)
   Wenn ja, wie oft?
           □ täglich   □ mehrmals die Woche   □ mehrmals im Monat   □ gelegentlich
   □ Ich lese englischsprachige Literatur (Bücher, Zeitungen, Magazine, etc.)
   Wenn ja, wie oft?
           □ täglich   □ mehrmals die Woche   □ mehrmals im Monat   □ gelegentlich
   □ Ich führe englischsprachige Unterhaltungen (mit Freunden, Familie, etc.)
   Wenn ja, wie oft ?
           □ täglich   □ mehrmals die Woche   □ mehrmals im Monat   □ gelegentlich
           Mit wem?_____

□ Ich mache Reisen ins Ausland und verständige mich dort auf Englisch.

        Wenn ja, wie oft ?

        □ mindestens einmal pro Monat   □ mehrmals im Jahr   □ einmal im Jahr   □ selten

        Welche Länder? _____

9. Welche Rolle spielt Englisch in deinem Leben?

        □ Ich spreche nur Englisch wenn es für die Schule sein muss.

        □ Ich spreche Englisch regelmäßig, auch außerhalb der Schule.

        □ Ich spreche Englisch und Deutsch gleich oft, beide sind wichtig .

        □ Ich spreche meist Englisch, Englisch ist mir wichtiger als Deutsch.

        □ Ich spreche Englisch aus anderen Gründen. Zum Beispiel:

        _____

10. Welche Rolle spielt Deutsch in deinem Leben?

        □ Ich spreche nur Deutsch wenn es für die Schule sein muss.

        □ Ich spreche Deutsch regelmäßig, auch außerhalb der Schule.

        □ Ich spreche Deutsch und Englisch gleich oft, beide sind wichtig

        □ Ich spreche meist Deutsch, Deutsch ist mir wichtiger als Englisch

        □ Ich spreche Deutsch aus anderen Gründen. Zum Beispiel:

        _____

11. Ist deine Muttersprache eine andere als Deutsch oder Englisch?   □ Ja   □ Nein

Falls ja, was ist deine Muttersprache? _____

Falls ja, wie oft sprichst du sie?

□ Ich spreche meist meine Muttersprache, diese ist mir wichtiger als Deutsch oder Englisch.

□ Ich spreche meine Muttersprache regelmäßig, auch außerhalb der Schule.

□ Ich spreche meine Muttersprache gleich oft wie Deutsch und Englisch, alle drei sind wichtig.

□ Ich spreche meine Muttersprache nur aus bestimmten Gründen. Zum Beispiel:

        _____

12. Wie schätzt du deine **Englischfähigkeiten** in den folgenden Bereichen ein?

Beurteile dich selbst nach Schulnoten:

Sprechen	□ 1	□ 2	□ 3	□ 4	□ 5
Schreiben	□ 1	□ 2	□ 3	□ 4	□ 5
Hörverstehen	□ 1	□ 2	□ 3	□ 4	□ 5
Leseverstehen	□ 1	□ 2	□ 3	□ 4	□ 5
Wortschatz/Vokabular	□ 1	□ 2	□ 3	□ 4	□ 5
Grammatik	□ 1	□ 2	□ 3	□ 4	□ 5

13. Besuchst du den bilingualen Zweig deiner Schule?   □ Ja   □ Nein

Wenn ja, seit wann besuchst du bereits den bilingualen Zweig? _____

Wenn ja, wie würdest du deine Verbesserung deiner Englischkenntnisse bewerten?

    □   Ich habe mich im Vergleich zu früher sehr verbessert seitdem ich den bilingualen Zweig der Schule besuche.

    □   Ich erkenne, dass ich wenige Fortschritte gemacht habe.

    □   Ich sehe keinen Unterschied in meinen Englischkenntnissen seitdem ich den bilingualen Zweig besuche.

14. Was ist der Unterrichtsschwerpunkt deiner Klasse?

        □ Sport   □ Wirtschaftskunde   □ Bilingual   □ anderes:_____

15. Wie bist du mit dem jetzigen Unterrichtsschwerpunkt zufrieden?

   □ sehr zufrieden   □ eher zufrieden   □ eher unzufrieden   □ unzufrieden

16. Würdest du ihn weiterempfehlen?   □ Ja   □ Nein

17. Gibt es etwas, das dir an deinem Unterrichtsschwerpunkt besonders gefällt?

Wenn ja, was?

_____

18. Gibt es etwas, das dir an deinem Unterrichtsschwerpunkt nicht gefällt?

Wenn ja, was?

