DIPLOMARBEIT / DIPLOMA THESIS

Titel der Diplomarbeit / Title of the Diploma Thesis

„Improving English Listening Skills
Through CLIL in Technical Subjects"
A Study Conducted in an Austrian Technical College (HTL)

verfasst von / submitted by

Vanessa Döring

angestrebter akademischer Grad / in partial fulfilment of the requirements for the degree of

Magistra der Philosophie (Mag. phil.)

Wien, 2018 / Vienna, 2018

Studienkennzahl lt. Studienblatt / degree programme code as it appears on the student record sheet:	A 190 344 456
Studienrichtung lt. Studienblatt / degree programme as it appears on the student record sheet:	Lehramtsstudium UF Englisch, UF Geographie und Wirtschaftskunde
Betreut von / Supervisor:	Ao.Univ.-Prof. Mag. Dr. Ute Smit

Table of Contents

Acknowledgements

First, I would like to express my sincere gratitude to my supervisor, Ao.Univ.-Prof. Mag. Dr. Ute Smit for her advice, guidance, valuable feedback and remarkable patience. I am utterly thankful for having had the opportunity to work "under your wing".

I would also like to show my appreciation to the participants of the empirical research of this thesis, as well as the Viennese technical college (HTL) which permitted me to conduct my research. Without your voluntary participation and keen support, it would have been impossible to compile this thesis.

I am further truly thankful for having received such impressive support from my dearest friends Susi, Martina, Teresa, Yvonne, Nicole, Nina, Michaela and Andi, who have not only been by my side throughout the years of college, but have always been there whenever I needed some uplifting words.

My deepest gratitude also goes to my parents and brother, without whom I would not have been able to pursue my studies at the University of Vienna. You have been my role models in various aspects of my life and your sacrifices will not go unnoticed.

Finally, I would like to take this opportunity to thank profusely my other half, Lo. You have shown exceptional understanding during the final years of college and inspired me to continuously reach beyond my limits. None of this would have been possible without your unquestionable encouragement.

List of Tables

List of Figures

1 Introduction

Globalization processes, the increase of mobility and a progressively interconnected and networked economic market, which is characterized through an international flow of intelligence, ideas and creativity, have led humankind to enter what is known as the "Knowledge Age" (Coyle, Hood & Marsh 2010: 5-9). Presenting various generations with the ubiquitous challenge to adapt to technological advances, rapid movement and change within countless economic branches, unlimited (human) resources, altered social and cultural realities and convergence and the pressure to become proficient users of "knowledge and skills suitable for the global age" have substantially influenced and transformed educational systems around the world (Mehisto, Marsh & Frigols 2008: 11; cf. also Coyle, Hood & Marsh 2010: 9f).

One distinct educational approach that specifically crystallized out of these international changes is Content and Language Integrated Learning (CLIL), which seeks to equip individuals with the knowledge and skills essential to successfully tackle global demands. Although not an entirely new teaching and learning methodology, CLIL is perceived as an effective "dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language", which, predominantly in the European context, seeks to elevate individuals' language as well as content knowledge (Mehisto, Marsh & Frigols 2008: 9; cf. also Coyle 2007: 545). By synthesizing content and language learning, CLIL has especially been praised by the European Union in that it presents a "timely solution in harmony with Europe's desire to reinforce its levels of multilingualism" (Pérez Cañado 2016: 15), supports "economic unity" and enhances language education in order to achieve socio-economic advantage "at a supranational level [by laying] the foundation for greater inclusion and economic strength" (Coyle, Hood & Marsh 2010: 8; cf. also European Commission 2017: 14; Lasagabaster 2008: 31). In fact, it has been since 1995 that "grass-roots actions" gradually developed into multi-level provisions, in which "high-level political agents" (Dalton-Puffer 2011: 184), "language policy makers, stakeholders [e.g. parents and teachers] and European Institutions" (Ruiz de Zarobe 2013: 231) have promoted the incorporation of CLIL initiatives in mainstream schools across the European continent (cf. also Ioannou-Georgiou 2012: 496). As a result of this staunch support, diverging CLIL programs have been realized in nearly all European countries, spanning from short term and long term as well as high and low

intensity programs that each have the common goal to facilitate the integrated learning of both an additional language and content (cf. Mehisto, Marsh & Frigols 2008: 12; Dalton-Puffer, Nikula & Smit 2010: 2). Depending on the European country and CLIL program realized, CLIL lessons can be described as "content-driven" (Dalton-Puffer, Nikula & Smit 2010: 2), in which a vehicular language is used as a medium of instruction, a special focus is set on the "use [of] language appropriate to the content in a meaningful way" (Coyle, Hood & Marsh 2010: 37; cf. also Coyle 2007: 553). Thus, gaining content-specific knowledge through the utilization of a foreign language is described to be at the heart of CLIL education, as it fosters the (implicit) acquisition of a foreign or second language in combination with the acquisition of valuable content knowledge (cf. Dalton-Puffer & Smit 2007: 8). It is through this groundbreaking methodology of CLIL that students are provided with the means of authentic communication, active involvement and articulation of understanding that new knowledge and skills are bound to develop and "deeper level[s] of learning" are believed to occur (Coyle, Hood & Marsh 2010: 37f).

Throughout the past decades, the advantages and disadvantages of CLIL education have been researched to a considerable extent. As a result, research on the effectiveness of CLIL education gave rise to a well-established research pool, primarily comprised of research findings concerning learning outcomes, students' "individual language competence", "the cognitive aspects of learning" as well as the "perceptions and attitudes of students, teachers and other stakeholders" (Dalton-Puffer, Nikula & Smit 2010: 9-11). However, as CLIL is a rather new educational approach, in which some aspects have been more thoroughly researched than others, it is essential to continuously re-evaluate its purported benefits and use research outcomes to further develop and optimize the concept of CLIL (cf. ibid.). One aspect that has received rather limited attention from researchers appears to be the impact that CLIL may have on students' improvement of listening skills. This is quite surprising, given the fact that listening plays a significant role in communication, and thus, in the acquisition of a foreign or second language. In fact, compared to the other three macro-skills, listening is described as a fundamental skill to master, since it is a prerequisite for any learning – regardless of language or content – to occur (cf. Nord 1981, in Peterson 2001: 88; Nunan 2002: 238f).

It is due to this identified research gap within the CLIL research landscape as well as the highly interesting underlying processes this skill comprises that the present thesis will primarily examine CLIL education in relation to students' (anticipated) improvement in the respective skill in relation to CLIL. Moreover, this thesis will provide a rather holistic and inclusive approach to eliciting students' subjective opinions on CLIL education and will aim to shed some light on their self-perceived improvement on the skill under investigation, as well as their general view on the usefulness of CLIL. Since the empirical research of this thesis was conducted in an Austrian technical college (HTL), in which CLIL education has only been officially implemented in curricula since 2011, the research findings may further prove to be of keen interest for various stakeholders involved. The individuals selected for research purposes are taken from three third-grades (i.e. eleventh grade in general education) of the information technology department of the respective Austrian technical college, as in this school type CLIL is offered to students from the third grade onwards and amounts to 72 hours per year. Split into a CLIL and non-CLIL group, the examination of students' respective listening improvement – with and without having received CLIL lessons – will yield valuable insights into the development of their listening skills as well as their subjective opinions on this educational approach over a period of two months.

This thesis is divided into three consecutive parts. The first part establishes a theoretical foundation of CLIL and further provides an overview of the implementation processes and realization of CLIL education in Europe, with a focus on Austria and Austrian technical colleges (HTLs). The second part discusses the listening skill in general as well as educational terms and discusses aspects relevant to the empirical research of this thesis. Finally, the last part contains the empirical study, in which the research context and procedure and methodological approach is defined, followed by a thorough data analysis and evaluation of the results obtained.

2 CLIL – Content and Language Integrated Learning

The present section will provide a theoretical foundation of the concept of CLIL in Europe and – for the purposes of this thesis – Austria. Thus, the first subsection (2.1) will offer a general overview of the acronym CLIL, followed by a discussion of some of the underlying theoretical concepts and models of second language acquisition (SLA) and learning (SLL) that are perceived as the backbone of CLIL education (2.2). Subsequently, Coyle's 4Cs Framework (2.3) and Language Triptych (2.4) shall be dealt with. The last two subsections will then highlight the implementation of CLIL education in Europe (2.6), and more specifically, Austria (2.7). As for the empirical part of this thesis, tests were conducted in an Austrian technical college, the implementation of CLIL within this school type will receive considerable attention.

2.1 General Overview – CLIL

The term CLIL, which stands for Content and Language Integrated Learning, was coined in the 1990s in Europe and is a "dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language" (Mehisto, Marsh & Frigols 2008: 9; cf. also Coyle 2007: 545). A crucial impetus for establishing CLIL methodology was given in 1995, when the European Commission expressed the need for "European citizens [to be] able to communicate in three languages – the local and/or national language and two other European languages" (Coyle 2007: 544). CLIL, in this respect, is perceived as a "timely solution in harmony with Europe's desire to reinforce its levels of multilingualism" (Pérez Cañado 2016: 15), since it offers students an extended exposure to a specific target language "without increasing the overall instruction time" or – in best-case scenarios – deducting time from content-subject lessons (European Commission 2017: 14). By synthesizing content and language teaching and learning, CLIL education is believed to facilitate an intertwining of "various language-supportive methodologies which lead to a dual-focused form of instruction where attention is given both to the language and the content" (Coyle, Hood & Marsh 2010: 3). By adopting a holistic perspective, CLIL education does not entail a preference for content or language teaching per se, but rather presents itself as an integrated approach that views both spectrums as highly valuable (cf. Coyle 2007: 545). Hence, CLIL is suggested to innovatively combine and renew the diverse models and initiatives of bilingual or multilingual education prevalent

in Europe and provides a more inclusive approach to teaching both content and language (cf. ibid.).

In essence, CLIL education is not an entirely new educational phenomenon, but rather "shares some elements of a range of educational practices" (Coyle, Hood & Marsh 2010: 1), such as "immersion, bilingual education, multilingual education, language showers and enriched language programmes" (Mehisto, Marsh & Frigols 2008: 12; cf. also Dalton-Puffer, Nikula & Smit 2010: 1). At present, CLIL is seen as an "umbrella term" that is used "for a wide array of educational practices" (Dalton-Puffer, Nikula & Smit 2010: 1ff; cf. also Coyle, Hood & Marsh 2010: 1). What distinguishes CLIL from other educational practices and "language-teaching approaches", is that CLIL lessons – depending on the country and context in which they are realized – are "content-driven" and use a foreign language for instruction purposes (Coyle, Hood & Marsh 2010: 1; cf. also Dalton-Puffer, Nikula & Smit 2010: 1ff). Thus, as maintained by Dalton-Puffer, Nikula and Smit (2010: 2), it must be borne in mind that "it is the curriculum of the content-subject that is delivered in the foreign language while language goals may be high but remain implicit"[1]. In addition, prototypical CLIL settings can be distinguished from other educational practices, since, as suggested by Dalton-Puffer and Nikula (2014: 117), they

> […] involve the use of a foreign language […] rather than the co-official language of the country; teaching by subject specialists, rather than language teachers; classes being timetabled as content lessons and taking place alongside language teaching rather than instead of it.

Although widely debated by scholars in terms of "whether it is better to start foreign language teaching at an early age [or at a later stage]" (Lasagabaster 2008: 32) in European education systems, CLIL is usually "implemented once learners have already acquired literacy skills in their mother tongue" (Dalton-Puffer & Smit 2013: 456). Nevertheless, CLIL programs in Europe can be found in kindergarten, primary, secondary and tertiary and professional levels of education and are further manifested in the teaching and learning realm through various different organizational forms, varying in terms of "compulsory status, intensity, starting age, starting linguistic level

---

[1] As language goals are stated to "remain implicit" within European CLIL contexts, it must further be emphasized that although CLIL settings are scheduled as content-driven, "CLIL classes […] substan-tial[ly] increase the amount of target language exposure for the learners" (Dalton-Puffer & Smit 2007: 8). Language learning, thus, takes place as "implicit and incidental learning by centering on meaning and communication" (Lasagabaster 2008: 32; cf. also Marsh 2010: 72).

and duration" (Coyle 2008: 100; cf. also Dalton-Puffer, Nikula & Smit 2010: 2; Mehisto, Marsh & Frigols 2008: 12). Consequently, it must be underscored that "countries have very many ways of realising CLIL due to specific sociocultural settings and educational policies" (Nikula 1997, in Coyle 2007: 546) that range from content-led to language-led and balanced CLIL approaches (cf. also European Commission 2017: 57; Coyle, Hood & Coyle 2010: 28). Integrating content and language learning is thus a difficult and complex endeavor, which, as stated by Coyle, Hood and Marsh (2010: 42), "requires strategic planning as well as reflective evaluations, [as there] are no quick-fix solutions or formulae for how this might be achieved".

Another determinant that distinguishes CLIL from other bilingual educational practices is that CLIL lessons are typically taught by "non-native speakers of the target language" who are content-specialists, rather than language-specialists (Dalton-Puffer & Smit 2013: 456). In this respect, it is vital to mention that content teachers are oftentimes asked to collaborate with language teachers, as it is believed that only through adequate support from language teachers, will students be able to "gain the language needed to manipulate content from other subjects" (Mehisto, Marsh & Frigols 2008: 11). Moreover, it is suggested that the voluntary and natural use of a vehicular language in CLIL settings will boost learners' "motivation towards, and hunger for, learning languages" (Coyle, Hood & Marsh 2010: 12), which may also result in increased student motivation toward content learning (cf. also Dalton-Puffer & Smit 2007: 8). In addition, this increase of motivation to use an additional language within CLIL lessons may be due to the fact that students need not use an additional language throughout entire CLIL lessons, but rather are provided with the opportunity to switch back and forth between the generally accepted language of instruction and vehicular language agreed upon (cf. Dalton-Puffer et al. 2008: 10).

As concerns CLIL education in Europe, a differentiation between the use of a second or foreign language appears to be crucial. In contrast to, for example, Canadian Immersion, CLIL lessons in Europe do not use a second language (as is the case in Canada, where the second national language, French, is used as a medium of instruction), but rather utilize a foreign language or lingua franca (typically, English), which learners will "mainly encounter at school since it is not regularly used in the wider society they live in" (Dalton-Puffer, Nikula & Smit 2010: 1; cf. also European Commission 2017: 71). Especially as regards Europe, where since the "mid-1990s

globalization was placing greater linguistic demands on mainstream education", it has been argued to be a common "desire to improve language-learning opportunities for all young people in order to increase European cohesion and competitiveness" (Mehisto, Marsh & Frigols 2008: 10; cf. also Lasagabaster 2008: 31; Lasagabaster & Sierra 2010: 371)[2]. Thus, it can be reasoned that globalization, the increase of mobility, economic demands and interconnectedness through technological advances experienced in the 21st century led to a transformation of language education and subject learning, which seeks to equip learners (specifically referred to as Generation Y and C) with "knowledge and skills suitable for the global age" (Mehisto, Marsh & Frigols 2008: 11; cf. also Coyle, Hood & Marsh 2010: 9f). As a result, common teaching and learning objectives have changed from "learn now for use later", to "learn as you use, use as you learn" (Coyle, Hood & Marsh 2010: 7f, 10; cf. also Dalton-Puffer, Nikula & Smit 2010: 4; European Commission 2014: 17; Marsh 2010: 67; Aguilar & Rodríguez 2011: 184f).

As highlighted in the preceding lines, English is commonly used as a vehicular language in European CLIL settings. This, according to Dalton-Puffer and Smit (2013: 546), is due to the fact that "a command of English as an additional language is increasingly regarded as a key literacy feature world-wide" and thus may position itself as an elitist, prestigious, high-status and – above all – international language. However, by adopting a global perspective, "CLIL vehicular languages include Asian, European and heritage languages" (Coyle, Hood & Marsh 2010: 9). Consequently, CLIL teachers are not restricted to use English as a medium of instruction, but – depending on the country and context – can choose from a broad variety of languages (i.e. foreign, second or any other language present in a certain community) to fulfill language-specific as well as content-specific CLIL teaching goals related to global (linguistic) demands (cf. Ruiz de Zarobe 2013: 233)[3].

---

[2] Coyle, Hood and Marsh (2010: 154) stress that "multilingual settings common in today's world make linguistic capital an important component of human capital". Thus, to be able to set foot in the increasingly globalized and internationalized job market, it has been regarded as indispensable to alter language policies in schools and prepare learners for a future in which both language as well as content knowledge is essential (cf. Coyle, Hood & Marsh 2010: 154; Ruiz de Zarobe 2013: 233).

[3] Coyle, Hood and Marsh (2010: 9) state that although in many (non-)European countries, English is favored as the language of instruction in CLIL contexts, other countries (including Anglophone countries in which the native language is English) do not use English as a vehicular language.

In general, CLIL education is described as a learning and teaching methodology that "not only promotes linguistic competence, [but] also serves to stimulate cognitive flexibility" (Coyle, Hood & Marsh 2010: 10). Although it must be accentuated that within CLIL contexts "there is likely to be a difference in levels between cognitive functioning and linguistic competence" (i.e. learners' language level may be lower than their cognitive knowledge as regards a specific content subject), CLIL settings are still perceived to considerably contribute to a "better association of different concepts and [may help] the learner to advance toward a more sophisticated level of learning in general" (ibid: 11). Holistically, as pointed out by Coyle, Hood and Marsh (2010: 153):

> CLIL has a significant contribution to make not only to providing learners of all ages with motivating experiences which are appropriate for knowledge creation and sharing, but also, fundamentally, to cultivating the 'cosmopolitan identity' [...] where learning and using languages for different purposes generates tolerance, curiosity and responsibility as global citizens.

2.2 Theoretical Backdrop – SLA & CLIL

The following section will describe some of the underlying theoretical concepts and models of second language acquisition (SLA) and learning (SLL) that are perceived as the backbone of CLIL education. Hence, this section will deal with Krashen's Monitor Model, Long's Interaction Hypothesis and Swain's Output Hypothesis as well as two participation-based theories (i.e. Givon's Discourse Hypothesis and Vygotsky's Sociocultural Theory), as formerly selected by Dalton-Puffer (2007: 258-265) in her attempt to delineate the theoretical approaches that led to the establishment of CLIL education. Another reason in favor of this choice is de Graaff's et al. (2007) study on effective second language (L2) pedagogy in CLIL, in which it was revealed that both input and output theories, as well as perception-based theories can be applied to CLIL contexts, as in such settings teachers must facilitate students (1) exposure to input, (2) output production, (3) meaning-focused processing, (4) form-focused processing and (5) the use of various strategies.

2.2.1 Input, Interaction and Output Hypotheses & Theories

The following lines will elaborate on Krashen's Monitor Model (specifically on his Input Theory), as well as Long's Interaction Hypothesis and Swain's Output Hypothesis. Before each theory can be discussed in greater detail, it is vital to highlight that these concepts consider language learning to be a "purely cognitive behavior", in which "cognitive processes [are perceived as] pre-existent and even hard-wired in the

individual mind" (Dalton-Puffer 2007: 261f). Consequently, it is believed that language learning will occur, if L2 learners are provided with suitable input and produce output that will "enhance [individuals'] cognitive processing levels" (ibid.).

The most notable reception-based theory of SLA is Krashen's Monitor Model, which was developed in the late 1970s and consists of five hypotheses, namely the Acquisition-Learning Hypothesis, Monitor Hypothesis, Natural Order Hypothesis, Input Hypothesis and the Affective Filter Hypothesis (cf. Dalton-Puffer 2007: 258; McLaughlin 1987: 19). As argued by Mitchell and Myles (1998: 126), Krashen's Monitor Model, and especially his Input Hypothesis, claim that for SLL to occur, the provision of comprehensible input is imperative. That is, L2 learners must be exposed to L2 input that is slightly above their current linguistic competence (i+1), but still comprehensible in terms of meaning, whereas not necessarily in terms of form (cf. Krashen 1982: 20f; Ellis 1997: 47). Dalton-Puffer (2007: 258) states that in Krashen's hypothesis, L2 learners can be provided with comprehensible input, if messages are set within a distinct context or if messages are intentionally simplified (e.g. through caretaker speech and foreigner-talk). As a result, comprehensible input, if "perceived as meaningful and relevant to the learner" – linked to what Krashen describes as "Affective Filter" –, is likely to lead to the acquisition of an L2 (Dalton-Puffer 2007: 258f; cf. also Krashen 1982: 31f; Ellis 1997: 47). In this regard, the production of output is perceived as a rather insignificant (but not irrelevant) factor in terms of acquiring an L2, for – in Krashen's view – "the only role that speaker's output plays is to provide a further source of comprehensible input" (McLaughlin 1987: 50; cf. also Dalton-Puffer 2007: 259; Dalton-Puffer & Smit 2007: 10; Ellis 1997: 49). Consequently, as stated by McLaughlin (1987: 51), Krashen's theoretical notions in his Monitor Model claim that "acquisition is *caused* by understanding the input to which the learner is exposed", thereby ascribing greater importance to understanding an L2 rather than to producing it. Although at first glance, Krashen's Monitor Model appears to be a sound theoretical concept, numerous scholars have criticized it in that they claim that it is backed by insufficient empirical evidence and cannot be tested easily (Mitchell & Myles 1998: 126). Nevertheless, the concept of CLIL education, "with its emphasis on the meanings provided by […] content subject[s]" (Dalton-Puffer 2007: 259), innovatively realizes some of the theoretical underpinnings of Krashen's Monitor Model and Krashen and Terell's (1982) "*Natural Approach*", which both emphasize the need for providing L2

learners with natural, "meaningful and affectively positive conditions" in order to facilitate language learning in an L2 (Dalton-Puffer 2007: 259; cf. also Dalton-Puffer & Smit 2007: 10; Ruiz de Zarobe 2013: 234).