_____

19. Welche Noten hattest du im letzten Zeugnis in den folgenden Gegenständen?

Englisch: _____   Deutsch: _____

20. Wo triffst du meist auf englische Wörter, die du nicht kennst?

□ Fernsehen   □ Musik   □ Bücher, Zeitung, etc.   □ in Gesprächen mit anderen Personen

□ anderes: _____

21. Wie reagierst du wenn du im Englischen auf ein unbekanntes Wort stößt?

□ Ich ignoriere es weil das Wort wahrscheinlich nicht wichtig ist

□ Ich suche die Bedeutung des Wortes im Wörterbuch

□ Ich frage jemanden, der es wissen könnte (Mitschüler, Lehrer, Freunde, Familie, etc.)

□ Ich versuche die Bedeutung durch ihren Zusammenhang zu erraten

□ anderes: _____

22. Benützt du Wörterbücher?

□ Ja, regelmäßig, auch privat.

□ Ja, aber nur für die Schule.

□ Nein, ich benütze nie Wörterbücher.

□ Ich benütze Wörterbucher aus anderen Gründen, zum Beispiel:

_____

23. Welche Wörterbücher benützt du?

□ Deutsch – Englisch

□ einsprachige Englischwörterbücher

□ andere Wörterbücher, zum Beispiel: _____

24. Wie reagierst du wenn ein Mitschüler ein englisches Wort falsch benützt oder falsch ausspricht?

□ Ich korrigiere ihn obwohl ich weiß was er meint

□ Ich ignoriere es weil ich auch so verstehe was er sagen will

□ Ich frage nur nach wenn ich nicht verstehe was er meint

□ anders: _____

Danke für deine Mitarbeit! ☺

Fragen für Lehrer

1. Wie viele Jahre unterrichtest du schon? _____
2. Wie viele Jahre davon unterrichtest du bilingual? _____
3. Welche Gegenstände unterrichtest du? _____
4. Welche Gegenstände davon unterrichtest du bilingual?_____
5. Unterrichtest du im Team mit einem Native Speaker? □ Ja   □ Nein

   Wenn ja, welche Fächer? _____

   Wie oft? _____

6. Welche Vorteile bringt das Unterrichten gemeinsam mit einem Native Speaker?

   _____

   _____

7. Was ist deine Muttersprache? _____
8. Hast du eine spezielle Fortbildung für den bilingualen Unterricht erhalten?

   □ Ja   □ Nein

   Wenn ja, wie erfolgt diese Ausbildung?

   _____

   _____

9. Hast du bisher längere Zeit im englischsprachigen Ausland verbracht?

   □ Ja   □ Nein

   Wenn ja, wo? _____

   Wenn ja, wie lange? _____

10. Hast du bisher auch im englischsprachigen Ausland gearbeitet bzw. studiert?

    □ Nein   □ Ja, gearbeitet   □ Ja, studiert   □ Ja, gearbeitet und studiert

    Wenn ja, wo? _____

    Wenn ja, wie lange? _____

11. Wie sieht der bilinguale Unterricht im Unterschied zum regulären Englischunterricht aus?

    Bitte gib eine kurze Beschreibung zu

    Unterrichtsmaterialien:

    _____

    _____

    _____

    Aufteilung von Deutsch und Englisch:

    _____

    _____

    _____

    Unterschiede der Klassen in Unterrichtsschwerpunkten:

    Grammatikübungen

    _____

    _____

    Vokabelübungen

_____

_____

Sprechübungen

_____

_____

Leseaktivitäten

_____

_____

Fokus auf Content vs. Fokus auf sprachliche Übungen

_____

_____

Schreibaktivitäten

_____

_____

12. Sind Deutsch und Englisch in den übrigen Fächern gleichwertige Sprachen?

   □ Ja   □ Nein

13. Wird im bilingualen Englischunterricht ausnahmslos Englisch gesprochen?

   □ Ja   □ Nein

14. Wie beurteilst du die Leistungsunterschiede zwischen bilingualem und regulärem Unterricht?

   _____

   _____

15. Welche Ziele verfolgst du persönlich mit dem bilingualen Unterricht?

   _____

   _____

16. Wovon unterscheiden sich deiner Ansicht nach die bilinguale und die reguläre Klasse am meisten?

   _____

   _____

17. Wie stellst du im bilingualen Unterricht neue Vokabeln vor? Wie lernen die Schüler neue Vokabeln?

   _____

   _____

18. Verwenden die Schüler Vokabellisten um neue Vokabeln zu lernen? Wie sehen die aus? (Deutsch – Englisch, Paraphrasen, etc.)