In the 1980s, Long's Interaction Hypothesis gained prominence among L2 researchers (Dalton-Puffer 2007: 259). Perceived as an extension of Krashen's model, Long's Interaction Hypothesis claims that "both comprehensible input and L2 development [stem] from the conversational modifications that occurred when [interlocutors] worked to resolve a communication difficulty" (Mackey, Abbuhl & Gass 2012: 7f; cf. also Mitchell & Myles 1998: 128). In other terms, interaction will expose L2 learners to valuable comprehensible L2 input, as it leads to collaboration and consequently to negotiation of meaning, which is described as a key factor that promotes the acquisition of an L2 (cf. Mitchell & Myles 1998: 128; Dalton-Puffer 2007: 259; Ellis 1997: 45ff). Thus, in contrast to Krashen's model, Long's Interaction Hypothesis suggests that merely receiving comprehensible L2 input is insufficient to acquire an L2, but much rather, conversational interaction is required to foster language learning processes. Conversational interaction will further give L2 learners the opportunity to "immediately attend to cases of incomplete understanding by requiring *conversational adjustments* from their interlocutors" (Dalton-Puffer 2007: 259; cf. also Mackey, Abbuhl & Gass 2012: 8). Hence, in contrast to Krashen's model, Long's Interaction Hypothesis postulates that comprehensible input will only lead to the acquisition of an L2, if learners are given the opportunity to "make use of conversational tactics, such as *repetitions, confirmation checks, comprehension checks or clarification requests*" (Mitchell & Myles 1998: 128). CLIL, making use of parts of Long's Interaction Hypothesis, ascribes interaction paramount importance, for "conversation becomes the means by which learning takes place, mainly when it comes to the negotiation of meaning" (Ruiz de Zarobe 2013: 234).

Although comprehensible input plays a crucial role in acquiring an L2, the previously discussed reception-based theories and hypotheses failed to recognize the role that output is believed to play in acquiring an L2. Swain's Output Hypothesis (1985) changed the view on SLA yet again, as her study (carried out in French immersion classrooms in Canada) revealed that comprehensible input enabled L2 students to develop "native-like comprehension skills but fell short of reaching productive control of many aspects of French syntax and lexis" (Dalton-Puffer 2007: 260; cf. also Mackey,

Abbulah & Gass 2012: 8). This, as suggested by Swain (1985: 149), is not due to the fact that their "comprehensible input is limited but because their comprehensible output is limited". Consequently, Swain (ibid.) believes that L2 learners will only "develop deeper levels of language processing", if they actively engage in the production of output. In contrast to Krashen's (1982) and Long's (1980, 1996) hypotheses, Swain's Output Hypothesis claims that although "comprehensible input [is] necessary for L2 acquisition to occur" it should not be viewed as sufficient (Mackey, Abbulah & Gass 2012: 8). Much rather, she emphasizes that L2 learners should be provided with opportunities to produce output themselves (e.g. through speaking or writing) to acquire an L2 (cf. Swain 1985: 249; Ellis 1997: 49). This, in turn, would give L2 learners the chance to not only analyze L2 input on a semantic and pragmatic level, but also to understand syntactic structures that were formerly left unattended (cf. Dalton-Puffer 2007: 261; Dalton-Puffer & Smit 2007: 10; Swain 1985: 252). As in most cases, L2 students were not "pushed in their output" (i.e. they were not required to become more comprehensible speakers/writers), there was no need for them to "produce language that reflects more appropriately or precisely their intended meaning" (Swain 1985: 249). However, within Swain's theoretical claims, this notion was changed, as "to promote language learning, learners need to be 'pushed' from semantic into syntactic processing mode by requiring them to encode comprehensible messages" (Dalton-Puffer 2007: 261; cf. also Dalton-Puffer 2011: 194; Mackey, Abbulah & Gass 2012: 8). Although Swain's Output Hypothesis is argued to have exerted notable influence on the theoretical concept of CLIL (i.e. in terms of supporting L2 learners to produce output and thereby "expanding their active linguistic repertoire"), it is equally highlighted that within CLIL settings, students are oftentimes not given enough opportunity to actively produce linguistic output (Dalton-Puffer 2011: 194). This is due to the fact that in the CLIL classroom, neither speaking nor writing may receive specific attention, as CLIL lessons may be either teacher-centered or are co-constructive in nature (i.e. output is produced through whole-class interaction) (Dalton-Puffer 2007: 261).

2.2.2 Participation-Based Hypotheses & Theories

Participation-based theories, in contrast to reception-based theories ascribe particular importance to the social and situational context in which language learning occurs. Consequently, within participation-based theories, SLA is perceived as a "social rather

than a purely cognitive phenomenon", in which a language is learned primarily through interaction and collaboration with other individuals (Dalton-Puffer 2007: 261). In this respect, two noteworthy theories, namely Givon's Discourse Hypothesis and Vygotsky's Sociocultural Theory will be discussed.

Described as a "learning-as-participation" approach within the theory of SLA, Givon's (1979) Discourse Hypothesis maintains that L2 learners will only acquire those aspects of a language that they directly encounter through various "discourse types in which they […] participate" (Dalton-Puffer 2007: 262f). It is further suggested that a language is acquired not merely in formal contexts (e.g. the L2 classroom), but much rather in communities in which a language is used (ibid.). In other terms, as described by Dalton-Puffer (2007: 263), "learning takes place through active and increasingly knowledgeable participation". As concerns CLIL settings, this insight into SLA (i.e. the importance of encouraging L2 learners to engage in social and interactive ways of using an L2) proves to be crucial, for "CLIL classrooms are instances of formal, institutional interaction" which are quite different from informal discourse types (ibid: 262). Consequently, when implementing CLIL education in school, it must be borne in mind that not only the formal, institutional teaching of an L2 or foreign language should take place, but rather it should be aspired to teach language as actually used in real-life settings (i.e. through interaction and various forms of discourse).

Another noteworthy SLA theory that paved the way for CLIL appears to be Vygotsky's (1978) Sociocultural Theory. Although Lantolf (2012: 57) emphasizes that Vygotsky's Sociocultural Theory is "a general theory of human mental development", Vygotsky's ideas have gained notable attention within (and thus, expanded to) the L2 research realm. Primarily, this is due to the fact that Vygotsky perceived language as "a tool [used for] mediating between […] social interaction and […] higher order mental processes" (Dalton-Puffer 2007: 263). Applied to the research field of SLA and SLL, Vygotsky's theory postulates that social interaction, and especially dialogues between experts (e.g. teachers) and novices (e.g. learners), leads to the appropriation of "new knowledge or skills" (Mitchell & Myles 1987: 151). That is, L2 learners – who are not yet able to self-regulate their learning – are guided in their "language and cognitive development" by other, more skilled language users (e.g. teachers and peers) by means of "*object-regulation*" (Mitchell & Myles 1987: 151) and "*scaffolding*" (Dalton-Puffer 2007: 264; cf. also Lantolf 2012: 60). Ultimately, it is assumed that object-

regulation and scaffolding will prompt self-regulation, as L2 learners internalize and cognitivize language, which can further be used "as a tool for thought in private speech and further learning" (Dalton-Puffer 2007: 9, 264). As CLIL education is interactive and participatory in nature, as well as uses language as a medium of instruction, Vygotsky's Sociocultural Theory appears to be a suitable theoretical foundation for CLIL (Moate 2010: 38). In fact, as Vygotsky's theory is a general learning theory rather than a language learning theory, it shares notable similarities with CLIL practices in that it places "language at the heart of the learning process" (Moate 2010: 43) and encourages collective and collaborative language and content learning (cf. Coyle, Hood & Marsh 2010: 35).

> The central idea is that learners in the learning situation first and foremost use language for social interaction and communication with peers and experts, and that this is the prerequisite for their being able to later internalize what was said as knowledge or competence. (Dalton-Puffer 2007: 9)

2.3 The 4Cs Framework

The 4Cs framework was developed by Coyle in 1999 and is built on the following main pillars: **C**ontent, **C**ognition, **C**ommunication and **C**ulture. As stated by Coyle, Hood and Marsh (2010: 41), this framework integrates "content and language learning within specific **contexts** and acknowledges the symbolic relationship that exists between these elements", as well as provides teachers with a "sound theoretical and methodological foundation for planning CLIL lessons and constructing materials" (Meyer 2011: 295). In this respect, it must be emphasized that Coyle's 4Cs framework should not be understood as a theoretical framework, but much rather as a "conceptualisation of CLIL" that views the four Cs as interrelated and mutually inclusive (Coyle 2007: 550f; cf. Figure 1). As a result, it can be characterized as a conceptual framework that "unites learning theories, language learning theories and intercultural understanding" (Coyle 2008: 103; cf. also Ioannou-Georgiou 2012: 499). Holistically, as underscored by Coyle (2007: 550), the 4Cs framework intends to achieve the following:

> In essence, the 4Cs framework suggests that it is through progression in knowledge, skills and understanding of content, engagement in associated cognitive processing, interaction in the communicative context, the development of appropriate language knowledge and skills as well as experiencing a deepening cultural awareness that effective CLIL takes place.

The subsequent lines will deal with the four entities that are used to construct CLIL programs and further discuss in how far these building blocks aid teachers in creating effective CLIL learning experiences. However, before doing so, it must be emphasized that although the four elements will be described individually, they should not be perceived as separate, but much rather interrelated principles that elevate "CLIL to the position of [a] major and significant contributor to the realisation of the European Commission's Language Policy" (Coyle 2010: 28; cf. also Coyle, Hood and Marsh 2010: 55).
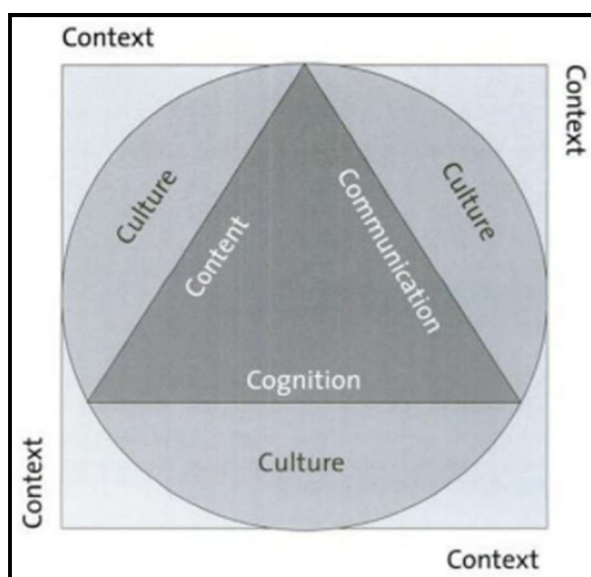
Figure 1: The 4Cs Framework for CLIL (Coyle, Hood & Marsh 2010: 41)

2.3.1   Content

As CLIL lessons, especially in Europe, are largely content-focused, and various languages are used as mediums of instruction, content subjects and the teaching and learning of curricular subject matter are stated to be the primary objective of any CLIL setting in Europe (cf. Dalton-Puffer & Smit 2007: 12; Mehisto, Marsh & Frigols 2008: 11). Depending on the country and the specific CLIL program realized, different content subjects are taught in CLIL contexts. According to a report by Eurydice (2006: 26, 56), the subjects that are most frequently taught within CLIL settings are:

- Science subjects: *mathematics, biology, physics, chemistry and technology.*
- Social science subjects: *history, geography and economics.*
- Artistic subjects: *music and the plastic and visual arts.*

Although no exhaustive or universal lists can be provided in this instance, the above highlighted content subjects are those stated to be primarily chosen within CLIL programs in Europe.

In addition to the content subjects chosen across European countries, it further appears to be necessary to delineate what the term "content" refers to in CLIL settings. As defined by Coyle, Hood and Marsh (2010: 42):

> Content matter is not only about acquiring knowledge and skills, it is about the learner *creating* their own knowledge and understanding and *developing* skills (personalized learning).

Consequently, content refers to the subject or project theme in a specific CLIL setting that aims to promote the development of skills and the acquisition of content-specific and language-specific knowledge. Thus, according to Coyle, Hood and Marsh (2010: 27f), "content in a CLIL context is much more flexible than selecting a discipline from a traditional school curriculum", as the choice of content can span from the "delivery of elements taken directly from a statutory national curriculum to a project based on […] different aspects of the curriculum". Projects, in this respect, can be organized as cross-curricular work on various themes and topics, which will provide students with a safe and guided learning environment in which they can practice and "apply skills from several subject areas simultaneously" (Mehisto, Marsh & Frigols 2008: 116; cf. also Coyle, Hood & Marsh 2010: 53). In addition, the 'freedom' to choose from various different content-teaching approaches and strategies in CLIL settings will better prepare students for "the reality of daily life", as subjects are typically not "compart-mentalized" or strictly divided (Mehisto, Marsh & Frigols 2008: 116).

2.3.2 Cognition

Within the 4Cs framework, the term "cognition" refers to (1) thinking processes and thinking skills that "enable learners to create their own interpretation of content" and (2) the development of metacognitive skills that enhance students' awareness of their own learning processes (Coyle, Hood & Marsh 2010: 29, 42). Consistent with CLIL's methodological link to Vygotsky's Sociocultural Theory (cf. section 2.2.2), in which teachers act as experts who transfer their knowledge to students (perceived as novices), CLIL aims to give students – regardless of their age or ability – ample room to construct their own understanding of subject matter as well as develop crucial thinking skills (cf. Coyle 2010: 28). However, instead of merely relying on building cognitive skills through teacher-student communication, CLIL settings further provide students with the unique opportunity to build thinking skills through co-operation and interaction with peers (cf. Mehisto, Marsh & Frigols 2008: 31). Cognition, in this respect, should not be left unattained, as proper guidance on behalf of teachers is

crucial for students to develop cognitive skills necessary for effective content learning (cf. Coyle, Hood & Marsh 2010: 29; Meyer 2011: 296). Thus, as perfectly put by Coyle, Hood and Marsh (2010: 29), CLIL lessons must "take account not only of the defined knowledge and skills within the curriculum or thematic plan, but also how to apply these through creative thinking, problem solving and cognitive challenge". To realize this, students should be exposed to tasks in which both "lower-order thinking (remembering, understanding and applying) and higher-order thinking (analyzing, evaluating and creating)" is required (Coyle, Hood & Marsh 2010: 30; cf. also Hillyard 2011: 7). This, as first introduced by Bloom (1956) in his taxonomy of thinking processes (cf. Coyle, Hood & Marsh 2010: 54), appears to be pivotal to be considered in any CLIL context, as the connection of "thinking processes to knowledge construction resonates with conceptualizing content learning in the CLIL setting" (Coyle, Hood & Marsh 2010: 30). Consequently, as claimed by Meyer (2011: 305f), "[e]ffective teaching means creating environments in which students are engaged, challenged, and saturated with various types of thinking – without being overwhelmed".

Besides guiding students in their development of cognitive processes and thinking skills, CLIL settings further require teachers to analyze students' linguistic proficiency to ensure that "learners will be cognitively challenged yet linguistically supported" when dealing with content subjects in a foreign language (Coyle, Hood and Marsh 2010: 43). This is described as a paramount undertaking, as in CLIL contexts it is (1) quite "unlikely that the language level of the learners will be the same as their cognitive level" and (2) effective learning will only occur if learners engage in cognitive processes appropriate to their cognitive and linguistic level (ibid: 44). Hence, CLIL teachers (at best, in collaboration with language teachers) will have to strategically plan and analyze the vehicular language used to promote and ensure content-learning at the appropriate linguistic and cognitive level (ibid.)[4]. It is thus, of utmost importance that a CLIL teacher is aware of the language proficiency necessary to complete activities and tasks within CLIL contexts.

---

[4] Referring to Coyle, Hood and Marsh (2010: 43f, 54), it appears to be advisable for teachers to use an altered version of Cummin's (1984) model (i.e. the CLIL Matrix) as well as Anderson and Krathwohl's (2001) concept that adds a knowledge dimension to Bloom's taxonomy. Both the CLIL Matrix and Anderson and Krathwohl's cognitive and knowledge dimension are described as helpful tools that aid CLIL teachers in the planning for appropriate cognitive challenges in CLIL settings (cf. ibid.).

2.3.3 Communication

As noted by Coyle, Hood and Marsh (2010: 42), the terms "communication" and "language" can be used interchangeably within CLIL education. This is crucial to highlight, as language is defined as a "conduit for both communication and learning", since students should learn to communicate in a language as well as use a language to learn within CLIL contexts (Coyle 2010: 28; cf. also Coyle, Hood and Marsh 2010: 54). Consequently, languages are not directly learnt (in contrast to traditional language lessons, in which there is often an "emphasis on grammatical progression"), but much rather, are primarily used for learning purposes in a content subject (Coyle, Hood & Marsh 2010: 54). Thus, the 'new' approach to learning and acquiring a distinct target language as well as gaining communicative competence in CLIL contexts, is by using a language rather than by teaching it explicitly (cf. Coyle, Hood & Marsh 2010: 54; Coyle 2007: 552). By using a vehicular language as a tool to access content subjects, students are believed to subliminally "develop a wide range of language skills, strategies and competences [further] needed to function in everyday plurilingual situations" (Dalton-Puffer 2007: 3; cf. also Coyle 2010: 28). Hence, it appears to be critical to emphasize that students' achievement in CLIL contexts "will depend on there being sufficient acceptance of the role which language plays in mediating content" (Harrop 2012: 64).

Communication is defined as one of the four key principles in CLIL contexts, as interaction between teachers and students and the mediation and negotiation of both ideas and thoughts (i.e. through teacher-student and student-student interaction) is fundamental for learning to occur (cf. Meyer 2011: 296; Ruiz de Zarobe 2013: 234). In fact, meaningful interaction is not only described to motivate learners to use a specific target language, but also sparks naturalistic learning of the same and is suggested to lead to the development of communicative competence – a primary goal of CLIL education (cf. Dalton-Puffer 2007: 3; Dalton-Puffer 2011: 193). However, using a target language to negotiate meaning may present itself as a rather challenging endeavor to students, since they may not be able to "express themselves as well as in their first language" (Coyle, Hood & Marsh 2010: 35). As in CLIL contexts, languages are primarily learnt in relation to the context in which they are used, it is imperative for CLIL teachers to identify "*content-obligatory* language (essential for learning the content) and *content-compatible* language (which supports the content of a lesson […])" in order

to support students in their utilization of a target language (Coyle, Hood & Marsh 2010: 36; cf. also Coyle 2008: 104). This is argued as a fundamental undertaking, since students will only be able to carry out activities and tasks, interact and communicate with their teachers and peers and successfully engage in learning processes, if content language and classroom language are equally accessible to them (cf. Coyle, Hood & Marsh 2010: 55). A helpful tool that may assist CLIL teachers in providing students with the language needed to access the content of a specific subject by using a vehicular language is described as the Language Triptych. In general, the Language Triptych, which will be dealt with in greater detail in the next sub-section (2.4), connects both content and language objectives and "supports learners in language using through the analysis of CLIL vehicular language from three interrelated perspectives: language *of* learning, language *for* learning and language *through* learning" (Coyle, Hood & Marsh 2010: 36). It is through the use of this concept that CLIL teachers will be empowered to analyze the language necessary for students to acquire both language skills and content knowledge.

2.3.4 Culture

Although "sometimes referred to as the forgotten C" in CLIL contexts, an understanding of the concept of culture is argued as indispensable for learners to develop "an intercultural understanding and global citizenship" (Coyle, Hood & Marsh 2010: 41, 54). Cultural awareness and intercultural understanding, in this respect, do not merely refer to "factual knowledge about other countries" (Meyer 2011: 303), but to a holistic understanding of the concept of 'otherness' in relation to the concept of 'self', which is predominantly built through social interaction (cf. Coyle, Hood & Marsh 2010: 54f; Çekrezi 2015: 3823; Harrop 2012: 66). CLIL education is further believed to play an integral part in understanding the concept of culture and is described to enable learners to build intercultural understanding. In fact, as argued by Coyle, Hood and Marsh (2010: 39), "CLIL opens an intercultural door, where learners can have experiences which they could not have had in a monolingual setting". That is, CLIL settings provide the means to engage in "meaningful interactitiv[ties] with peers, teachers and resources in and through the vehicular language" at the micro level, and provides opportunities for interaction and "collaborative meaning-making" that reach "beyond the classroom" at the macro level (Coyle, Hood & Marsh 2010: 40; cf. also Harrop 2012: 66).

CLIL education may further contribute to a deeper understanding of the concepts of "otherness" and "self" (i.e. differences and similarities of cultures) by using "authentic materials and intercultural curricular linking" (Coyle, Hood & Marsh 2010: 55). In addition, CLIL teachers should raise students' awareness of their own cultures by putting an emphasis on "culturally learned attitudes and behaviours" (ibid: 40). The use of a vehicular language plays a pivotal role in this respect, since "CLIL provides an ideal opportunity for students to operate in alternative cultures through studies in an alternative language" which may ultimately result in more tolerance toward diverging (cultural) perspectives, increasingly required in today's interconnected world (Coyle 2010: 28; cf. also Çekrezi 2015: 3823). In fact, tolerance and intercultural understanding are of paramount importance, as only through the acknowledgement of these factors it will become possible to celebrate "our pluricultural and plurilingual world" as well as seize its underlying potential (Coyle, Hood & Marsh 2010: 54).

> If we want to prepare our students to succeed in a globalized world, enable them to work in teams across national and cultural boarders, intercultural communicative competence needs to be the ultimate educational goal and at the heart of our teaching. CLIL can offer a significant contribution to that goal. (Meyer 2011: 303)

2.4 The Role of Language in CLIL – The Language Triptych

As teachers must interrelate content and language objectives within CLIL settings, it proves to be useful to employ what Coyle, Hood and Marsh (2010: 36-38) describe as the Language Triptych. The Language Triptych is a conceptual representation of the language required for learners to access and participate in a content subject taught through an additional language. For learners to be able to utilize a vehicular language to access the content of a subject taught through CLIL methodology, a teacher must first be aware of "different types of language used for different purposes" within CLIL settings (Coyle, Hood & Marsh 2010: 59). Thus, a "systematic analysis at the planning stage" is required on behalf of the teacher, in order to facilitate content learning when teaching subject matter through the use of a vehicular language (Coyle, Hood & Marsh 2010: 59).

The Language Triptych, as illustrated in Figure 2, incorporates three interrelated types of language, namely language *of* learning, language *for* learning, and language *through* learning (Coyle, Hood & Marsh 2010: 36). In the subsequent paragraphs,

each perspective will be described in relation to Coyle, Hood and Marsh's (2010: 36-38, 59-63) theoretical notions.
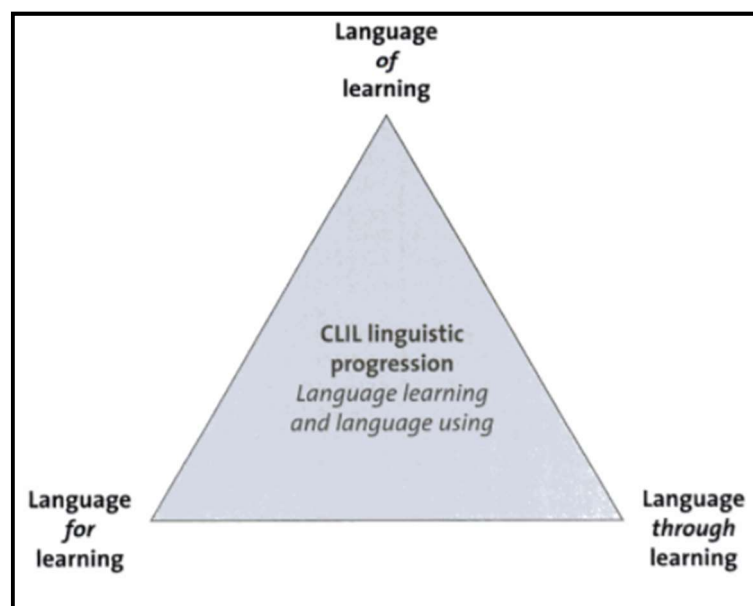
Figure 2: The Language Triptych (Coyle, Hood & Marsh 2010: 36)

Language *of* learning, as defined by Coyle, Hood and Marsh (2010: 37) requires "an analysis of language needed for learners to access basic concepts and skills relating to the subject theme or topic". That is, subject teachers must analyze the vehicular language used for teaching a subject matter to ensure that linguistic demands are neither too low nor too high and are consistent with the topic taught. It is further suggested that language used for learning purposes in a content subject should not be chosen upon grammatical difficulty, but much rather upon the "functional and notional levels of difficulty demanded by the content" (Coyle, Hood and Marsh 2010: 37). In other terms, the focus should be set on those linguistic elements essential to grasp a certain concept or to acquire certain skills. This, in fact, is not only perceived as a more authentic approach to content and language learning, which "enables […] learners to use language appropriate to the content in a meaningful way" (Coyle, Hood and Marsh 2010: 37), but is also believed to "lead to a complementary approach to learning progression" (Coyle 2007: 553).

According to Coyle, Hood and Marsh (2010: 62), "language *for* learning is the most crucial element for successful CLIL", as teachers focus "on the kind of language needed to operate in a foreign language environment". That is, for students to use a foreign language effectively and independently, they will first have to be taught strategies that can be used to successfully complete tasks and activities (ibid: 37).

Strategies taught within CLIL settings should enable learners to "discuss, debate, get into groups and use the CLIL language independently" (ibid.). However, it is argued that in order to be able to employ these strategies, students will first have to learn "how to learn" (Coyle 2007: 553). Referred to as "metacognition", learning how to learn can be facilitated by subject teachers in terms of "support[ing students] in developing skills such as those required for pair work, cooperative group work, asking questions, debating, chatting, enquiring thinking [and] memorizing" (Coyle, Hood & Marsh 2010: 37). Hence, successful and independent learning in a content subject can only occur if students (1) "support each other and [are] supported" and (2) "understand and use language which enables them to learn" (Coyle 2007: 553).

Language *through* learning is "based on the principle that effective learning cannot take place without active involvement of language and thinking" (Coyle, Hood & Marsh 2010: 37). As CLIL settings are interactive and dialogic in nature, it can be claimed that communication – in relation to subject matter – that takes place within such contexts will lead to an increase of students' foreign language proficiency, overall content knowledge and will further their thinking processes (cf. Coyle 2007: 554). Language, in this respect, is not only needed to "assist [students'] thinking", but also to "develop their higher-order thinking skills [that] assist their language learning" (Coyle 2007: 554). Through students' active involvement and articulation of understanding, new knowledge and skills are bound to develop, which ultimately leads to a "deeper level of learning" in relation to both language and content (Coyle, Hood & Marsh 2010: 37). Language progression (and the acquisition of new knowledge), is claimed to occur when students find ways to independently access, retain and use "emerging language from specific contexts" in a meaningful manner (ibid: 63). However, the main challenge for CLIL teachers is "to capitalize on, recycle and extend new language so that it becomes embedded in the learners' repertoire" (ibid.).

2.5 The Importance of Teacher Training for Successful CLIL

To successfully embark on the integrated teaching of content and language, CLIL teachers should possess a number of different teaching competences, a profound knowledge of both the content subject and the vehicular language in which it ought to be taught and must further be "familiar with the requirements of CLIL methodology" (European Commission 2017: 91; cf. also European Commission 2014: 17; Hillyard 2011: 6). The following lines will highlight some of the country-specific formal

requirements that teachers in Europe (and, for the purposes of this thesis, Austria) must hold to be permitted to teach content through a vehicular language, elaborate on the importance of pre-service and in-service CLIL teacher training and offer an overview of the teaching competences CLIL teachers should preferably possess.

In Europe, the general picture implies that only "few education authorities have laid down formal requirements" for teachers who aim to teach subject matter through an additional language (Eurydice 2006: 44)[5]. Depending on the CLIL provision realized and the formal requirements prevalent in a specific country, prospective CLIL teachers must possess certain qualifications or certificates (cf. European Commission 2017: 91f; McDougald 2016: 258). These requirements, however, "vary not merely from one country to another but also within individual countries" (Eurydice 2006: 44). In the European countries Belgium, Spain, France, Italy, and Hungary – to name a few – CLIL teaching personnel is required to hold certificates or qualifications that testify their knowledge of a certain vehicular language (i.e. a foreign language, regional language and/or a minority language used in a respective country) (cf. Eurydice 2006: 42; European Commission 2017: 92). In these countries, teachers are further oftentimes required to (1) hold an "academic degree in the target language […] alongside the degree in the subject they are intending to teach", or (2) must "provide evidence that they have sufficient knowledge of the target language" [i.e. a minimum level of B1 or C1 language proficiency, expressed through the Common European Framework of Reference (CEFR)] (European Commission 2017: 91). Evidence can be provided through certificates obtained from language tests or examinations, the completion of courses studied in a target language, and through teachers' respective experience in teaching a certain target language (cf. European Commission 2017: 91; Eurydice 2006: 44). In contrast to the European countries that require their teachers to hold certificates as proof of their target language proficiency, the European countries Austria[6], Germany, Switzerland, Norway, Sweden, Finland, Portugal, Estonia and Latvia, for example, view the "normal teaching qualifications [as] sufficient" for teachers

---

[5] For detailed figures that explain the formal requirements for CLIL teachers to teach CLIL in specific European countries see Eurydice (2006: 42) and European Commission (2017: 92).

[6] As stated in Eurydice (2005: 10), Austrian teachers, regardless of whether they graduated from a teacher training college (Pädagogische Hochschule) or university, are not required to hold formal qualifications to teach in CLIL. In fact, it is "school heads [themselves who] decide whether teachers may teach their subject(s) in a language other than the normal language of instruction (German)" (ibid.).

to be permitted to teach content through a vehicular language (European Commission 2017: 92; cf. also Eurydice 2006: 57). Thus, prospective CLIL teachers are merely required to hold a degree in non-language subjects or language subjects (or, at best, both) and need not necessarily provide evidence that they possess a certain language proficiency level to teach in CLIL (cf. Eurydice 2006: 57).

Besides the specific formal requirements explained above, Wolff (2010: 47) claims that teachers who aim to teach content subjects through an additional language should receive "a specific kind of training which goes beyond the training of a foreign language or content subject teacher". This training has been increasingly – but not yet sufficiently and extensively – realized in the form of pre-service or in-service teacher education programs, which aim to equip prospective CLIL teachers with knowledge to make CLIL learning a successful and rewarding experience for teachers and learners alike (cf. Eurydice 2006: 52). Although not necessarily compulsory and differing from one country to another, the overall goal of such programs is to ensure that teachers are able to "develop in pupils or students the ability to learn subjects in a language in which their level of proficiency is not that of native speakers" (Eurydice 2006: 56), as well as obtain a thorough understanding of CLIL methodology (i.e. in theory as in practice) themselves (cf. Eurydice 2006: 48, 42; Marsh 2010: 78; Coyle, Hood and Marsh 2010: 162; Lasagabaster & Sierra 2010: 371)[7]. Nonetheless, what must be borne in mind is that teacher education programs (pre-service or in-service) must be tailored to the specific needs of prospective CLIL teachers and thus, "need to go far beyond language development and progression" (Coyle, Hood and Marsh 2010: 162). A study carried out by Pérez Cañado (2016) further suggests that across Europe, "substantial strides still need to be taken […] for teachers to be fully ready for the CLIL challenge". In fact, her study revealed that key stakeholders (i.e. pre-service and in-service teachers as well as teacher trainers and coordinators) express the need for an implementation of CLIL teacher education that aids them in acquiring crucial competences of paramount importance for successful CLIL teaching (cf. ibid.).

---

[7] For an exhaustive list of training needs addressed within CLIL teacher education programs, see Coyle, Hood and Marsh (2010: 162). The *European Framework for CLIL Teacher Education*, developed by Marsh et al. (2010), may further be used to construct and realize CLIL teacher training programs, as the framework delineates the "target professional competences [a] CLIL teacher is expected to acquire or further develop during [a] training program" (Marsh et al. 2010: 16), as well as professional development modules that prove to be beneficial for prospective CLIL teachers.

The competences that were under consideration, and which were perceived to need further training are linguistic and intercultural competence, as well as knowledge of the theoretical and methodological concepts of CLIL, the materials and resources used in such contexts and in general, the professional development necessary to engage in CLIL education (cf. ibid: 7f, 13). As concerns Austria, a report from Eurydice (2006: 46) highlights that in terms of pre-service (CLIL) teacher training, "training possibilities are in general fairly limited" and their "duration vary very widely". As the interest in CLIL education experienced an upsurge since the 1990s, Austrian universities and colleges have begun to offer individual CLIL lessons or distinct CLIL courses that usually spread over a semester or two (cf. Eurydice 2005: 10; Eurydice 2006: 46; Abuja 2007: 19). However, a holistic and intensive CLIL teacher training program for pre-service teachers at university or college level is yet to be constructed and realized. As regards in-service CLIL teacher training programs in Austria, especially Pedagogical Institutes (PIs) located in each of the nine Austrian states offer voluntary CLIL training programs in the form of workshops and seminars that are further free of charge (cf. Eurydice 2005: 11; Abuja 2007: 19)[8].

In general, teachers are described to be either specialized in two non-language subjects or a non-language subject and a language subject (cf. Eurydice 2006: 41). As indicated in the preceding lines, CLIL teachers who are specialized in non-language subjects should possess an adequate command of the target language used to teach subject matter successfully through an additional language. However, as the language proficiency required largely depends on the type of CLIL implemented in a specific education system, no advice concerning the distinct language level a CLIL teacher should possess can be provided in this instance (cf. Marsh 2010: 78). Nevertheless, regardless of primary, secondary, and higher education levels, CLIL teachers must be able to "constantly adjust [their] linguistic skills to the complexity of the topic at hand through application of didactic skills" (ibid.). Hence, native-like or near-native like language proficiency in a vehicular language is not to a prerequisite, but certainly

---

[8] Abuja (2007: 20) states that Austrian "[t]eachers in lower secondary education" are offered in-service CLIL teacher education in the form of a "90-hour in-service teacher training programme ('Dual Language Programme' – DLP […])". This program spans over one "academic year" and "consists of several modules, each module being split up into input phases and self-study" (ibid.). Moreover, Austrian "Pedagogical Institutes" (PHs) are noted to offer "*Akademielehrgänge* […] on CLIL which last two to four semesters and may lead to the award of a diploma" (Eurydice 2005: 12).

recommended. Moreover, it is stated that CLIL teachers should be skillful in terms of "adjust[ing] how they teach according to linguistic limitations" and to be able to "handle CLIL methodology in terms of language and non-language content and application" (Marsh 2010: 78, 81). Consequently, as suggested by Hillyard (2011: 7), "teachers must be effective in the language of teaching, explaining, giving instructions, eliciting techniques, the language of classroom management and the language of learning activities". Thus, it must be emphasized that teacher competences – as required in CLIL contexts – are not restricted to a profound knowledge of a respective target language. Hillyard (2011: 6) provides a list of skills that prospective CLIL teachers must have in order to successfully engage in CLIL education. This list includes seven principles as stated below: CLIL teachers should possess the

- [k]nowledge of methodology for integrating both language and content.
- [a]bility to create rich and supportive target-language environments.
- [a]bility to making [sic!] input comprehensible.
- [a]bility to use teacher-talk effectively.
- [a]bility to promote student comprehensible input.
- [a]bility to attend to diverse student needs.
- [a]bility to continuously improve accuracy. (Hillyard 2011: 6)

This perspective is shared by Pérez Cañado (2017: 130f), who states that "the CLIL teacher profile, far from being monolithic, comprises a myriad of competencies which need to be honed and developed". Among the competences Pérez Cañado (2017: 130f) lists are linguistic competence, pedagogical competence, organizational competence, interpersonal and collaborative competence, reflective and developmental competence and scientific knowledge. In order for prospective CLIL teachers to adjust to underlying theoretical concepts and methodologies required for successful CLIL teaching and learning, they should be granted "considerable assimilation time" (Hillyard 2011: 6), as well as receive adequate pre-service and in-service teacher education to be able to develop and master the above highlighted skills and competencies, as well as find successful ways to apply these in CLIL classrooms (cf. Coyle, Hood & Marsh 2010: 162f; Marsh 2010: 81; Ioannou-Georgiou 2012: 500)[9].

---

[9] As in 2010, it was not the case that CLIL teacher education was specifically planned and carried out for pre- and in-service teachers, Lasagabaster and Sierra (2010: 371) called for the implementation of such training programs. Back then, CLIL methodology was largely made up for by educational authorities "through specific measures, such as methodology courses, language courses in English-speaking countries, or seminars and conferences in which experts participate" (ibid.).

2.6 CLIL in Europe

The present subsection will provide a general overview of the processes and perspectives that governed the implementation of CLIL methodology in Europe. To provide an insight into these processes, policymakers' and stakeholders' respective views will be highlighted, as these have significantly contributed to the incorporation of CLIL methodology in the wider spectrum of European education systems (2.6.1). As CLIL provisions have been realized in a considerably diverse manner within different European countries, this subsection will further aim to describe numerous models of CLIL within lower and upper secondary schools, as well as tertiary education (2.6.2).

2.6.1 From High-Level Policymakers to Real-World CLIL Provisions

Both the "European Union (EU) policymakers" (among which are "high-level political agents", "language policy makers, stakeholders [e.g. parents and teachers] and European Institutions" (Ruiz de Zarobe 2013: 231) and "grass-roots actions" (Dalton-Puffer 2011: 184) have shown staunch support for the implementation of CLIL initiatives in education systems across Europe (cf. Ioannou-Georgiou 2012: 496). According to Ioannou-Georgiou (2012: 496), the "support for CLIL is due to the EU's search for effective language learning", as European citizens are expected to become proficient users of at least two additional languages besides their first language, of which one is typically English. As concerns stakeholders such as parents, CLIL education is perceived as a promising educational approach, since it offers "their children an edge in the competition for employment" in an increasingly interconnected European economic market in which "ever better educated employees [are required] who know certain languages that are considered crucial" in an integrated Europe (Dalton-Puffer 2011: 184; cf. also Ruiz de Zarobe 2013: 231ff). Due to the public demand that calls for educational institutions to offer learners a dual-focused educational approach which ascribes importance to both language and content learning, "numerous European initiatives at different educational levels have been undertaken in that joint effort to integrate subject matter and foreign languages" (Ruiz de Zarobe 2013: 231). As stated by Marsh (2010: 89), approximately "3% of schools in Europe teach through CLIL […] methodologies". Depending on the type of provision realized (i.e. in the form of a pilot project or as a part of mainstream education), individuals may be exposed to CLIL education from anywhere between 5 to 100% of the time spent in school (cf. Marsh 2010: 89; Eurydice 2006: 13, 55).

2.6.2 Diverse Realizations of CLIL Programs in Europe

In Europe, CLIL is stated to be "offered in a variety of forms" (de Graaff et al. 2007: 604). This, as suggested by Dalton-Puffer and Smit (2013: 547), is due to the fact that "supranational declarations and provisions have been taken up in different ways at the national level". According to Grin (2005, in Coyle 2007: 545) , European forms of CLIL are "based on variables such as compulsory status, intensity, starting age, starting linguistic level and duration" (cf. Ruiz de Zarobe 2013: 232). Moreover, CLIL models offered differ in terms of placing their primary focus on the teaching of either language or content (cf. Coyle 2007: 545; Eurydice 2006: 55). Further depending on operating factors, such as teacher availability, vehicular language fluency and the time available, diverse models of CLIL education are realized in various European education systems (cf. Coyle, Hood & Marsh 2010: 14).

Intensity and Duration of CLIL Programs

In terms of intensity, CLIL provisions are stated to be flexibly realized, since "CLIL allows for low- to high-intensity exposure to teaching/learning" through an additional language and can further be implemented as short-term and long-term CLIL programs (Mehisto, Marsh & Frigols 2008: 12). Besides the intensity of various CLIL provisions, duration also plays a vital role in any CLIL model realized. The duration of CLIL programs "varies widely in the majority of countries given the considerable autonomy of the schools" (Eurydice 2006: 20). Hence, it is upon schools to decide whether CLIL education should be available to students throughout their compulsory education (ranging from nine to ten years in most types of European education systems) (ibid.).

CLIL Programs – From Lower Secondary to Tertiary Education

In Europe, CLIL is typically implemented within lower or upper secondary education, in which students are usually twelve to nineteen years old (Coyle, Hood & Marsh 2010: 20). Coyle, Hood and Marsh (ibid.) note that "more sophisticated models [of CLIL education can be] implemented" at this stage of education. This is due to the fact that when learners have already received some form of CLIL education during primary education (but even if not), they will "have already learnt some of the CLIL language, and have developed more advanced learning skills" (ibid.). It is further stressed that CLIL provisions are usually implemented at this educational level, as "[m]uch of the drive for introducing CLIL with this age group relates to parental and school-based

attitudes towards globalization" (ibid.). This indicates that CLIL is perceived as an educational approach that is believed to equip students with language and content knowledge indispensable to pursue academic careers as well as stand their grounds in the shark tank, otherwise known as economic market. According to Coyle, Hood and Marsh (2010: 21f), models realized within secondary education may present themselves as (1) "**Dual-school education**", (2) "**Bilingual Education**" and (3) "**Interdisciplinary module approach**", (4) "**Language-based projects**" and (5) "**Specific-domain vocational CLIL**".

Within tertiary education, especially English "as a global lingua franca has had a significant impact on higher education throughout the world" (Coyle, Hood & Marsh 2010: 23). Pérez-Cañado (2012: 320) accentuates that nowadays, English is "the most widely employed target language across a variety of disciplines: Business, Engineering, Law, and Humanities". As the development of sufficient foreign language proficiency applicable in various research fields (i.e. both transactional and interactional modes of using a language) is perceived as a main goal within tertiary education, especially "secondary-level providers [are obliged] to prepare students through CLIL for future studies" (ibid.). Overall, countries such as "Finland, Norway, Sweden, Denmark, Austria, Belgium, Germany, Italy, Spain, the UK, Lithuania, Ukraine, Poland, and Bulgaria" are stated to have adopted CLIL methodology within tertiary education (Pérez-Cañado 2012: 320). Models realized within this educational sphere, as described by Coyle, Hood and Marsh (2010: 24f), include (1) "**Plurilingual education**", (2) "**Adjunct CLIL**", and (3) "**Language-embedded content courses**".