   _____

   _____

19. Gibst du als Lehrer den Schülern neue Vokabeln vor? Suchen Schüler neue Vokabeln selbst in Texten?

   _____

   _____

20. Werden in bilingualen bzw. regulären Klassen authentische Unterrichtsmaterialien benutzt? Welche?

   _____

   _____

21. Welche Schreibübungen wendest du im bilingualen Unterricht an?

   _____

   _____

Danke für deine Mitarbeit! ☺

Appendix 3

Writing exercise

Foto: Bernadette Keiper

Imagine you have spent a great day together with friends. <u>You have taken the photo above.</u> In the evening you sit down to write into your diary about everything that happened on this day and how you feel about it.

Write about 100 words (maximum: 120).

Sunday, July 15th

I had a fantastic day today!

—————— (Continue on the back of this sheet.) ——————

Appendix 4

Abstracts

1. Abstract in English
2. Abstract in German

Curriculum Vitae

Abstract – English

This paper represents a comparative study of writing proficiency between an Austrian 8th grade *Content and Language Integrated Learning* (CLIL) and mainstream EFL class with regard to their lexical competence. While the primary focus is on lexical variation and vocabulary errors, secondary emphasis is laid on other categories of written error, such as grammar and spelling in order to detect potential differences in writing competence between the two types of schooling. For this purpose, written samples of 22 CLIL and 16 EFL students were collected and analyzed according to the included vocabulary range and written errors. Furthermore, the study compares results of the writings of both English and German native speakers in order to investigate the role of the students' native languages in lexical proficiency. In order to take the linguistic background of participants into account, a questionnaire was created to generate and provide relevant demographic information. The participating students included eight English native speakers, all of whom are CLIL students, and 18 German native speakers, nine of whom are CLIL, and nine of whom are EFL learners.

The first part of the thesis covers the theoretical background related to the topic of vocabulary and its use in the two types of instruction. It describes different vocabulary learning strategies in the two classes and gives an account of lexical competence with regard to high and low proficiency learners. Furthermore, the theoretical part of the study concerns the challenges that students encounter related to lexical transfers and errors. The second part deals with the empirical framework of the study and presents the findings of analysis of students' texts. The results reveal differences in lexical variation and include the error categories between CLIL and EFL students, as well as between English and German native speaker students.

Abstract – German

Diese Arbeit behandelt eine Vergleichsstudie der schriftlichen Fertigkeiten der österreichischen 8. Schulstufe einer *Content and Language Integrated Learning* (CLIL) Klasse und einer regulären Fremdsprachenklasse (EFL) bezüglich ihrer lexikalischen Kompetenz. Während der primäre Fokus auf Wortschatz und Vokabelfehlern liegt, befasst sich der zweite Schwerpunkt mit anderen Kategorien von schriftlichen Fehlern, so wie Grammatik und Rechtschreibung, um potentielle Unterschiede in den schriftlichen Fertigkeiten zwischen den zwei Klassen zu ermitteln. Zu diesem Zweck wurden geschriebene Texte von 22 CLIL und 16 EFL Schülern eingesammelt und gemäß dem inkludierten Wortschatz und schriftlichen Fehlern analysiert. Des Weiteren vergleicht die Studie Resultate der geschriebenen Texte der englischen und deutschen Muttersprachler um die Rolle der Muttersprache der Studenten für die lexikale Kompetenz zu erforschen. Um linguistische Hintergrundfaktoren zu berücksichtigen, wurde ein Fragebogen erstellt, der relevante demographische Information lieferte. Die teilnehmenden Studenten umfassen acht englische Muttersprachler, von denen alle CLIL Schüler darstellen, und 18 Schüler mit Deutsch als Muttersprache, von denen neun CLIL und neun EFL Schüler sind.

Der erste Abschnitt der Diplomarbeit behandelt den theoretischen Hintergrund bezüglich der Thematik Vokabular und seinen Einsatz in den zwei Schultypen. Er umfasst verschiedene Vokabellernstrategien der zwei Klassen und beschreibt lexikalische Fertigkeiten hinsichtlich Schüler hoher und niedriger Kompetenz. Außerdem umfasst der theoretische Teil der Studie Einschränkungen, die den Schülern begegnen, bezüglich lexikalischen Transfer und schriftlichen Fehlern. Der zweite Abschnitt umfasst den empirischen Rahmen der Studie und präsentiert die gewonnenen Ergebnisse der Analyse der Texte von Schülern. Die Resultate offenbaren Unterschiede in lexikalischer Variation und inkludierten Fehlerkategorien zwischen CLIL und EFL Schülern, sowie zwischen Schülern der englischen und deutschen Muttersprache.

Curriculum Vitae

Persönliche Daten:

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