Concluding Remark – CLIL in Europe

In sum, it must be emphasized that, although European countries have realized diverging CLIL provisions, "almost all EU states have implemented some form of CLIL […] in compulsory education" (Ruiz de Zarobe 2013: 231; cf. also European Commission 2017: 14). This is illustrated in Figure 3 and Figure 4, which show that from 2006 to 2012 "nearly all European countries [have begun to] offer a form of education provision according to which non-language subjects are taught either through two languages, or through a single language which is 'foreign' according to the curriculum"

in both primary and secondary education (Eurydice 2012: 39)[10]. Whether implemented in mainstream education or realized as pilot projects, it must be underscored that, as perfectly put by Ruiz de Zarobe (2013: 231):

> What becomes clear after looking at CLIL in different educational contexts is that it has become a visible trend which is spanning geographically as a truly European/international approach.
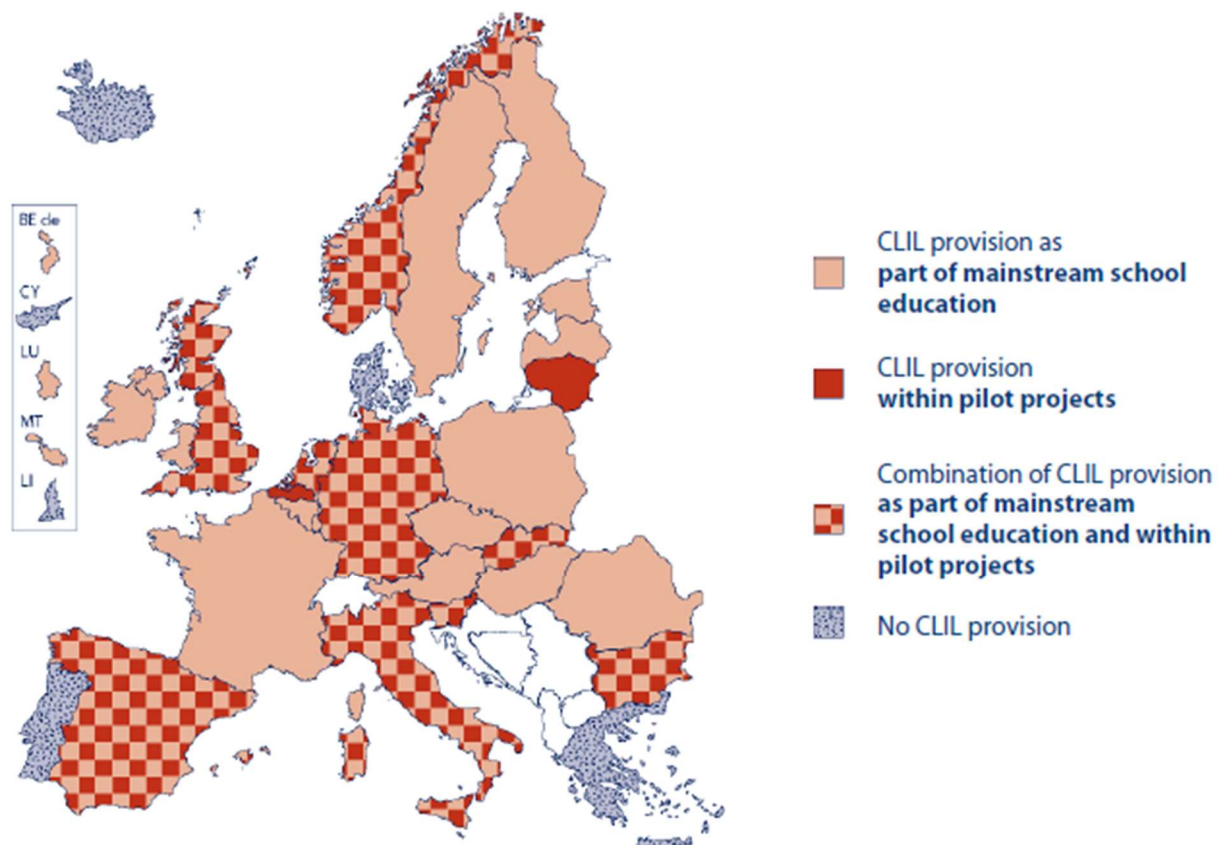
Figure 3: CLIL Provisions in Europe (2006); from Primary to Secondary Education (Eurydice 2006: 13).

---

[10] It must be noted that although CLIL provisions are implemented in close to all European countries and school levels (ranging from primary to tertiary education), "CLIL is not widespread across education systems" (Eurydice 2012: 39; European Commission 2017: 57). Nonetheless, European countries such as "Italy, Cyprus, Luxembourg, Austria, Malta and Liechtenstein" are stated to offer CLIL provisions "in all schools at some stage" (with Luxembourg and Malta offering CLIL "in all schools on a general basis"), whereas European countries such as "Denmark, Greece, Iceland and Turkey do not make this kind of provision" (European Commission 2017: 57; Eurydice 2006: 14; Eurydice 2012: 39).
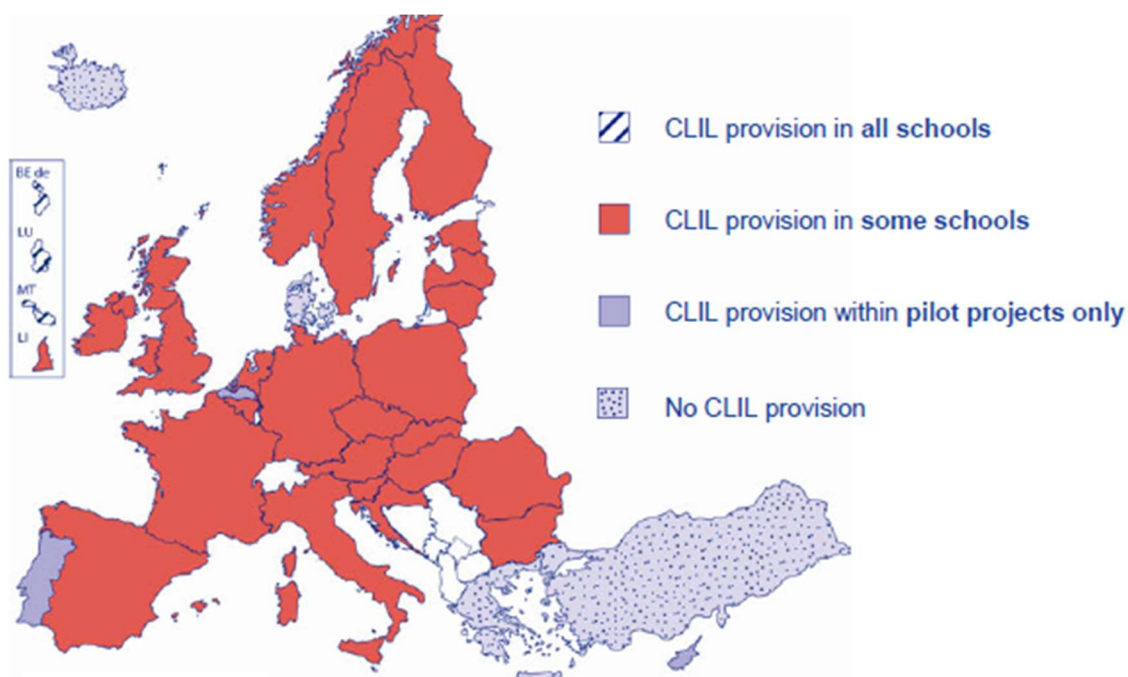
Figure 4: CLIL Provisions in Europe (2012); from Primary to Secondary Education (Eurydice 2012: 39).

2.7 CLIL in Austria

The following sections will first provide a general overview of specific implementation processes of CLIL education in Austria (2.7.1), before offering a detailed description of the realization of CLIL provisions within Austrian technical colleges (2.7.2)[11]. Providing a description of CLIL within Austrian technical colleges appears to be imperative, as for the empirical part of this thesis, tests and surveys were conducted in this specific school type that solely exists in Austria.

2.7.1   CLIL Implementation Processes in Austria

In the 1990s, when CLIL methodology was progressively implemented in numerous European education systems, Austria, too, has acknowledged the importance of teaching content subjects by utilizing an additional language to promote plurilingualism as well as to "raise [individuals'] intercultural awareness" (Eurydice 2005: 6; cf. also Dalton-Puffer, Faistauer & Vetter 2011: 196; Smit 2004: 77; Council of Europe 2008: 31; Abuja 2007: 18)[12]. As a form of "'sheltered immersion' [which aims] to encourage

---

[11] Note that some of the sources used to compile this section are relatively outdated. It is possible that CLIL implementation processes and objectives in Austria have considerably changed.

[12] This is further partly due to the fact that "the Federal Ministry of Education, Science and Culture started a 'foreign language offensive'" in the early 1990s (Eurydice 2005: 6).

the use of foreign languages outside language lessons", CLIL education was readily implemented in Austria's "*Schulunterrichtsgesetz* (School Education Law)" as a general objective – that, if independently decided by school authorities – obligatory to be fulfilled by teachers working in diverse Austrian school types (Eurydice 2005: 6; cf. also SchUG, BGBl. 1986(472): 13). The legal basis for CLIL (SchUG, BGBl. 1986(472): 13 – §16(3)) in Austria's School Education Law (SchUG) states the following:

> Darüber hinaus kann die zuständige Schulbehörde auf Antrag des Schulleiters […] die Verwendung einer lebenden Fremdsprache als Unterrichtssprache (Arbeitssprache) anordnen, wenn dies […] zur besseren Ausbildung in Fremdsprachen zweckmäßig erscheint und dadurch die allgemeine Zugänglichkeit der einzelnen Formen und Fachrichtungen der Schularten nicht beeinträchtigt wird. Diese Anordnung kann sich auch auf einzelne Klassen oder einzelne Unterrichtsgegenstände beziehen[13].

As indicated above, lessons are perceived to adopt CLIL methodology when a foreign language (FL) is used as a working language (i.e. Arbeitssprache) within diverse educational contexts – ranging from primary education to vocational and higher education (Abuja 2007: 17). In Austria, CLIL commonly appears under the acronyms "EAA (English als Arbeitssprache/English as a working language)" or "FsAA ('Fremdsprache als Arbeitssprache', i.e. FL as working language)" (Dalton-Puffer, Faistauer & Vetter 2011: 196; cf. also Smit 2004: 77; Abuja 2007: 16f). Other acronyms used in Austria to refer to CLIL are EAC (English Across the Curriculum), EMI (English as a Medium of Instruction/Foreign Language as a Medium of Instruction) and LAC (Language Across the Curriculum) (cf. Eurydice 2005: 3). As indicated in the acronyms highlighted, English is the language primarily used within Austrian CLIL contexts (cf. Smit 2004: 78; Eurydice 2005: 5f). However, since CLIL education does not pose any restrictions on teachers concerning their choice of a vehicular language, languages such as French, Italian and other languages of Austria's neighboring countries, may be used.

The implementation of CLIL in Austria's School Education Law has undoubtedly paved the way for CLIL methodology to be used in various school types and has further been realized in numerous forms. As regards school types, CLIL was first introduced in primary education and general secondary education (Ger. Allgemeinbildende Höhere Schule, AHS) and gradually spread to vocational as well as tertiary education

---

[13] According to Abuja (2007: 16), "[t]his law was originally passed to provide for minority language instruction, but it is also the basis for any form of CLIL".

(cf. Abuja 2007: 17f; Eurydice 2005: 4, 8). Since, for the purposes of this thesis, the use of CLIL methodology within secondary education plays a crucial role, the following lines will provide a brief outline of the realization of CLIL education in the same. According to Abuja (2007: 18), approximately "15% of all Austrian [s]econdary schools provide a kind of CLIL instruction", with Austrian lower secondary schools (e.g. Hauptschule) providing up to 7% of CLIL education, "secondary academic schools about 27%, and [...] vocational schools about 30% (ibid.)[14]. In general, content subjects are taught through "project-oriented approach[es]", which enable "'hands-on' learning for all subjects alongside cross-curricular activities" (Eurydice 2005: 8). Thus, as summarized by Abuja (2007: 17):

> The current CLIL (EAA) situation in Austrian secondary schools is characterized by a spectrum of organizational formats ranging from 'mini-projects' of just a few lessons to bilingual schooling [...]. In practice, schools use CLIL in projects (one or two weeks) in a phased-in approach for a limited time of the school year in one or more subjects, or throughout the whole school year [...].

Since schools are given "(limited) 'educational autonomy'", the adoption of CLIL methodology in certain content subjects may be increased or reduced to ascribe schools "a certain characteristic of identity" (Eurydice 2005: 8). Overall, however, it is noted that "many [schools] have decided to introduce CLIL in order to raise the profile of their concern for language learning" (ibid.).

2.7.2   CLIL in Austrian Technical Colleges

Austrian technical colleges (Ger. Höhere Technische Lehranstalt, HTL) are a specific form of upper secondary education that specialize on various subjects primarily associated with engineering. Although this school type is part of upper secondary education, with students being approximately fourteen to nineteen years old, learners receive a form of education comparable to a combination of upper secondary education, professional (technical) education and tertiary education. Individuals who choose to attend an HTL will begin their education after their eighth year of compulsory education and are able to specialize within distinct engineering fields (e.g. information

---

[14] It is emphasized that "[t]hese numbers are estimates and [are] based on a survey carried out in 1997". Dalton-Puffer (2007: 46) reports slightly different percentages, in that she states that "25% of all [Austrian] lower-secondary schools [...] conducted CLIL projects" from 2003-2007, with "academically-oriented [...] schools (Gymnasium)" reaching a implementation width of "45%". In any case, it appears to be worthwhile to re-evaluate the implementation status of CLIL provisions in the Austrian education system.

technology, mechanical engineering, chemistry, electronics, etc.). Students are further offered the opportunity to graduate after five years and may subsequently choose to work in a preferred engineering field or enroll at university to pursue further studies.

HTLs were commonly perceived as school types that did not ascribe (foreign) language learning much importance. Directly reflected in (former) HTL curricula that "traditionally allowed little space for language education", the learning and using of a (foreign) language, as well as language teachers have been assigned a "marginal role" within this school type (Dalton-Puffer et al. 2009: 19). However, internationalization and globalization processes – especially in the field of engineering – have substantially altered the perspective and view on English language teaching and learning in HTLs. The general motif appears to be that students must be prepared "for the international nature of their occupation in a globalized industry", which, according to Dalton-Puffer et al. (2009: 18), is best achieved through the implementation of CLIL education in technical subjects. As an argumentation basis for employing CLIL methodology in HTLs, Dalton-Puffer et al. (2009: 18) state that in contrast to the general belief that engineers need not be proficient users of a (foreign) language (i.e. predominantly English) to successfully pursue their occupation, the technical sector increasingly requires its workforces to "write and talk in person or via the telephone to co-workers and management, customers and bureaucrats" in another language than their first.

As individuals must meet linguistic as well as technology-specific expectations required in the engineering job market, HTLs have begun to offer CLIL education. This educational approach, which was officially implemented in HTL curricula in 2011, aims to equip students with content-specific knowledge and offers them additional language learning opportunities by using a vehicular language as a medium of instruction. As noted below, the legal basis for the realization of CLIL provisions in HTLs is implemented in three sections of its national curriculum, of which section "II. Schulautonome Lehrplanbestimmungen" and "III. Didaktische Grundsätze" read as follows:

> Als fremdsprachlicher Schwerpunkt sind in einzelnen Pflichtgegenständen […] ab dem III. Jahrgang mindestens 72 Unterrichtsstunden pro Jahrgang in Abstimmung mit dem Pflichtgegenstand Englisch in englischer Sprache zu unterrichten. Die Festlegung der Pflichtgegenstände und des Stundenausmaßes in den einzelnen Pflichtgegenständen und Jahrgängen hat durch schulautonome Lehrplanbestimmungen zu erfolgen. (BGBl. II 2011(300)b: 5, "II. Schulautonome Lehrplanbestimmungen").

> Wegen der Bedeutung der Fremdsprachenkompetenz für die berufliche Praxis sind Unterrichtssequenzen mit CLIL von großer Wichtigkeit. Die Vermittlung der Fremdsprachenkompetenz hat integrativ so zu erfolgen, dass sowohl im fachlichen als auch im sprachlichen Bereich die Schülerinnen und Schüler bei der Herausbildung von Wissen und Fähigkeiten einerseits, als auch sprachlicher und kommunikativer Kompetenzen andererseits unterstützt werden und damit die Beschäftigungsfähigkeit der Schülerinnen und Schüler in einem globalisierten Arbeitsmarkt gestärkt wird. (ibid: 8, "III. Didaktische Grundsätze").

As indicated in the curriculum, CLIL teaching should be realized from the third grade (i.e. eleventh in secondary education) onwards[15]. Per year, it is stated that a minimum of 72 hours (in an entire school year) must be taught through CLIL. Compulsory content subjects are generally taught in the form of two CLIL lessons per week or by teaching specific subject areas entirely (lasting for several weeks) by adopting CLIL methodology (cf. Bundesarbeitsgemeinschaft CLIL 2016: 7). Schools are further allowed to autonomously decide whether a specific content subject will be taught through CLIL, which directly affects the distribution of CLIL lessons among compulsory content subjects (cf. Smit & Finker 2016: 2; Bundesarbeitsgemeinschaft CLIL 2016: 3)[16]. As concerns the choice of a vehicular language, English is explicitly stated as the target language to be used (cf. BGBl. II 2011(300)b: 8). It must, however, be emphasized that CLIL lessons do not require the utilization of English throughout entire lessons. Much rather, students are allowed to switch back and forth between the generally accepted language of instruction (German) and the vehicular language (English) within CLIL lessons (cf. Dalton-Puffer et al. 2008: 10). As CLIL lessons are primarily held by technology- and science-oriented content teachers, who – in the majority of cases – do not hold specific formal qualifications for teaching a foreign language, a close co-operation with language teachers should be pursued (cf. Bundesarbeitsgemeinschaft CLIL 2016: 2; Dalton-Puffer et al. 2008: 7). This co-operation may not only enhance the use of a vehicular language within CLIL lessons, but may also enable language teachers to connect their own language teaching approaches to the content of CLIL teachers. As a result, language teachers, will be able to implement specific

---

[15] However, the outcomes of a study by Dalton-Puffer et al. (2008: 10f) – commissioned by the BMUKK – revealed that among HTL stakeholders, a call for the implementation of CLIL education in 1st and 2nd grade exists.

[16] The Bundesarbeitsgemeinschaft CLIL (2016: 7) state that more than one, but not more than four compulsory content subjects should be taught through CLIL. Ideally, this would result in 18 CLIL lessons per subject and year (ibid.).

topics and themes within EFL lessons and are able to work on distinct language features necessary for students to successfully apply within technical subjects. Besides support from language teachers, content teachers – although no official policies exist – should possess at least B2 or, at best, C1 target language proficiency to successfully engage in CLIL teaching (cf. Dalton-Puffer et al. 2008: 11).

In general, although the integrative approach to content and language teaching adopted in Austrian HTLs seems to better prepare engineering students for their later occupation already, Dalton-Puffer's et al. (2008) and Smit and Finker's (2016) studies revealed that some measures – regarding the main pillars of engagement, structure and support – still need to be taken to render CLIL provisions in Austrian HTLs entirely successful.

3 The Listening Skill

In preparation for the empirical study, this section will bring forth a theoretical overview of one of the four communicative macro-skills, namely the listening skill. First, subsection 3.1 will provide an insight into the historical background and everchanging face of the listening skill in the past approximately half-century, before subsections 3.2 – 3.4 will deal with the most salient underlying processes, knowledge sources and two different types of listening. Subsections 3.5 – 3.6 will then examine the characteristics of L2 listening input as well as the use of multimedia material perceived to be useful in teaching L2 listening skills. The last subsection (3.7) will then concentrate on theoretical implications on testing students' listening skills, as crucial for the empirical part of this thesis.

3.1 A Theoretical Backdrop – The Listening Skill

> Listening is the Cinderella skill in second language learning. All too often, it has been overlooked by its elder sister – speaking. For most people, being able to claim knowledge of a second language means being able to speak and write in that language. Listening and reading are therefore secondary skills – means to other ends, rather than ends in themselves. (Nunan 2002: 238).

Although Nunan's statement suggests that listening plays a significant role in communication, and thus, in the acquisition of a second or foreign language, the listening skill is still widely perceived to play a minor role in communicative events and is said not to receive an adequate amount of attention from both researchers and language teachers alike. As argued by Mendelsohn (1994 in Gilakjani & Ahmadi 2011: 977) and Hedge (2000: 228), compared to the other three major language skills (speaking, reading and writing), listening plays a crucial role in human communication, as individuals may listen up to 40-50% of the time communicating, whilst they are described to speak 25-30%, read 11-16% and write 9%. Anderson and Lynch (1988: 3) accentuate this, by stating that individuals "only become aware of what remarkable feats of listening [they] achieve when [they] are in an unfamiliar listening environment, such as listening to a language in which [they] have limited proficiency". Still, until the end of the 1960s, listening – like reading – was predominantly perceived as a receptive and passive skill, which did not receive much attention from both researchers and language teachers (cf. Martínez-Flor & Usó-Juan 2006: 30; Vandergrift 2007: 191). Nunan (2002: 238) states that the 1960s marked a turning-point, when "the emphasis on oral language skills

gave [the view on listening] a boost". Instead of viewing listening as a passive and receptive skill, scholars adopted the perspective that listening is an active and conscious process which requires individuals to operate on multiple, interactive processing levels in order to arrive at an understanding of an utterance (cf. Peterson 2001: 88; Cárdenas-Hagan 2016: 31; Bozorgian 2012: 2). In the late 1960s, particularly Chomsky's "innatist theory" (which ascribed "the mental and cognitive processes involved in the comprehension act" special importance), led to the assumption that comprehension was indispensable for first (L1) and second (L2) language learning and thus, listening was henceforth perceived as the primary skill to be developed and acquired to both access a language and become a proficient L1 and L2 language user (Martínez-Flor & Usó-Juan 2006: 31; cf. also Hinkel 2006: 117). Since then, the view on listening gradually shifted from being a purely "mechanical process" (in which listeners' role was to recognize and discriminate sounds, rather than comprehend a message) to a "dynamic and mentalistic process" (in which listeners utilize various mental strategies to actively participate in the comprehension process) (Martínez-Flor & Usó-Juan 2006: 30f; cf. also Nunan 2002: 238). Instead of merely receiving linguistic input, as argued by Richards (2008: 1), listeners actively participate in listening through "employing strategies to facilitate, monitor and evaluate [their] listening".

During the 1970s and '80s, the listening skill was considered even more significant, as the "interactionist approach to language learning" emphasized that "listening should focus on a whole piece of discourse rather than listening to single words or short phrases" (Martínez-Flor & Usó-Juan 2006: 32; cf. also Field 2008: 13; Hinkel 2006: 117). Consequently, listening was assigned a communicative function through which the purpose of listening, and thus the link to real-life listening events, gained prominence (cf. Martínez-Flor & Usó-Juan 2006: 33). As a result, learning and teaching listening did not only incorporate mental processing of a language (i.e. bottom-up, top-down and interactive processes), but also included the shift of attention toward the use of prior knowledge, schemata and scripts, the sociocultural context, as well as non-verbal elements (i.e. kinesics) to interpret linguistic input (cf. Martínez-Flor & Usó-Juan 2006: 33f; Cárdenas-Hagan 2016: 31; Richards 2008: 1). This, in turn, led to an acceptance of listening as a crucial element that facilitates the acquisition of "oracy" ("the ability to listen and speak" as well as literacy" (Brown 1990, in Nunan 2002: 238)] in an L1 and L2, as well as "facilitates the emergence of other language

skills" (Vandergrift & Goh 2012: 4; cf. also Nation & Newton 2009: 37; Hedge 2000: 229).

The view on listening as an active and productive skill did not only emerge through outstanding research work, but – even more important to emphasize – significantly contributed to teaching the respective skill. Since the beginning of the new millennium, as stated by Richards (2008: 1), "listening has also been examined in relation not only to comprehension but also language learning". Although the teaching of listening skills has been assigned considerable importance in the second and foreign language classroom, "L2 listening remains the least researched of all four language skills" and is still oftentimes a skill that is taken for granted in the L2 classroom (Vandergrift 2007: 191; cf. also Nation & Newton 2009: 37; Anderson & Lynch 1988: 3). In fact, it was not until the 1980s that scholars assigned listening predominance over speaking in language learning contexts (cf. Nation & Newton 2009: 38). This perspective on listening originated through the theoretical underpinnings that within language learning, learners will first have to acquire information "from which to build up the knowledge necessary for using the language" (cf. ibid.)[17]. Thus, as perfectly put by Nord (1981, in Peterson 2001: 88), "reception should precede production because reception enables production". Nunan (2002: 238f) emphasizes this, by stating that listening is "fundamental to speaking" and "[w]ithout understanding input at the right level, any learning cannot begin".

Nevertheless, in many L2 classrooms, listening does not receive adequate attention from both teachers and language teaching material (cf. Vandergrift & Goh 2012: 4; Gilakjani & Ahmadi 2011: 978). Although it is argued that nowadays, L2 learners are "exposed to more listening activities in [L2] classrooms", it must be stressed that (1) these listening activities "tend to focus on the outcome of listening" (i.e. the product, rather than the process/es) and (2) L2 students are mostly left alone with developing their listening ability (Vandergrift & Goh 2012: 4; cf. also Vandegrift 2007: 191; Field 2002: 246; Bozorgian 2012: 2). This stems from the notion that L2 teachers oftentimes do not have an explicit understanding of the "processes involved in listening and in particular how strategies can be used to manage comprehension efforts" (Vandergrift

---

[17] Bozorgian (2012: 1) emphasizes that research in applied linguistics indicates that "improvement in listening skill has a positive effect on other language skills: reading, writing and speaking". Teaching listening skills, thus, is argued to contribute to students' overall language proficiency (cf. ibid.).

& Goh 2012: 4; cf. also Peterson 2001: 99). In fact, without metacognitive knowledge [i.e. knowledge about the "cognitive processes involved in comprehension" (Vandergrift & Goh 2012: 23)], L2 teachers are unable to support L2 students in their development of L2 listening abilities and will "judge successful listening simplistically in terms of correct answers to comprehension questions and tasks" instead of taking the complete picture (i.e. a students' listening ability) under consideration (Field 2002: 246; cf. also Paran 2012: 456). In this sense, it is suggested by Vandergrift and Goh (2012: 5) to make metacognition a crucial aspect when learning to listen and encourage L2 teachers to implement theoretical aspects of metacognition in L2 classrooms as a "significant and explicit" part of any listening or language teaching experience. Through metacognitive knowledge and the active and explicit teaching of various listening strategies as well as processes, L2 learners will be able to lower their anxiety to listen and will learn to "control their listening processes" independently, which will ultimately enhance their comprehension efforts and overall L2 listening proficiency (Vandergrift 2007: 191; cf. also Paran 2012: 456).

As emphasized in the preceding lines, teaching and learning L2 listening can prove to be a rather difficult and strenuous undertaking. However, given the fact that listening plays a considerable role within L2 learning processes, L2 teachers should acknowledge their responsibility to teach this indispensable skill. In general, as stated by Vandergrift (2007: 206):

> Research has increased our understanding of some of the factors that influence listening outcomes; however, the listening process itself needs more research attention […]. If L2 listening research is seen as a building project, the conclusion […] is that work is still needed to shore up the foundations, while new layers are built on findings that have been confirmed as strong and lasting.

3.2 The Listening Process

This subsection will provide information about the cognitive and metacognitive processes involved during listening events. First, it will deal with the most common cognitive process models of listening comprehension, namely bottom-up and top-down processing (3.2.1, 3.2.2). Although these process models will be dealt with separately, it is important to bear in mind that neither occurs independently. Much rather, these process models occur in a parallel fashion, with one process model being more dominant than the other in specific listening situations. Given this perspective,

cognitive processing must further be viewed as a highly interactive process, which is best described though Anderson's (2015) three-phase model (3.2.3). Once the main process models of listening comprehension are described, this subsection will further elaborate on metacognition and metacognitive processing (3.2.4).

3.2.1 Bottom-Up Processing

According to Anckar (2011: 23), "the bottom-up model of listening comprehension was developed in the 1940-50s" and was the first model of listening that aimed to describe the cognitive processes a listener must be able to master in order to make sense of acoustic input (cf. Flowerdew and Miller 2010: 166). In general, bottom-up listening requires listeners to use their "knowledge of language and [their] ability to process acoustic signals to make sense of the sounds that speech presents to [them]" (Hedge 2000: 130). A fairly simplified explanation can be taken from Flowerdew and Miller (2010: 166), who describe the bottom-up processing mechanism in listening events as follows:

> [L]isteners build an understanding by starting with the smallest units of the acoustic message, individual sounds, or phonemes. These are then combined into words, which, in turn, together make up phrases, clauses and sentences. Finally, individual sentences combine together to create ideas and concepts and relationships between them.

What sounds as a rather simple task is a complex mechanism, which requires operations on multiple levels. To fully understand the complexity of the bottom-up model of listening, the stages involved in processing an acoustic input shall be examined in greater detail in the subsequent lines.

As pointed out by Vandergrift and Goh (2012: 18), the bottom-up process of listening can be viewed as a

> […] mechanical process in which listeners segment the sound stream [i.e. acoustic input] and construct meaning by accretion, based on their knowledge of the segmentals (individual sounds or phonemes) and suprasegmentals (patterns of language intonation, such as stress, tone and rhythm) of the target language.

To decode acoustic input into segmentals and suprasegmentals, bottom-up processing requires listeners to "draw […] on linguistic knowledge, which includes phonological knowledge (phonemes, stress, intonation, and other sound adjustments made by speakers to facilitate speech production), lexical knowledge, and syntactic knowledge (grammar) of the target language" (Vandergrift & Goh 2012: 18; cf. also Cárdenas-Hagan 2016: 32). Moreover, the mechanical process (also termed decoding process)

described above is a "process of passing through a number of consecutive stages, or levels, and the output of each stage becomes the input for the next higher stage" (Buck 2001: 2). Field (2008: 113) summarizes these stages as follows:

> The listener's ear receives a series of series of acoustic sensations [1], which have to be matched to the sounds (phonemes) of the target language [2]. The phonemes are grouped into syllables [3] and the syllables into words [4]. Often the words fall into familiar clusters corresponding to frequently encountered chunks of language [5]. At another level still, the listener has to recognise two types of larger pattern [6]. One is the grammatical structure of the utterance; the other is its intonation, which binds together a group of words. Often, the two coincide.

Although the above highlighted sequences appear to occur in a fixed and definite order, it is crucial to mention that "it is unlikely that the listener uses these levels of analysis one after another" (Field 2008: 113). Much rather, it is believed that "different types of processing may occur simultaneously, or in any convenient order" (Buck 2001: 2). Consequently, it cannot be claimed that the process of listening comprehension – as argued in the bottom-up model of listening – is a process that can be associated with a "one-way street" (Buck 2001: 2), which "begins with the message received" and continues with an analysis at "successive levels of organization […] until the intended meaning is arrived at" (Richards 1988: 171; cf. also Richards 2008: 4).

Besides the decoding processes (i.e. "identifying sounds, imposing structure, inferring meaning, and anticipating what comes next") involved in bottom-up processing, memory appears to play a vital role in arriving at an understanding of a message (Hedge 2000: 231). According to Clark and Clark (1977: 49, in Richards 1988: 172), listeners "take in raw speech and retain a phonological representation of it in 'working memory'"[18]. Since listeners can hold onto "word sequences for only a few seconds" (Hedge 2000: 231), propositions (i.e. "mental representations of the combined meaning of words") must be built that represent the phonological representation of acoustic input (Gilakjani & Sabouri 2016: 1672; cf. also Clark & Clark 1977: 49, in Richards 1988: 172). These propositions are subsequently stored in an individual's long-term memory, whilst the phonological representations (located in the listeners' short-term memory) are deleted (cf. ibid.). As a result, listeners "forget the

---

[18] In this thesis, the term "short-term memory" will be used interchangeably with the term "working memory".

exact wording [of an utterance, and instead] retain the [general] meaning" of a message in their long-term memory (Clark & Clark 1977: 49, in Richards 1988: 172).

3.2.2 Top-Down Processing

The top-down model of listening comprehension was established after the bottom-up model of listening, when researchers discovered that listeners were unable to identify specific words in isolation, whilst, at the same time, they were able to identify the exact same words when surrounded with the corresponding context (cf. Flowerdew & Miller 2010: 167). Contrary to bottom-up processing, which requires listeners to construct meaning by "going from parts to the whole", top-down processing "involves the listener in going from the whole […] to the parts" (Nation & Newton 2009: 40; cf. also Richards 2008: 7; Field 2008: 132). Instead of focusing on decoding processes, listeners engage in "meaning-building processes" (Field 2008: 132). The subsequent lines will illustrate how top-down processing works and which specific language knowledge is indispensable on behalf of the listener to arrive at a full understanding of a message.

In contrast to the bottom-up model of listening, top-down processing "is based, at least in part, on the listener; much of the comprehension relies on what happens in the mind before the listening has even begun", rather than merely on the acoustic input received (Wilson 2008: 15; cf. also Vandergrift & Goh 2012: 18; Flowerdew & Miller 2010: 167). As a result, the top-down model of listening largely "refers to the use of background knowledge in understanding the meaning of a message" (Richards 2008: 7; cf. also Field 2008: 116). According to Vandergrift & Goh (2012: 18), background knowledge includes "prior (world or experiential) knowledge, pragmatic knowledge, cultural knowledge about the target language, and discourse knowledge (types of texts and how information is organized in these texts)". These knowledge sources are further described as "pre-established patterns of knowledge and discourse structure[s] stored in [long-term] memory" that together create schemata, conceptual frameworks and scripts utilized by listeners to understand messages (Flowerdew & Miller 2005: 25; cf. also Vandergrift & Goh: 167). As pointed out by Rost (2006: 53), schemata stored in a listener's long-term memory may be activated by simply recognizing a "single word or image" which, in turn, leads to an interpretation of what a listener has heard. Hedge (2000: 233) characterizes two types of schemata, namely formal schemata, which "consist of the knowledge [listeners] have of the overall structure of some speech events" (closely associated with scripts that follow predictable routines), and content

schemata, which "include general world knowledge, sociocultural knowledge, [local knowledge], and topic knowledge". By using and storing "complex mental structures that group all knowledge concerning a concept" (i.e. schemata) (Vandergrift & Goh 2012: 167), listeners are able to engage in interpretation processes (also known as "inferencing") in order to "predict what the message will contain" and understand spoken input (Nation & Newton 2009: 40). In addition to the use of schemata, listeners utilize their repertoire of scripts (i.e. discourse knowledge) as a tool required for top-down processing. Scripts are mentally stored routines that provide an "understanding of how things function in the world around us" (Hedge 2000: 233; cf. also Vandergrift & Goh 2012: 51; Buck 2001: 20). Since "many listening situations around us are predictable to quite some extent as they follow certain routines", scripts contribute to a faster processing of messages and can improve listeners' listening proficiency (Hedge 2000: 233). It is through the combination of schemata and scripts that inferencing and interpreting becomes possible for listeners (cf. Anckar 2011: 43; Buck 2001: 20f).

As listeners try to interpret spoken input, they draw on both the knowledge sources highlighted prior, and parts of the spoken input to "confirm, correct or add to" a distinct message (Nation & Newton 2009: 40). In this respect, it is crucial to emphasize that, although inferencing on the basis of a listener's stored schemata and scripts allows for faster processing of spoken communication, these mental structures can also "lead [them] to an erroneous conclusion about what a speaker said or meant" (Rost 2006: 53). This is specifically the case in two distinct situations. That is, situations in which "the incoming information is unfamiliar for the listener" (Gilakjani & Sabouri 2016: 1672), as only linguistic knowledge – rather than stored schemata – can be used to comprehend spoken input, and situations in which "schematic knowledge differs" (e.g. due to cultural differences) (Hedge 2000: 232). Whereas the former difficulty is typically experienced by listeners who listen to a language other than their first language [due to the lack of vital experiences (i.e. scripts) and knowledge in a certain language (i.e. knowledge sources and schemata)], the latter can occur for all types of listeners (cf. Cárdenas-Hagan 2016: 32). As a result, listeners must create and revise new as well as already established schemata on – close to – an everyday basis, in order to "remain operational as comprehension devises" (Rost 2006: 53).

In general, listening comprehension is described as a top-down process, rather than a bottom-up process, as "various types of knowledge involved in understanding

language are not applied in any fixed order – they can be used in any order, or even simultaneously – and they are capable of interacting and influencing each other" (Buck 2001: 3). However, as neither the bottom-up model of listening, nor top-down model of listening can be employed independently to arrive at a complete understanding of a message, it appears to be essential to view listening comprehension as an interactive process in which bottom-up and top-down processes are synthesized to create a parallel or interactive model that describes the process of listening and understanding in a more natural manner (cf. Vandergrift & Goh 2012: 18; Buck 2001: 3; Anckar 2011: 23; Flowerdew & Miller 2005: 26).

3.2.3   Interactive Processing – Perception, Parsing & Utilization

Successful listening, as stressed in the preceding subsections, occurs when bottom-up processing and top-down processing mechanisms are used simultaneously or in a non-fixed order. This can be achieved through the interactive model (cf. Rumelhart 1975), which "allows for the possibility of individual variation in linguistic processing", rather than having to remain within hierarchical processing, as is the case in bottom-up or top-down processing (Flowerdew & Miller 2005: 27).

In the interactive model, listening comprehension can be viewed as "the result of an interaction between a number of information sources, which include the acoustic input [and] different types of language knowledge" as well as a cognitive process in which "listeners use whatever information they have available, or whatever information seems relevant to help them interpret what the speaker is saying" (Buck 2001: 3). Richards (2008: 10) points out that the "listener's familiarity with the topic and content of a text, the density of information in a text, the text type, and the listener's purpose in listening" determine whether bottom-up or top-down listening processes dominate in a specific situation. Through the above given definition, it can be claimed that listening comprehension includes both bottom-up and top-down processing in order for listeners to be able to decode specific language items as well as arrive at a full understanding of a message through activating various knowledge sources and thus, inferences and interpretations. To arrive at a better understanding of interactive processing, it is vital to discuss Anderson's (1982) three-phase model, which describes the "three intercon-nected phases, […] perception, parsing and utilization"; this may help to grasp the complex cognitive processes involved in the two main views of listening (i.e. bottom-up and top-down processing) and thus listening comprehension in general

(Vandergrift & Goh 2012: 21; cf. also Anderson 2015). As illustrated in Figure 5, it must be kept in mind that these phases do not occur in distinct sequences, but much rather, are "interrelated and recursive, and can happen concurrently during a single listening event" (Goh 2000: 57; cf. Vandergrift & Goh 2012: 27).
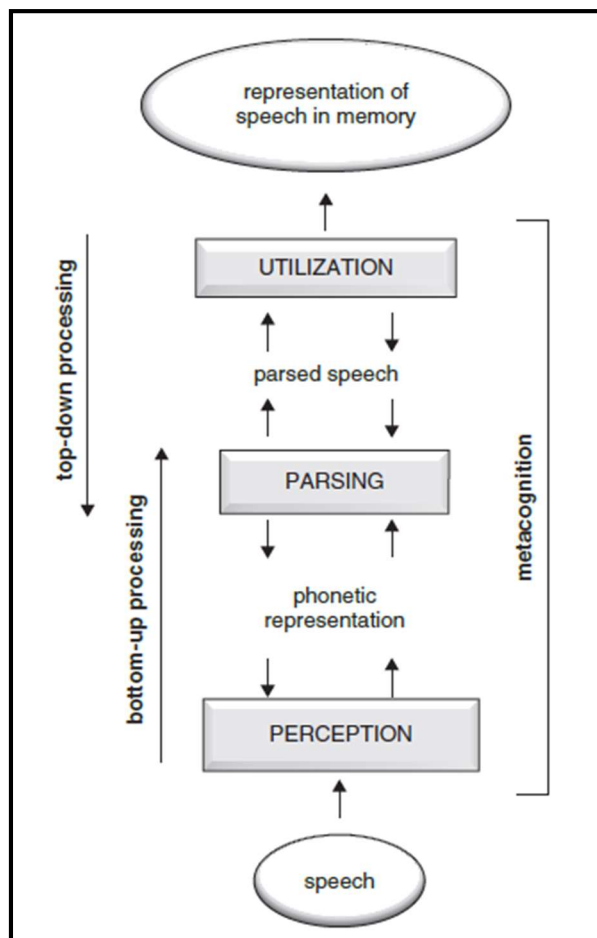
Figure 5: Cognitive Processes, including Top-Down & Bottom-Up Processing, as well as Anderson's Three-Phase Model of Listening (Vandergrift & Goh 2012: 17).

Perception, or perceptual processing, as described by Gilakjani and Sabouri (2016: 1672), refers to the process of decoding auditory messages and "includes chunking phonemes from […] continuous speech". Similar to the bottom-up model of listening, perception involves the decoding of a specific sound stream into phonemes and distinct words. To be more precise, the following paragraph, taken from Vandergrift and Goh (2012: 21), will both illustrate and summarize the cognitive processes associated with the first phase of listening comprehension (i.e. perception):

> Listeners decode incoming speech by (1) attending to the text, to the exclu-sion of other sounds in the environment; (2) noting similarities, pauses, and acoustic emphases relevant to a particular language; and then (3) grouping these according to the categories of the identified language.

During the "initial stage in the word segmentation process", a listener recognizes certain (seemingly relevant) sound signals and stores them as phonetic representations in short-term memory until the sounds are further "processed for meaning" in the subsequent phases (Vandergrift & Goh 2012: 41; cf. also Peterson 2001: 88). In this respect, however, it must be noted that specifically for L2 listeners, the "development of word segmentation skills [i.e. chunking] is a major challenge" (Vandergrift & Goh 2012: 21), as "speech is continuous, and phonemes are not discrete in the way letters are on a printed page" (Anderson 2015: 43). Consequently, problems that are described to arise frequently during perceptual processing (in a non-native language) include that "listeners did not recognize words they knew; they neglected the next part of the text when thinking about meaning; they did not chunk streams of speech; they missed the beginning of texts and had concentration problems" (Goh 2000: 59, in Anckar 2011: 35). Similar to other language skills, perceptual processing "becomes increasingly automatic with practice" and L2 listeners are able to improve their word segmentation skills once "they overcome the natural compulsion to listen using the [language-specific] sound categories of their L1 [as well as] acquire greater phonological knowledge of the sounds in their L2" (Vandergrift & Goh 2012: 41).

Parsing, as defined by Anderson (2015: 313), "is the process by which the words in the message are transformed into a mental representation of the combined meaning of words". To be more specific, phonetic representations, as built and retained during the perceptual process, activate potential word candidates (i.e. cues, which are a product of the segmentation of utterances according to syntactic structures or semantic meaning), which, in turn, are used to form "propositions (abstract representations of an idea)" (Vandergrift & Goh 2012: 22). According to Gilakjani and Sabouri (2016: 1672), "meaning-based representation[s] of the original words (i.e. mental representations) [are] an abstraction of the original word sequences" and thus, are "related to existing knowledge […] stored in long-term memory as propositions or schemata during the third phase, *utilisation*" (Goh 2000: 57). In order to form mental representations both bottom-up and top-down processing mechanisms must be applied, as the sound stream can only be segmented into meaningful units "through phonological analysis and word retrieval from the listener's mental lexicon" (Vandergrift & Goh 2012: 42; cf. also Peterson 2001: 88). Moreover, it must be emphasized that the parsing process is not independent from the perception process, as "the two comprehension

processes […] continue to inform each other within the available time, until a plausible mental representation emerges" (Vandergrift & Goh 2012: 42). Having described the second phase of Anderson's three-phase model, it appears to be essential to highlight some of the difficulties L2 listeners experience during the parsing process. As summarized by Goh (2000: 59, in Anckar 2011: 35), typical problems that L2 listeners encounter include that "listeners tended to quickly forget what was heard; they were not able to form a mental representation from words they heard; [and] they did not understand subsequent parts because of earlier problems". These issues particularly arise in situations, in which L2 listeners aim to comprehend "spoken language by native speakers [although] they are not [yet fully] familiar with the rules of segmentation" (Gilakjani & Sabouri 2016: 1672).

Utilization occurs after "a sentence has been parsed and mapped into a representation of its meaning" (Anderson 2015: 329). As specified by Goh (2000: 57), the third phase of Anderson's three-phase model of listening comprehension requires listeners to connect mental representations (built during the perception and parsing processes) to background knowledge stored in long-term memory (as propositions or schemata). Similar to the top-down process of listening, listeners must apply "prior, pragmatic, and discourse knowledge" in order to be able to match old information to new information and, subsequently, interpret the meaning of the acoustic input (Vandergrift & Goh 2012: 42f; cf. also Peterson 2001: 88). Thus, for listeners to "go beyond the literal meaning of the input", mental representations must be "monitored against the context of the message, what the listener knows about the speaker, the tone used to convey the message, and any other relevant information available to the listener" (Vandergrift & Goh 2012: 22, 42). In addition, the utilization-phase enables listeners to "draw different types of inferences to complete the interpretation and make it more personally meaningful, or use the mental representation to respond to the speaker" (Goh 2000: 57). Typically, L2 listeners face difficulties in the utilization phase when they are unable to process a text, "due to either a lack of prior knowledge or inappropriate application of prior knowledge" (Goh 2000: 59). In addition to that, it is reported that L2 listeners may "understand the words but not the message" or, likewise, are unable to "identify the key ideas in [a] message" (Goh 2009: 59, in Anckar 2011: 35).

Listening comprehension, as described in the preceding paragraphs, is a highly interactive, if not a parallel process. Hence, it can be concluded that cognitive

processes do not occur in a linear fashion, but much rather, "can influence and be influenced by the results of cognitive processing that precedes or follows" (Vandergrift & Goh 2012: 23). Both, the two main views of listening (bottom-up and top-down processing) as well as Anderson's (2015) three-phase model of listening (including perception, parsing and utilization) underline the fact that language is processed concurrently and at diverse levels. This is specifically true for L1 listeners (i.e. first language listeners), as they shift back and forth between the different processing mechanisms with little conscious attention paid to the cognitive dimensions relevant for successful listening comprehension. For L2 listeners, however, the cognitive processes involved in listening comprehension require precise training (e.g. in the form of the learning of metacognitive strategies, exposure to language input, etc.) and optimal listening input for them to become proficient as well as fluent listeners.

3.2.4 Metacognition / Metacognitive Processing

Besides cognitive processes involved while listening, it appears to be vital to highlight the importance of metacognitive processes, or metacognition prevalent in listening contexts. The concept of metacognition, as argued by Graham and Santos (2015: 15f), was developed by Flavell (1976) in the field of cognitive psychology and involves a listener's "'cognition about cognition' [or] thinking about thinking, but also control over one's thinking". In other terms, it "refers to listener awareness of the cognitive processes involved in comprehension, and the capacity to see, regulate, and direct these processes" through the use of a number of different metacognitive strategies (Vandergrift & Goh 2012: 23). Depending on a listener's overall language proficiency, "the degree of conscious control of the process will vary" to a considerable extent (Vandergrift & Goh 2012: 43). The following lines will explain the concept of metacognition by dividing it into three main constituents, i.e. metacognitive experiences, metacognitive knowledge and metacognitive strategy use.

As specified by Cross (2015: 884), **metacognitive experiences** are "fleeting or lengthy feelings or thoughts which can occur in and about cognitive activity". A perfect example is given by Vandergrift and Goh (2012: 86), who describe metacognitive experiences as follows:

> [A] metacognitive experience during listening is when learners realize that they do not recognize the words they hear but remember a similar situation where they managed to solve a word recognition problem. Listeners,

confronted with an unknown sound, may recall a strategy that they used before and use it again to manage the new problem.

Metacognitive experiences, in this respect, function as the foundation of metacognitive knowledge and metacognitive strategy use, as both appear to "evolve from and are modified by metacognitive experiences" (Cross 2015: 884).

In broad terms, **metacognitive knowledge** is "knowledge and beliefs about factors that shape cognition" (Cross 2015: 884). Flavell (1979, in Vandergrift & Goh 2012: 23) argues that three factors, namely knowledge about a task, person and various strategies must be stored and applied when a person engages in cognitive processes. In other terms, a listener must know about certain "requirements of listening tasks and how to achieve task completion" (task knowledge), different "factors that affect [an] individual's learning" (person knowledge) and "a range of strategies and know how to apply them appropriately and effectively" to achieve a distinct goal (strategy knowledge) (Cross 2015: 884; cf. also Goh & Taib 2006: 223; Vandergrift & Goh 2012: 86; Paran 2012: 456). Once listeners have developed these three factors to a certain extent, they will be able to regulate cognitive processes more efficiently, assess their own listening proficiency, and select suitable strategies to enhance their overall listening performance and comprehension (cf. Goh & Taib 2006: 223; Vandergrift & Goh 2012: 23).

Metacognitive strategy use is termed the "control dimension" within metacognitive processes and involves cognitive processes, such as "planning, monitoring, problem-solving, and evaluating" (Vandergrift & Goh 2012: 43; cf. also Goh & Taib 2006: 223; Paran 2012: 456). Altogether, these strategies enable listeners to assess their knowledge and performance before, during and after listening as well as help them to determine whether they will be able to engage in a listening task / situation without major difficulties (cf. Richards 2008: 11). The primary function of this component is to yield language use (e.g. listening comprehension) and language learning (i.e. listening development) (cf. Vandergrift & Goh 2012: 85). While the application and selection of certain metacognitive strategies must be practiced through proper instruction in language teaching contexts, it is upon the listeners to choose only those strategies they deem beneficial for their own listening success (cf. Goh & Taib 2006: 223; Flowerdew & Miller 2005: 92f).

3.3 Knowledge Sources of Listening

This subsection will provide information about the most prominent knowledge sources, namely phonological knowledge, syntactic knowledge, semantic knowledge, pragmatic knowledge, intercultural knowledge and kinesic knowledge and relate them to the distinct cognitive processes listeners engage in when listening to speech.

3.3.1   Phonological Knowledge

Phonological knowledge enables listeners to segment a message into "various sounds [and helps to] understand aspects such as [phonemes], rhythm, stress, intonation, feature detection or metrical segmentation" (Martínez-Flor & Usó-Juan 2006: 37). In this section, three basic elements of phonological knowledge, namely phonemes, stress and intonation shall be examined in greater detail.

The central element of phonological knowledge is the **phoneme**. According to Flowerdew and Miller (2005: 30f), phonemes are "the smallest unit of sound which can distinguish two words". A language typically consists of 30 to 40 phonemes, which, as regards L1 listeners, are usually learned through language acquisition processes in early childhood (cf. Rost 2006: 58). In contrast to that, L2 listeners, when learning an L2 or FL, must acquire "a new set of phonemes" in order to be able to segment messages (Flowerdew & Miller 2005: 31). Since the learning of new sets of phonemes is a rather difficult endeavor for individuals who aim to acquire an additional language after puberty, this may lead to numerous hardships (cf. Flowerdew & Miller 2005: 31). Difficulties, as highlighted by Rost (2006: 58), may be that L2 listeners, who try to segment L2 speech into words and phonemes, will not be able to distinguish between different sounds [i.e. "different phonemes in the L2 can sound as if they are the same (single category assimilation)"] or similar sounds may sound different [i.e. "occurrences within the same category can be heard as if they are different (multiple category assimilation)"].

Besides phonemes, **stress** is another element of phonological knowledge which helps in terms of segmenting speech into words. Stress, as argued by Flowerdew and Miller (2005: 31), is the "application of greater force to a syllable [and] occurs at the level of the word and of the sentence", with the word level being of particular importance in speech perception. When a listener segments speech according to the stress that occurs in a distinct language, he will engage in metrical segmentation. Metrical segmentation, as defined by Rost (2002: 58), "refers to the use of stress and

timing rules to segment incoming speech into words, which are then used for lexical processing and meaning construction". English, being a primarily stress-timed language in which stress patterns create rhythm and highlight the most important words of a message, lends itself perfectly for metrical segmentation (cf. Buck 2001: 36). However, depending on whether a listener's native language is stress-timed or syllable-timed, it will be either easy or difficult to segment L2 speech (cf. Flowerdew & Miller 2005: 32)[19].

Intonation, the third basic element that appears to be crucial in listeners' phonological knowledge, is created through stress and pitch movement (Flowerdew & Miller 2005: 33). Intonation provides "important meaning over and above what is contained in the words of an utterance" and thus, helps a listener to understand a message (Flowerdew & Miller 2005: 33; cf. also Anckar 2011: 40). Whereas L1 listeners will not experience any major difficulties with understanding a message that depends on a speaker's intonation, L2 listeners, who did not yet learn to decipher intonation patterns, may be prone to misunderstand speech that solely relies on intonation in terms of overall meaning (cf. Flowerdew & Miller 2005: 33).

Although at first glance, the above discussed elements of phonological knowledge appear to be learnt and mastered rather easily, it must be emphasized that spoken language is mostly 'simplified' in L2 listening contexts. In fact, in actual speech, phonemes, stress and intonation are described to vary considerably (cf. Flowerdew & Miller 2005: 33). Consequently, it must be kept in mind that the previous description can merely account for an idealized model of the basic elements phonological knowledge, and thus, L2 listeners will have to frequently listen to real-life and real-time conversations in order to become proficient speech decoders (cf. Rost 2002: 39; Anckar 2011: 117).

3.3.2   Syntactic Knowledge

Syntactic knowledge is the knowledge of how words must be arranged in a message to form grammatically correct sentences (cf. Buck 2001: 2). In other words, and as argued by Flowerdew and Miller (2005: 35), the meaning of a message is created through "syntax [which] establish[es] the relationships between the words of a

---

[19] According to Flowerdew and Miller (2005: 32), stress-timed languages include German, Russian and Arabic and syllable-timed languages include French, Spanish, Chinese and Hungarian.

sentence and the meanings these relationships carry". Thus, syntactic knowledge is an individual's knowledge about certain rules, principles and processes that help to understand the structure of sentences in a particular language.

Once a listener has successfully identified words and the syntactic structure of a sentence, he may further engage in parsing. Parsing involves the "segmentation of an utterance according to syntactic structures or semantic cues to create a mental representation of the combined meaning of words" (Vandergrift & Goh 2012: 41; cf. also subsection 3.2.3). As claimed by Anderson (2015: 318), parsing a sentence involves the application of knowledge of syntactical rules as well as the combination of the meanings of individual words to understand (or infer) the overall meaning of a sentence. In this process, two elements of syntactic information, namely word order and inflectional structure, appear to be vital to discuss. Depending on whether word order or inflection are used as the primary syntactic cue in a particular language, a listener can arrive at different inferences (and thus, meanings) of words and sentences. In English the dominant syntactic cue is claimed to be word order. Thus, the typical syntactic structure of an English sentence is defined as follows: noun phrase (agent, subject), verb phrase (action), noun phrase (object) (cf. Hedge 2000: 231). In contrast to that, German relies heavily on an inflectional structure, which means that German speakers must change the ending of a word to express a distinct grammatical function or attribute (cf. Anderson 2015: 319). Depending on the syntactic cues inherent in a listener's native language, he may arrive at a different meaning or inference of a given sentence in a target language.

As regards L2 listeners, it can be claimed that once the syntactic structure of an L2 or FL that relies on word order (e.g. English) is successfully learnt, it will be quite easy to infer the meaning of a sentence, as word order is relatively fixed (cf. Anderson 2015: 319). "Although syntax is important in establishing meaning, it is not always absolutely essential" (Flowerdew & Miller 2005: 37). In fact, L1 and L2 listeners can compensate their failure to discriminate between syntactic features through additional knowledge of lexis, vocabulary and phonology (cf. ibid.)

3.3.3 Semantic Knowledge

Semantic knowledge "refers to knowledge of the meaning of the words and the meaning of the relations between the words in a sentence" (Flowerdew & Miller 2005: 38). According to Paradis (2013: 5), an individual's semantic knowledge is created through concepts and domains (which hold crucial information about words and their respective meanings), stored in an individual's mind. These concepts and domains, when stored as an inventory of linguistic units and cognitive routines in long-term memory, create language and build the fundament of semantic knowledge (cf. Paradis 2013: 8). In addition to that, the meanings of words are not only shaped (and derived) through concepts and domains, but also through their relation to other words and through the specific contexts in which they are used (cf. ibid.). Concepts and domains are described to include "conceptualized word meanings [which] are the [result] of the entrenchment of words as form-meaning pairs in memory" (ibid.). Hence, once words and their corresponding meanings (as well as the contexts in which they are typically used) are stored in a person's mind, they can be retrieved for meaning-building processes when required.

In a listening situation, the overall goal of both L1 listeners and L2 listeners is to convert "incoming speech to idea units that will serve as the basis for a decision, an action, or a response (Rost 2002: 109). This is called "semantic processing" and "involves a formal, explicit representation of a set of concepts and their interrelation-ships" (ibid.). That is, by using the above described concepts and domains, listeners will arrive at an understanding of words and their respective relations in sentences through semantic processing. In comparison to syntactic knowledge, semantic knowledge, appears to dominate the overall understanding of a message, since "what tends to endure in individuals' memories after processing sentences is not the linguistic form [i.e. syntax], but the semantic content" (Flowerdew & Miller 2005: 39). Consequently, semantic knowledge, in contrast to syntactic knowledge, seems to be indispensable when listeners engage in meaning-building processes, as understand-ing the meaning of words (and the relations of words that create a sentence) is crucial when aiming to understand a message, whereas an incorrect/problematic syntax of a given sentence should not pose any major difficulties in processing a sentence (cf. Anderson 2015: 320). Although semantic knowledge is claimed to be a reliable knowledge source when aiming to understand the meaning of an utterance, a

"breakdown of semantic processing may occur" when (1) "a listener cannot hear what the speaker is saying", (2) "the listener does not know specific expressions the speaker is using", (3) "the information the speaker gives is incomplete", (4) "the listener hears a familiar word, but it is used in an unfamiliar way", and (5) "the listener encounters an unknown word or concept" (Rost 2002: 70).

3.3.4 Pragmatic Knowledge

Pragmatic knowledge is knowledge that "goes beyond the literal meaning of a word, message or text" (Vandegrift & Goh 2012: 24) and is "concerned with the meaning and use of language in specific situations" (Flowerdew & Miller 2005: 41). Thus, pragmatic knowledge enables listeners to go beyond the semantic meaning of words and sentences in order to interpret the contextualized meaning of a message. In this respect, it can be claimed that although the previously described knowledge sources are crucial to make sense of the isolated meanings of words and sentences, it is through pragmatic knowledge that listeners are able to disambiguate the meaning of words and sentences by relating them to the context in which they were uttered (cf. Anckar 2011: 47; Vandergrift & Goh 2012: 24; Buck 2001: 22).

A speaker's intended meaning of a message is usually understood if a listener's pragmatic competence allows him to understand "the function of or illocutionary force of a spoken utterance in a given situation" and interpret the very same message in relation to "sociopragmatic factors [which are] necessary to recognize not just what the utterance says, in linguistic terms, but also what is meant by it" (Martínez-Flor & Usó-Juan 2006: 38)[20]. Both interpreting and inferring the meaning and intention of a message as well as linking it to socio-pragmatic factors and its distinct context is realized during the utilization phase of the comprehension process (cf. Vandergrift & Goh 2012: 24; subsection 3.2.3). The utilization phase, in this respect, enables listeners to compare the inferred meaning of a message to already acquired background knowledge (e.g. sociocultural or sociolinguistic knowledge, stored in long-term memory) and – if the context in which a message was uttered is familiar – rapidly arrive at an understanding of an acoustic input (cf. ibid.). Whilst this is relatively easy for L1 listeners (due to their ample background knowledge) this may be difficult

---

[20] Illocutionary force, in this respect, refers to the speaker's intention in producing an utterance, and socio-pragmatic factors describe variables such as "status, social distance and the degree of imposition involved in the delivery of [a] spoken message" (Martínez-Flor & Usó-Juan 2006: 38).

for L2 listeners who did not yet acquire enough background knowledge in a second or foreign language. It must be highlighted, however, that once an L2 listener acquired enough context-specific prior knowledge (e.g. through exposure to various listening situations), pragmatic knowledge "can make up for lack of phonological, syntactic and semantic discrimination", which, in general, reduces the chance of misunderstandings in discourses (Flowerdew & Miller 2005: 43).

3.3.5 Prior Knowledge

According to Buck (2001: 18), "any process of text comprehension presupposes a great deal of non-linguistic knowledge about the world we live in, and how things work within it". The non-linguistic knowledge Buck describes refers to background knowledge (also known as world or prior knowledge). Typically, individuals store a large amount of background knowledge in their minds as "abstract, generalized mental representations" that are linked to prior experiences (Brown 2006: 2). Stored as scripts and schemata in an individual's long-term memory, background knowledge helps listeners to compare (new) linguistic input to what they already know (cf. Vandergrift & Goh 2012: 25). Scripts are culture bound "mental structures which [describe] stylised, everyday situations" (Buck 2001: 20; cf. also subsection 3.2.2). As scripts are culture bound, they can vary considerably (e.g. one person's classroom script may be quite different to another person's classroom script) (cf. Brown 2006: 2). Besides scripts, schemata play an equally important role within an individual's background knowledge (cf. subsection 3.2.2). Schemata, in contrast to scripts, are "stereotyped scenarios and sequences of actions that fit common situations" (Long 1990: 66), and "are assumed to exist for most things we would want to represent in memory" (Buck 2001: 20). Scripts and schemata guide the interpretation processes of a message to a considerable extent. Thus, listening is an active process in which listeners combine their background knowledge with new linguistic input in order to arrive at a "coherent interpretation of any spoken message" (Anderson & Lynch 1988: 11).

As stressed by Flowerdew and Miller (2005: 26), studies indicate that listening comprehension is significantly higher if listeners are familiar with the topic of a message. Thus, it can be claimed that listening comprehension is likely to be successful, if a listener has profound prior knowledge of a topic in a listening situation. In contrast to that, it can be stated that a listener who does not have enough background knowledge of a topic will not arrive at a full understanding of linguistic input

(even if the language is not linguistically challenging per se) (cf. Buck 2001:8). Besides background knowledge a listener should have to arrive at an overall understanding of linguistic input, it is equally important to provide listeners with contextual information. Contextual information, as argued by Vandergrift and Goh (2012: 25), will enable listeners to "activate their prior knowledge on the topic and develop a conceptual framework in order to parse the linguistic input for potential words and content".

Given the above argued features of background knowledge, it can be claimed that background knowledge is able to compensate for lexical and linguistic gaps in a message (cf. Long 1990: 68). Hence, a listener need not understand (or even hear) every acoustic signal, word or sentence to infer the meaning of a message. Whereas this is generally true for L1 listeners (who infer the meaning of a message through, for example, background and contextual knowledge), L2 listeners – especially those with minimum experience and background knowledge in a second or foreign language – will need to pay close attention to speech input to be able to comprehend it (cf. Flowerdew & Miller 2005: 27).

3.3.6   Kinesic & Intercultural Knowledge

Kinesic knowledge refers to "knowledge about the meaning of nonverbal means of communication, such as facial expression, eye contact, and body movement and position" (Flowerdew & Miller 2005: 45) that "accompany, complement, or replace verbal utterances" (Hoven 1999: 76; cf. also Buck 2001: 47). According to Rost (2002: 51), the most common kinesic signals are baton signals (i.e. hand and head movements), directional gaze (i.e. eye movement and focusing) and guide signals (systematic gestures and movements of any part of the body). In general, nonverbal signals are described to provide an "extra layer of information" which "serve[s] to amplify meaning or to confirm/disconfirm linguistic meaning" and thus, influence a listener's interpretation of a spoken message (Rost 2002: 52; cf. also Buck 2001: 48). In addition, non-verbal signals can "substitute for a verbal message", as for example, a simple shrug may "indicate that the speaker [does not] know or [does not] care" (Buck 2001: 47).

Since kinesic signals are culturally bound, they can vary significantly across cultures and languages (cf. Vandergrift & Goh 2012: 75; Flowerdew & Miller 2005:45). Consequently, it is crucial that – besides kinesic knowledge – speakers and listeners acquire intercultural knowledge, which may help them to interpret non-linguistic signals

as used in different contexts and cultures. As argued by Martínez-Flor and Usó-Juan (2006: 39), intercultural knowledge "implies having knowledge of both cultural and non-verbal communicative factors in order to appropriately interpret a given spoken text". If an individual possesses profound knowledge of cultural differences and nonverbal signals linked to various languages and cultures, he will be able to interpret spoken messages without any major difficulties (ibid.). However, if an individual lacks intercultural and kinesic knowledge, non-verbal signals could lead to misinterpretations, as they "may connotate something to the listener in his or her native culture that is not intended by the speaker" (Rost 2002: 51; cf. also Hedge 2000: 232). As regards L2 listeners, kinesic and intercultural knowledge play an important role in listening contexts outside the language teaching classroom. Flowerdew and Miller (2005: 46) state that whilst teaching kinesic cues through audio materials is rather problematic, video and real-life interaction will considerably enhance listeners' understanding and interpretation of different non-linguistic signals used by individuals stemming from different cultures.

3.4 Types of Listening

Listening occurs in various contexts, situations and it happens for numerous different purposes. Largely depending on these factors, different types of listening can be identified. This subsection will describe the most prominent types of listening, namely transactional and interactional listening. Transactional listening or otherwise termed "one-way listening" and "unidirectional listening" is "typically associated with the transfer of information", whilst "interactional listening" or "two-way listening" and "bidirectional listening" is "typically associated with maintaining social relations" (Nation and Newton 2009: 40; Morley 2001: 73). Although listening situations oftentimes incorporate both transactional listening and interactional listening, it must be accentuated that "one will usually be more dominant in any particular situation" (Buck 2001: 14). The following lines will describe the characteristics and concepts behind transactional and interactional listening, the role of the listener as well as highlight specific situations in which these types of listening occur. Moreover, the two types of listening will be put in relation to both listening in language teaching contexts and listening in everyday life, as the purposes and overall goals for each 'realm' are considered to be fairly different. However, before doing so, Table 1 taken from

Vandergrift and Goh (2012: 28) provides a general overview of the similarities and differences of transactional and interactional listening:

Table 1: Similarities and Differences of Transactional and Interactional Listening (Vandergrift & Goh 2012: 28)

Criterion	One-way listening	Interactive listening
Flow of communication	One-way: listening only	Two-way: listener alternates as speaker and listener
Function of language	Transactional	Transactional, interactional, and/or social
Goal of communication	Interpret meaning	Interpret meaning; negotiate meaning; respond and/or initiate; establish social relationships
Strategy use	Comprehension strategies	Comprehension and reception strategies
Social demands	Low	High
Cognitive demands	High	High

3.4.1 Transactional Listening

Transactional listening is consistent with the transactional functions of language, in which "language is […] used primarily for communicating information" (Richards 1988: 178; cf. also Buck 2001: 12f). That is, during transactional interaction, a speaker "does most of the talking while the listener may ask questions or give comments during or after listening" (Vandergrift & Goh 2012: 178; cf. also Wilson 2008: 39). However, strictly defined, one-way listening does not require (or allow) listeners to actively participate in discourse in terms of upholding a conversation or asking for clarification (Vandergrift & Goh 2012: 178)[21]. Consequently, as unidirectional listening is "'message' oriented" (Richards 1988: 178), the focus of this type of listening is primarily set on understanding and interpreting the content of any given message (on behalf of the listener) and delivering an intelligible message (on behalf of the speaker) (cf. Richards 2008: 28; Vandergrift & Goh 2012: 178; Morley 2001: 73). Typical communication settings, in which one-way listening is required, can be found in "non-participatory" (Vandergrift & Goh 2012: 26) or "non-collaborative" (Buck 2001: 12) listening situations, such as lectures, traditional classroom lessons, listening to instructions or descriptions and listening to broadcasts, in which the focus is set on "content and conveying factual or propositional information" (Morley 2001: 73).

---

[21] Although per definition, transactional listening appears to be a passive process in which a listener merely receives information from a speaker, this type of listening is – like listening in general – an active process in which various cognitive processes take place (cf. Nation & Newton 2009: 39; Anderson & Lynch 1988: 11).

3.4.2 Interactional Listening

Quite different to transactional listening, interactional listening (or otherwise called "two-way listening" and "bi-directional listening") is "highly interactive and is in collaborative conversational style" (Richards 2008: 23; cf. also Rost 2002: 190; Vandergrift 2007: 195; Morley 2001: 73). Interactional conversations are cognitively demanding communicative events in which participants engage in "collaborative" and "participatory" listening (as well as speaking) by "making appropriate requests for clarification, back-channeling, making responses to interactional language, or taking responsibility for organising turn-taking" in a relatively narrow timeframe (Buck 2001: 12; cf. also Vandergrift & Goh 2012: 50; Vandergrift 2007: 195; Field 2008: 60). In accordance with the interactional functions of language, two-way listening puts an "emphasis […] on creating harmonious interactions between participants rather than on the communication of information" (Richards 1988: 176; cf. also Buck 2001: 13). Thus, it is not the message itself that is important in interactional conversations, but that 'something' is said in a "*person oriented*" manner (Morley 2001: 73; cf. also Buck 2001: 12). As the "social purpose of communication" (Hedge 2000: 235) lies at the heart of interactional listening, the primary goal of two-way listening is "to create and maintain relationships between participants" (Vandergrift & Goh 2012: 178; cf. also Rixon 1986: 6). Such goals are best achieved if a listener possesses a well-established control over "paralinguistics, and other non-verbal or culturally-bound cues which can add to, or change, the literal meaning of an utterance" (Vandergrift 2007: 195). Hence, instead of merely understanding and interpreting information, interactional conversations require listeners to take on a "dual role" in which they must "alternate between the [role] of listener and speaker" and engage in (inter)active and collaborative participation (Vandergrift & Goh 2012: 28, 178; cf. also Vandergrift 2007: 195). Typically, two-way listening takes place in everyday (informal and formal) conversations in the form of "greetings, small talk, jokes, complements, casual 'chat' of the kind which is used to pass time with friends or to make encounters with strangers comfortable" (Richards 1988: 176; cf. also Wilson 2008: 39, Nation & Newton 2009: 40). Thus, contrary to transactional listening, interactional listening is far "less predictable and more wide-ranging" (Wilson 2008: 39).

3.5 Characteristics of L2 Listening Input

The present subsection will elaborate on the most important characteristics of L2 listening input, namely comprehensibility, relevance, simplicity and authenticity. Whereas the subsection on comprehensibility contains a more general and holistic description of the characteristics of L2 listening and listening input, the other subsections will bring forth the most noteworthy features of listening input and relate them to the L2 language teaching realm.

3.5.1   Comprehensible Input

Comprehensibility, as suggested by Krashen (1982: 63), is the most important characteristic of listening input, as a listener will only be able to understand a message, if the message does not substantially exceed his listening and general language proficiency. Comprehensibility of input, although not sufficient, is "fundamental and necessary" to acquire an L2 or FL, since it is believed to be impossible to acquire a language by merely listening to the radio or watching TV (Krashen 1982: 63). As a listener will not be able to automatically comprehend what is being said if he listens to L2 or FL speech, it is a necessity to (1) direct comprehensible input (i.e. simplified and relevant) to the listener and (2) provide input that is slightly above the learner's current level of competence in terms of vocabulary, syntax, discourse features, length and complexity (Rost 2002: 152). In this respect, the role of the teacher must receive special attention, as the listening input used in the L2 or FL teaching classroom will largely depend on teachers' conscious choice.

It is equally important that listening input activates listeners' prior knowledge. In fact, as suggested by Rost (2002: 152), listeners who are able to use their prior knowledge in listening events are more likely to comprehend listening input. Nevertheless, it must be highlighted that listening input which activates a listener's prior knowledge should always incorporate parts of speech that are not completely known to the listener, as listening input may be rendered insignificant by students if too much of the input is already known (Krashen 1982: 66). Consequently, the common belief in the second and foreign language teaching context pertains to be that listening input must be slightly above the L2 listeners' current language level (i+1) for it to be challenging yet comprehensible, and thus foster language acquisition and enhance students' listening proficiency (cf. Cárdenas-Hagan 2016: 31; Krashen 1982: 66; Rost 2002: 153).

3.5.2 Relevant Input

According to Rost (2002: 161), human cognition serves one goal. That is, individuals only pay attention to information that is relevant to them. This can be specifically linked to the task of listening in the L2 or FL classroom, as students will only listen to linguistic input if it relates to their respective goals and interests and is tailored to their specific needs (cf. Rost 2002: 161; Rost 2006: 49; Mendelsohn 2006: 77ff). Although it may be generally perceived to be a rather easy task for a teacher to choose relevant and interesting L2 listening input, Krashen (1982: 67) reports that it is difficult – if not even impossible – to provide learners in EFL or ESL teaching contexts with listening input that is equally relevant and interesting to all learners, whose goals, interests and backgrounds differ significantly[22]. In contrast to that, Rost (2002: 161), who elaborates on the outcomes of a pedagogic study conducted by Day et al. (2009), argues that students who are given permission to choose listening input themselves, are more likely to view listening input as relevant and interesting. As a result, the overall teaching principle in an L2 language teaching context should revolve around the "aim for maximum relevance", which grants L2 listeners personalization options that "relate to learner goals and interests, and involve[s] self-selection and evaluation" (Rost 2002: 161).

3.5.3 Simplified Input

In general, the goal of simplification in L2 listening contexts (especially in classrooms) is to reduce the cognitive load posed upon L2 listeners and to render discourse more accessible (cf. Rost 2002: 172f). In broad terms, listening input can be simplified through "restrictive simplification" and "elaborative simplification" (Rost 2002: 172f). The former approach to simplifying listening input refers to "using and highlighting familiar linguistic items and frames" and the latter refers to "enriching the input rather than cutting out presumably difficult parts" (Rost 2002: 172f; cf. also Rost 2006: 52). Although the simplification of listening input may increase L2 listeners' motivation and listening success in the teaching context, it must be stressed that in real life, speech is

---

[22] EFL refers to English as a Foreign Language. Per definition, EFL refers to the teaching and learning of English to and by non-native speakers in a country in which English is not generally spoken (e.g. Europe). In contrast to that, ESL refers to English as a Second Language, which is linked to the teaching and learning of English in a region in which English is not the dominant, but second language used for daily purposes.

rarely simplified by the speaker (cf. Rost 2006: 51). Consequently, rather than simplifying listening input, Rost (2002: 173f) states that greater comprehension and an increased listening proficiency can be achieved through the repetition of input, the simplification of context and the chunking of input. A special case, however, are L2 learners in the early stages of listening to an L2 or FL. As this group of learners is "easily deterred if they are asked to make sense of strings of sounds which they are entirely unable to deconstruct", it seems to be best to present them with listening input that is simplified yet challenging (Field 2008: 276; cf. also Chen 2011: 69). Once their listening competence and language proficiency in general improved, gradually more 'authentic' listening input (and thus, less alteration and simplification of listening material) should be used by L2 teachers (cf. ibid.).

3.5.4 Authentic Input

Authenticity and authentic (listening) input are terms whose definitions are widely discussed among scholars in the L2 research and teaching realm. In general, two key definitions of authenticity can be identified. On the one hand, authenticity refers to "any language that has been used by native speakers for any real purpose" (Rost 2002: 165). In this perspective, authentic input would include real context and real language (i.e. a target language as used by native speakers in real life) (cf. Rixon 1986: 13; Wilson 2008: 32). On the other hand, it can be claimed that authenticity is "relative", in the sense that what may be authentic to one listener, may be inauthentic to another, and thus, need not relate to native speaker speech as it occurs in real-life settings (Widdowson 2007, in Rost 2002: 165). Consequently, as argued by Field (2008: 269), authenticity "should apply not only to the materials used in teaching but also to the circumstances under which they are used".

According to Rost (2002: 167), language input in the L2 classroom "should aim for user authenticity" (i.e. appropriate input that is linked to the needs of the listeners and incorporates features of language as used in the real world). User authenticity can be connected to Widdowson's definition of 'authenticity' as highlighted above. Moreover, as it is claimed that the ultimate goal of L2 learners is to comprehend natural, real time and real-life language use, L2 teachers are required to provide students with "genuine" listening input. Genuine listening input, as described by Wilson (2008: 30) and Rost (2002: 166), incorporates features such as overlapping sentences, repetition, misunderstanding and negotiation of meaning, backchanneling and non-standard

forms of English. Although at first glance, this appears to be a rather simple task for L2 teachers, it is rather difficult to find authentic listening input that is neither too easy nor too challenging for students (cf. Wilson 2008: 32; Rixon 1986: 14; Ur 1984: 23). Specifically for low-level listeners, or listeners who have just begun to learn an L2 or FL, non-altered 'authentic' listening input may present itself as rather problematic. A possible solution to this predicament may be found within "authentic-based" listening input, which is based on the features of authentic speech, but cleared off distracting elements (Wilson 2008: 33). In any case, authentic(-based) listening input is likely to increase students' general interest in attending listening input as well as satisfy the students' demand of receiving real-life language input which proves to be essential when attending L2 listening events outside the language classroom.

3.6 Teaching Listening Through Multimedia Input

Since the beginning of the new millennium, technological advances have made it possible for L2 teachers and students to choose between traditional audio recordings and digital videos useful for diverse L2 listening purposes (cf. Vandergrift & Goh 2012: 219). Ever since, numerous studies have been conducted that aimed to identify whether multimedia input used in the L2 classroom considerably assists students in acquiring an L2 or FL. This subsection will bring forth a definition of multimedia input in the L2 listening classroom as well as discuss two noteworthy theories that paved the way for the use of multimedia sources in L2 classrooms (i.e. Paivio's (1986) "Dual Coding Theory" and Mayer's (1997) "Generative Theory of Multimedia Learning"). Subsequently, this subsection will address research implications in relation to two distinct questions. That is, how multimedia L2 listening input can contribute to an improvement of students' L2 listening proficiency and to what extent the teacher role in the L2 classroom has changed through the increased use of multimedia material.

3.6.1 Multimedia Input in the L2 Classroom

According to Jones (2009: 267), the last two decades have changed listening compre-hension activities considerably. Since the emergence of information technology, multimedia sources have been progressively used to teach and learn an L2 or FL (cf. Chen et al. 2014: 53; Buck 2001: 47). In the case of L2 or FL listening, teachers can now choose from a wide variety of multisensory listening material which "utilize[s] aural, pictorial, and text-based modes of information" (Jones 2009: 267). Multimedia

listening input, different to traditional audio material, combines both verbal stimuli (e.g. spoken or written text) and visual stimuli (e.g. photos or videos) to support "the comprehensible input learners are […] exposed to and interact with" (İnceçay & Koçoğlu 2017: 903; cf. also Mevada & Shah 2015: 28). Especially in the L2 classroom, in which multimedia is used to teach L2 listening skills, visual components are perceived as helpful, as they increase students' understanding of aural input and lead to the construction of "predictions and reflections" (Oddone 2011: 106; cf. also Wagner 2010: 1). Moreover, the combination of visual input and aural input provides L2 students with a more authentic and realistic listening experience, which may ultimately improve their overall listening proficiency in both L2 classroom and real-life listening contexts (cf. Vandergrift & Goh 2012: 219; Wilson 2008: 48; Chen 2014: 57). Thus, instead of merely comprehending messages by using artificial and oftentimes simplistic traditional auditory input, students are given the opportunity to engage in more realistic and beneficial dual processing (i.e. through multimedia) – accompanied by input enhancers, such as captions, subtitles, glosses, non-verbal cues, etc. – to arrive at a general, rather than literal, understanding of a message (cf. Aldera 2015: 1983; İnceçay & Koçoğlu 2017: 903). However, as argued by Hedge (2000: 242), traditional aural input should not be disregarded in L2 listening contexts, as it facilitates the teaching of listening skills that are vital in situations, in which a speaker is not visible (e.g. radio, telephone conversations, etc.).

3.6.2   Paivio's & Mayer's Theories on the Use of Multimedia Input

The introduction of multimedia sources in the L2 teaching realm has changed the way in which students learn a second or foreign language. In this regard, it appears to be vital to briefly discuss Paivio's and Mayer's theories of language learning, which view multimedia input as a pivotal source that aids students in their endeavor to improve their L2 language knowledge and proficiency. In Paivio's (1968) "Dual Coding Theory", learning occurs when "both verbal and non-verbal processing reinforce each other" (Vandergift & Goh 2012: 220). By dealing with visual and auditory input simultaneously, learners are inclined to create "referential connections between information gleaned from the two sources and then organize this information into knowledge" (Vandergrift & Goh 2012: 220) [i.e. visual or verbal representations, defined as "*logogens*" and "*imagens*" (Yang 2014: 700)] that can either be used directly, or stored in long-term memory (cf. Aldera 2015: 1984). Mayer's (1997) "Generative Theory of Multimedia

Learning", which is partly based on Wittock's (1974) "Generative Theory" and Paivio's (1986) "Dual Coding Theory", supposes that "mixed modes of delivery (text, audio, and video) affect cognitive processing for learning" (Vandergrift & Goh 2012: 220; cf. also Mevada & Shah 2015: 29). Typically, L2 learners choose visual or verbal information from a – for example – multisensory listening passage, "convert this information into coherent visual and verbal mental representations" and, subsequently, form a "new mental model of text comprehension" (Vandergrift & Goh 2012: 220; cf. also Aldera 2015: 1984). In Mayer's theory, L2 learners are viewed as knowledge constructors who "actively select and connect pieces of visual and verbal knowledge" (Mevada & Shah 2015: 29).

Both theories claim that when verbal and non-verbal information are processed together (i.e. under the premise that the two sources support each other), there is a greater chance that comprehension, retention of information and the acquisition of an L2 or FL will occur (cf. Jones 2009: 269; Vandergrift & Goh 2012: 220). Nevertheless, what must be borne in mind is that multimedia input should not exceed L2 learners' cognitive load, as "human memory has a limited capacity" and especially in the case of low-level L2 listeners, this may lead to an overall breakdown of listening comprehension (Aldera 2015: 1984; cf. also Yang 2014: 699). Ultimately, practice in dual coding, as well as the use of multiple codes (e.g. video and audio sources that may be combined with captions) appears to become a necessity for L2 learners, as this is proven to reduce the cognitive load posed upon them (cf. Yang 2014: 699).

3.6.3 L2 Listeners and the Use of Multimedia Input

As concerns L2 learners and the use of multisensory material in the L2 classroom, some benefits and drawbacks can be identified. The most salient benefits, as described by numerous scholars, can be summarized as follows: the use of multimedia input ensures (1) an increase of learner attitude and motivation toward listening to and working with input provided, (2) the use of available help/support options (e.g. assistance through visual, auditory or textual cues and annotations) that aid L2 learners in comprehending material provided, (3) the distinct support of language processing through additional visual information (i.e. especially as regards low/beginning-level L2 learners), (4) the transfer of dual language processing strategies practiced in L2 classrooms to real-life listening situations (i.e. through the use of real-life multisensory material), (5) the retention of more information (i.e. visual and auditory input),

(6) the use of top-down (rather than bottom-up) processing mechanisms to arrive at a holistic understanding of a message, and (7) the learning and interpreting of (culture-bound) kinesics (i.e. non-verbal cues), crucial to understand diverse L2 users (cf. Vandergrift 2007: 200; Aldera 2015: 1984; Chen et al. 2014: 54; Wagner 2010: 2; Buck 2001: 47; Hoven 1999: 76; Vandergrift & Goh 2012: 220-225; Jones 2009: 285; Oddone 2011: 105). Aside from the benefits, the use of multimedia material in L2 listening contexts also entails some drawbacks. That is, depending on the L2 learners' language proficiency, the difficulty of multimedia material used, the required interaction with the material, and the task types related to multimedia input can hamper students' listening comprehension (cf. Mevada & Shah 2015: 30). Regarding the difficulty of multimedia input, İnceçay and Koçoğlu (2017: 911) report that – in their study – especially low-level listeners who were confronted with the task of processing audio, video and text input simultaneously "experienced a cognitive overload since they needed to process audio and video along with the dynamic nature of subtitles at the same time". Hence, instead of enriching auditory input, adding video and text may also lead to a breakdown or significant impairment of comprehension on behalf of L2 learners. This is further the case when teachers combine "rigid pictures, or much longer dialogues" with aural input, since the listening passage will become more difficult to comprehend and – as a result – students' may lose interest in engaging in comprehension processes altogether (Chang et al. 54). In addition, visual information that does not complement the audio input is more likely to lead to frustration and misinterpretation of multimedia input on behalf of (low-level) L2 learners (cf. Vandergrift & Goh 2012: 223; Buck 2001: 47; Oddone 2011: 106). Oddone (2011: 105) claims that – although at first glance – authentic listening input, as is the case with multimedia material, appears to be favored by students, the language used may be too difficult for L2 listeners to comprehend. It is, therefore, indispensable for L2 teachers to pre-teach vocabulary, language chunks or background/contextual knowledge, or find more suitable multimedia input that is consistent with L2 students' language proficiency (cf. ibid.).

Overall, research indicates that the advantages of multisensory input in the L2 teaching realm significantly outweigh the disadvantages (cf. Chen et al. 2014: 54). Through a review of respective literature, in which it was tested whether multimedia material leads to an increased listening proficiency, it can be reported that researchers

have come to the unified conclusion that different multimedia delivery modes (e.g. audio, video and subtitles in an L2) – in contrast to traditional audio input – are able to increase L2 students' listening test performances (regardless of their L2 proficiency levels) and thus, indicate that their listening comprehension can be enhanced through the use of such (cf. Wagner 2010: 15-18; Yang 2014: 710; Chen et al. 2014: 57; İnceçay & Koçoğlu 2017: 913; Ehteshami & Salehi 2016: 139; Aldera 2015: 1987; Jones 2009: 285)[23].

3.6.4 Multimedia Input and the Role of the L2 Teacher

Stempleski (2002: 364) claims that an L2 teacher "plays a key role in the success or failure of any video used in the language classroom" as he "selects the video, relates the video to students' needs, promotes active viewing and integrates the video with other areas of the language curriculum". As teachers are inclined to use multimedia input due to its "affective attractiveness for learners", they must first make a conscious choice concerning which multisensory input is best suited to facilitate language learning in the L2 teaching sphere (Vandergrift & Goh 2012: 224). Depending on L2 teachers' choice (and use) of multimedia input, students' overall language learning and listening proficiency will either be hampered or supported. Due to the vast variety of multimedia material accessible and available online, teachers will oftentimes have to face the challenging task of selecting suitable material in terms of "content, language, culture-related appropriateness, complexity, length, and learners' interests and needs" (Zhyrun 2016: 351). Thus, it appears that for an L2 teacher the most important aspect of any L2 listening lesson that uses multimedia sources for language teaching purposes, is that pre-, while- and post-listening phases must prepare students for what they will hear and see; play, replay the sequence(s) as often as required and work on corresponding tasks; and react to the video practice language features through discussions, role-plays, debates, etc. (cf. Stempleski 2002: 367; Zhyrun 2016: 356f). Besides that, depending on the overall L2 listening goal of a lesson, a teacher must decide whether the video input or the audio input should be ascribed more attention, as specifically for less proficient L2 listeners the use of visual and auditory input "may be too demanding for working memory or too distracting" (Vandergrift & Goh 2012: 234;

---

[23] Chen et al. (2014: 54) state that "[s]tudents can remember 15% of all information by listening, 25% by watching [and] up to 84% by the combination of listening and watching".

cf. also Stempleski 2002: 365). However, due to its versatile nature, multimedia input lends itself perfectly for numerous different purposes. That is, by retaining control over the video and listening input, teachers can use multimedia material "for its own sake, for comprehension of the spoken language, as a language model, to understand cultural issues, as a stimulus or input for further activities, or as a moving picture book" (Oddone 2011: 105).

3.7 Theoretical Implications – Testing Students' Listening Skills

Like any other language skill, students' listening skill should be tested to provide them with valuable information concerning their respective "performance and achievements in the learning process", including the identification of strengths and weaknesses (Rapi & Miconi 2014: 156f). It is through the testing and assessing of respective skills that students, parents and teachers alike are provided with "feedback on learner progress in", for example, listening development (Vandergrift & Goh 2012: 240). In contrast to testing observable productive skills like speaking and writing, testing L2 students' listening proficiency is much more complex. In fact, Brindley (1997: 65) and Rost (2002: 205) state that as listening comprehension is an "invisible cognitive operation", which is not "readily observable by objective measures", it is quite "difficult to describe and hence to asses".

Depending on the purpose of testing and assessing of students' L2 listening skills, teachers will have to choose from a variety of different "informal and formal [testing] methods" (Vandergrift & Goh 2012: 241). In general, three main types of tests used in the L2 teaching classroom, (i.e. achievement, diagnostic and proficiency tests) can be identified that each have a different outcome and effect for L2 students. Achievement tests, as defined by Buck (2001: 96), test what students have learned over a pre-defined period of time, and are "commonly used to provide grades, give credit for course completion, or to determine whether students are ready to proceed to the next level of instruction" (cf. Wilson 2008: 136). Results obtained on this test type further provide L2 teachers with crucial information that can be used to improve language programs and to make appropriate decisions on language teaching in general (Rapi & Miconi 2014: 157). Similar to that, diagnostic tests aim to identify students' strengths and deficiencies in a respective language (cf. Buck 2001: 97; Anckar 2011: 27). Although it appears to be rather easy to identify learners' strengths and weaknesses, Buck (2001: 97) argues that currently, there are "few diagnostic tests of listening,

largely because [it is still] not fully [understood] what the important sub-skills of listening are". Carefully defining listening sub-skills and the aims of a L2 listening test, thus, becomes a necessity to arrive at a general understanding of students' listening ability (cf. ibid.). The most important test type – specifically, as concerns this thesis – is termed 'proficiency test' and is commonly used for selection purposes, as well as for measuring L2 students' general language abilities (cf. Wilson 2008: 136; Rapi & Miconi 2014: 157). In this respect, L2 listening usually comprises a large part of general language proficiency tests, since "45 percent of our total time communicating is spent listening", which implies that this skill is ascribed tremendous importance within individuals' overall language ability (Buck 2001: 95). Typically, this test type is constructed by "large organisations and [is] available at regular intervals in a variety of locations" (Buck 2001: 97). Common testing programs that utilize this test type are PISA, standardized A-level examinations, or other standardized tests, such as the "TOEFL, FCE [and] IELTS" (Rapi & Miconi 2014: 157). Regarding the use of proficiency tests for selection purposes, this test type is often criticized in terms of lacking fairness. This is due to the fact that they merely take students' test scores into consideration when deciding whether they are accepted into a "particular program of instruction" (ibid.). However, when used in the L2 classroom context, proficiency tests provide L2 teachers with valuable information on students' language abilities, which can further be used to compare test scores and be made useful to visualize students' improvements over a pre-defined period of time (cf. ibid.).

Having provided a general introduction (including factors that may exert influence on L2 students' test performance) to testing L2 students' listening ability, the following subsections will offer information on test usefulness as well as on two distinct task types and their respective item formats. This information will prove to be relevant for the empirical part of this thesis, as the pre- and post-test constructed to measure L2 students' development of listening skills through the implementation of CLIL methodology in a technology subject was devised upon the following theoretical principles, specifically brought forward by Buck (2001).

3.7.1 Test Usefulness

In general, Bachman and Palmer (1996: 18-35, in Anckar 2011: 68) define test usefulness as a concept that includes six qualities that – in interrelation – render a test applicable. These qualities are described as reliability, construct validity, authenticity, interactiveness, impact and practicality (cf. ibid.). Although these qualities appear to be independent variables, it must be clarified that they are highly interdependent within a distinct test (Rapi & Miconi 2014: 158). Thus, as claimed by Rapi and Miconi (ibid.), "efforts to maximize them should aim towards maximizing them all, not once at the expense of the other". As it is out of scope of this thesis to provide a holistic description of the six qualities of test usefulness, this section will focus on the most important qualities, namely reliability, construct validity and practicality [24].

Reliability, according to Buck (2001: 195) and Shi (2015: 1901), is "concerned with how accurately the test measures" and thus, should be relatively "stable and consistent". Consequently, reliable tests should provide "similar results with a similar population under similar conditions" (Vandergrift & Goh 2012: 260). As claimed by Anckar (2011: 70), highly reliable test-scores are "accurate, reproducible and general-izable to other testing occasions and to other similar test instruments". Thus, if L2 teachers aim to arrive at an interpretation and decision by using the scores of a, for example, listening test, the test must be highly reliable (cf. Buck 2001: 195). Moreover, when L2 teachers want to "infer correctly about their students' language ability", they will further have to be aware of possible factors that may threaten a test's reliability (Rapi & Miconi 2014: 159). Threats to reliability include: (1) environmental factors (e.g. noise, temperature, lighting, space), (2) administration procedures (e.g. unclear instructions and an unsuitable time), and (3) characteristics of test items (e.g. length of a test, test difficulty, familiarity of test procedures) (cf. Rapi & Miconi 2014: 159f). In general, it is believed that "[h]igh reliability is a premise of validity" (Shi 2015: 1902; cf. also Buck 2001: 195).

Construct validity refers to the "extent to which the test measures the right construct" (Buck 2001: 195). In other terms, it reports whether a test (and its compo-nents) measures what it intends to measure (cf. Shi 2015: 1902; Wilson 2008: 136).

---

[24] As concerns this thesis, the definitions of reliability, construct validity and practicality are allotted greater importance, as they are the key determinants that may influence the outcomes of the pre- and post-test used in the empirical part of this thesis.

70

Construct validity is of particular importance for any assessment, since "it entails defining the construct, operationalizing the behaviors that need to be assessed and then creating tasks (appropriate text and response items) to elicit these behaviors" (Vandergrift 2007: 203; cf. also Anckar 2011: 69). In order to measure students' language ability, an L2 teacher will have to thoroughly define a construct that measures specific language skills (cf. Rapi & Miconi 2014: 162). In the case of L2 listening tests, Vandergrift and Goh (2012: 256) state that only comprehension ability should be measured, as what a teacher intends to measure is not an L2 students' ability of "hearing, prior knowledge about a topic, [or] other variables such as spelling in dictation, or reading long multiple-choice questions". Achieving construct validity in an L2 listening test is specifically challenging, "given the convert nature of listening" (Vandergrift 2007: 203). Typically, student responses are elicited through other language skills, such as speaking and writing. Thus, errors stemming from the students' abilities in these skills may negatively influence the assessment of their listening ability, since, for example, errors "reflect lack of speaking [or writing] proficiency rather than failure to comprehend" (Wilson 2008: 136). Hence, construct validity can only be achieved if a test-developer has a "sound understanding of the nature of general listening proficiency" (Taylor & Geranpayeh 2011: 91). In this respect, it is advisable to use Buck's (2001: 114) default listening construct, which "represents the core of listening ability and is sufficiently flexible to fit most contexts [as well as] allows listeners to demonstrate their comprehension ability" (Vandergrift & Goh 2012: 256)[25]. In general, as suggested by Taylor and Geranpayeh (2011: 91), "the construct of L2 listening proficiency" involves "the ability to process acoustic (and sometimes visual) input in order to create a mental model or representation which may then serve as the basis for some form of spoken or written response". Although construct validity is described as the most important quality of a language test, it must be born in mind that "there are no absolutely valid tests of human abilities, only tests that have stronger or weaker inferential arguments about what is being tested" (McNamara and Roever 2006, in Rost 2002: 208).

---

[25] Buck's (2001: 114) default listening construct assesses the ability to (1) process extended samples of realistic spoken language, automatically and in real time, (2) understand the linguistic information that is unequivocally included in the text, and (3) make whatever inferences are unambiguously implicated by the content of the passage.

Practicality of a test can be measured by using the following sources: time, human resources and material resources (cf. Anckar 2011: 75f). Depending on how much time, individuals and materials are available for creating and administering a test, it can either be considered practical or impractical (cf. Buck 2001: 196). Tests that are constructed by large testing institutions are more likely to be of a higher standard than those created by individual teachers (cf. ibid.). However, in general, professional test-developers and individual teachers alike, must make sure that "there are sufficient resources available to make a test of the right quality", for a test must be practical for the specific situation in which it will be used (ibid.).

3.7.2   Task Types and Item Formats

The following lines will provide a general overview on task (or response) types used in assessing students' L2 listening ability as well as deal with specific item formats. Due to this thesis' rather limited scope, this section will deal with only two distinct item formats, namely multiple-choice items and gap-filling items[26]. In this respect, it is not to be understood that the selected item formats represent the most important item formats, but much rather, were chosen due to their importance for the pre- and post-test constructed for the empirical part of this thesis.

Typically, a test incorporates various task types to operationalize the construct. Depending on how many task types are used in a single test, it may be the case that "each task type [will] only operationalise part of the construct" (Buck 2001: 116). Nevertheless, the tasks used must "represent the whole construct" to achieve construct validity and measure the type of language ability intended to be measured (ibid.). In general, two broad categories of task types can be identified. The first category is defined as multiple-choice, selected response or fixed-response, and the second category is termed free or constructed response (cf. Shi 2015:1903). Task types that elicit responses in a fixed manner usually require learners to "select the answer from several alternatives" that are pre-defined, whereas task types that elicit responses in a free manner require students to "produce an oral or written response" (ibid.). As concerns listening comprehension tests, test items – regardless of the task or response type chosen – must be carefully constructed to elicit the type of student

---

[26] Although the term "multiple-choice" refers to tasks in which only one option can be correct, it will be used interchangeably throughout this thesis with the term "multiple-option", which is the correct term when referring to tasks in which more than one option can be correct.

responses necessary for teachers to be able to infer and interpret whether the student has mastered specific listening comprehension skills (cf. Buck 2001: 61).

Holistically, three approaches to language testing can be identified. These are the discrete-point, integrative and communicative approaches which include a myriad of different task types and test items (cf. Buck 2001: 61f). For the purposes of this thesis, the following lines will deal with discrete-point and integrative approaches to testing listening, as the former brings forth theoretical notions about multiple-choice task types and the latter highlights characteristics of gap-gilling tasks[27].

The discrete-point approach originated from the audio-lingual method and was commonly used in the 1950s (cf. Ableeva 2008: 5; Flowerdew & Miller 2005: 198). This approach was heavily influenced by structuralism and behaviorism and emphasized the "identification of isolated linguistic elements" (Ableeva 2008: 5; cf. also Buck 2001: 62). Back then, it was strongly believed among researchers that listening comprehension is confined to the "process of recognising the sounds of the language" (Buck 2001: 62; cf. also Flowerdew & Miller 2005: 11). Consequently, when a discrete-point approach was used to test, for example, students' listening ability, it required an oral presentation of messages in a respective language, upon which teachers could check whether students were able to "understand the complete utterance or crucial parts of it" (Lado 1961: 208, in Buck 2001: 62). Typically, this approach to language testing uses selected-response task types (e.g. multiple-choice and true/false tasks), which include phonemic discrimination tasks, paraphrase recognition and response evaluation (cf. Buck 2001: 63; Ableeva 2008: 5; Flowerdew & Miller 2005: 198). In this respect, multiple-choice (MC) task items, being closely associated with the discrete-point approach, have undergone a tremendous change. Whilst under the influence of the discrete-point approach, MC items usually tested students upon their knowledge to "identify […] separate bits, or elements, of language" (Buck 2001: 62f). Nowadays, however, they "focus more on overall comprehension and […] inference" (ibid.). MC tasks are widely used to test students' language abilities, as they are objective, economical, highly reliable and rather easy to score (cf. Shi 2015: 1903; Anckar 2011: 78). In addition, by using MC tasks, tests can contain more test items and students are believed to need less time to complete items as well as are not distracted during the

---

[27] These specific task types were chosen, as they were used for the listening proficiency tests constructed for the empirical part of this thesis.

actual listening phase (cf. Wilson 2008: 137). Nevertheless, when choosing to use MC tasks, a test-developer or teacher will have to keep the following weaknesses of the respective response type in mind: (1) MC tests may merely test students' recognition of linguistic bits, (2) test-takers may engage in guessing strategies (which may have an effect on test scores and a teachers' interpretation of the same), (3) this response type may facilitate cheating, and (4) it is quite difficult and time-consuming to construct 'good' MC items (cf. Anckar 2011: 78; Buck 2001: 142f; Shi 2015: 1903). Thus, it is of utmost importance to carefully construct MC items that incorporate three to five options (which are not related to students' prior knowledge), and distractors (i.e. wrong options) that are able to discriminate between lower-ability and higher-ability students (cf. Anckar 2011: 100; Wilson 2008: 137; Mead & Rubin 1985: 3; Buck 2001: 142). As concerns L2 listening comprehension tests and the use of MC task items, Mead and Rubin (1985: 3) state that these items should "focus on the most important aspects of a message", rather than on details. Buck (2001: 146) established a list that can be used by test-developers and L2 teachers, who wish to test L2 students' listening comprehension skills by the use of MC tests. The listening sub-skills that can be tested through this response type include: "understanding at the most explicit level, […] combining information from different parts of the text, making pragmatic inferences, understanding implicit meanings, […] summarising and synthesising extensive sections of [a] test" (Buck 2001: 146).

The theoretical concept of the integrative approach to testing students' language skills was established in the 1970s (cf. Ableeva 2008: 6). In contrast to the discrete-point approach, the integrative approach "puts the emphasis on assessing the processing of language as opposed to assessing knowledge about the elements of a language" (Buck 2001: 67; cf. also Flowerdew & Miller 2005: 201). Applied to test students' listening comprehension, Ableeva (2008: 6) argues that this approach "builds on the assumption that more than one element of listening should be assessed at a time". As stated by Flowerdew and Miller (2005: 201), the most common task types used within the integrative approach are "gap-filling exercises, dictation, sentence repetition activities, statement evaluation, and translation". As concerns gap-filling tasks, Ableeva (2008: 7) claims that this response type has been "widely used in listening comprehension instruction". Usually, L2 students are given a transcript of a spoken text in which various words (at best, content words) were deleted (cf. Buck

2001: 70). After listening to a passage, L2 students are asked to fill in the blanks based upon what they have heard (cf. ibid.). The weakness in testing students' L2 listening comprehension by using this task type, is that "learners tend to listen only for missing parts and/or complete the blanks in the text without fully understanding the text" (Ableeva 2008: 8). Consequently, L2 teachers are well-advised to use gap-filling tasks on summaries, as these are considered to be reliable, contain good construct validity and render grading an objective process (cf. Buck 2001: 71f). This alteration, as argued by Buck (2001: 71f), requires L2 students to understand a message to fill in blanks. Moreover, just like with MC tasks, gap-filling tasks are easy to score, as teachers will merely have to count the correctly filled blanks (cf. ibid.). However, when creating gap-filling tasks (on summaries) a teacher must make sure that what the gap-filling task intends to measure is consistent with the test construct (cf. Buck 2001: 73). Typically, gap-filling tasks on summaries are used to test L2 students' "general linguistic knowledge, discourse knowledge or even inferencing depending on the nature of the information inserted" (ibid.).

4 The Empirical Research

The present section will provide an insight into the empirical research conducted for this thesis. Based on the preceding theoretical sections of this thesis, the empirical research was constructed and conducted with the aim of identifying whether CLIL education in a third grade of an Austrian technical college has a significant impact on students' listening skills in English. First, this section will describe the research aims and questions, the research context [including the school, teachers and students (i.e. the sample used for research purposes)] and research procedure (4.1 – 4.3). Subsequently, the methodological approach selected to analyze the data gathered will be discussed (4.4). In this subsection, the test material (pre- and post-test, including the test construct) and the student survey will be discussed in relation to theoretical concepts discussed prior.

4.1 Research Aims & Questions

The primary aim of this thesis is to find out whether CLIL education in a technical subject, with English as the medium of instruction, has a positive impact on HTL students' listening skills in English. Therefore, a pre-test and post-test as well as student survey was constructed and subsequently administered in three third-grade classes of an Austrian technical college (HTL) with a focus on information technology. Selecting third-graders appeared to be plausible, as in HTLs CLIL education is usually offered at this educational level. In addition, it was presumed that students have received a comparable amount of EFL lessons throughout their former educational paths and were expected to have reached B1 level of listening proficiency prior to administration of the pre- and post-test (see CEFR; Pre-Test – Test Construct & Test9.3.1; 9.3.2). In order to be able to gather quantitative as well as qualitative data for this thesis, and hence, provide answers for the research questions stated below, it was essential to allocate students to either the CLIL group or control group (i.e. non-CLIL group). Whereas the control group participated in the pre-test and post-test, the CLIL group participated in both, the pre-test and post-test as well as student survey. The survey was only handed to the CLIL group, since this group of students was able to form their respective subjective opinions on CLIL education during the research period, whereas the non-CLIL group did not yet receive any form of CLIL education.

Altogether, the empirical research shall provide answers to the following research questions, which are divided into main-questions and sub-questions:

1. *Does CLIL education in technical subjects lead to an improvement of students' listening skills in English?*
   a. Is there a difference between students' listening proficiency in English after two months of CLIL education in a technical subject?
   b. Is there a difference between the students' listening proficiency in English without having received CLIL education in a technical subject?
2. *Does CLIL students' development of listening skills significantly differ from non-CLIL students' development of listening skills after two months of CLIL education in a technical subject (measured by pre- and post-test mean gain scores)?*
3. *What are HTL students' subjective opinions on CLIL education in technical subjects?*

4.2 Research Context

The following subsections will delineate the research context. That is, information will be provided about the specific school, the technology subject teachers (in charge of either teaching CLIL or traditional subject lessons by using English or German as the medium of instruction), and the students participating in the empirical research of this thesis (i.e. the sample).

4.2.1 The School & Teachers

The empirical research was conducted in an HTL, located in Vienna (Austria). In general terms, the HTL selected contains two broad departments, namely the department for Information Technology (IT) and the department for Mechatronics. Students who attend the school's IT department are further able to choose whether they want to receive education in the study area "network engineering" or "media technology" from the third school year onwards. In both departments (information technology and mechatronics), students receive the opportunity to graduate and subsequently either work in a field of their respective technological interest or enroll at university to pursue further studies. Overall, the HTL selected for the empirical research educates approximately 1060 students and employs around 120 teachers. This school was selected due to its availability and the headmaster's, teachers' and students' consent to participate in this thesis' empirical research. However, before the study was conducted, an approval from the Ministry of Education of Vienna had to be

obtained – which granted the empirical research on December 21st, 2016. The criteria to participate in this study were met, as the school offers obligatory CLIL lessons (i.e. 72 hours per year, as specified in the national curriculum for HTLs) in technical as well as non-technical subjects from third to fifth grade. As regards the thesis' empirical research, three teachers – among which was the representative of CLIL education in this particular HTL – were found, who engage in CLIL education in several technology subjects. For purposes of anonymity, these teachers will be referred to as teacher C1, teacher C2 and teacher NC[28]. Whereas teachers C1 and C2 engaged in the teaching of CLIL lessons (i.e. they used English as a medium of instruction), teacher NC did not (i.e. he taught the control group in the subject by using German as a medium of instruction). The technology subject taught during the research period is termed "media technology", in which one half of three third grades (3A, 3B, 3C) were offered approximately 18 CLIL lessons in two months – whereas the other half of the three third grades received their traditional instructions in German[29]. The amount of CLIL lessons adds up to 18, as the technology subject selected is taught twice a week, as specified in the HTL curriculum for Information Technology (cf. BGBl. II 2011(300)a, Anlage 1.5: 2, "Medientechnik"). The detailed research schedule and test administration procedures will be further dealt with in subsection 4.3.

4.2.2   The Students (The Sample)

The sample of the empirical research consists of 46 third-grade students attending an Austrian HTL and specifically, the school's IT department (classes 3AI, 3BI and 3CI). Since participation was voluntary and it was further required to receive parental written consent for students to be allowed to participate in the empirical research of this thesis, the sample had to be reduced from an initial 90 students to 48 students. Moreover, as two students were absent during the administration of the post-test and student survey, two more students had to be removed from the final sample. Consequently, the final sample consists of 46 students. The sample size should be sufficient, as the tests conducted (i.e. t-tests for the pre- and post-test analysis, as well as student survey

---

[28] The abbreviations C1 and C2 stand for 'CLIL' (teacher 1 and teacher 2) and the abbreviation NC stands for 'Non-CLIL'.

[29] In order to conduct the empirical research, the classes were divided into CLIL and non-CLIL groups. Whereas one half received CLIL education during the research period, the other half did not receive such education. However, in order for students to receive the same amount of education at the end of the academic year the non-CLIL group received CLIL education shortly after the research period.

analysis) do not require a large sample size, as long as the sampling distribution is normal (cf. Field 2009: 329). As concerns the sampling process, the "most common sampling method in educational studies", namely "*convenience sampling*" (i.e. a form of non-probability sampling, frequently used "in small-scale studies"), was chosen (Mujis 2004: 40; cf. also McMillan 1996: 91; Cohen, Manion & Morrison 2007: 113). This form of sampling had to be selected, as the classes examined for the empirical research receive CLIL or non-CLIL education as predetermined by the respective technology subject teachers.

In general, the students selected for the sample are 16 to 17 years old, with five students being female (F) and 41 male (M); the relatively small number of females attending Austrian HTLs is quite common. Whereas the five females in the sample are allocated to only one class (3AI), the males in the sample are spread across the three classes chosen (3AI, 3BI and 3CI). Moreover, 36 students were allocated to the CLIL group, whereas 10 students were allocated to the non-CLIL group (the uneven distribution of students to either the CLIL or non-CLIL group was predetermined by the classes' subject teachers)[30]. Students who were allocated to the CLIL group received CLIL education through teachers C1 and C2, and students who were allocated to the non-CLIL group received their regular content education in German (teacher NC). As the technology subject in which the research was conducted splits classes into halves, two teachers are usually responsible to teach the same content – in the constellation of the empirical research, either in German (non-CLIL) or English (CLIL). The following lines will describe the principles upon which students were allocated to either the CLIL or non-CLIL group:

- 3AI: Teachers C1 (10 students) and NC (5 students)
- 3BI: Teachers C1 & C2 (20 students)
- 3CI: Teachers C1 (6 students) and NC (5 students)

---

[30] Students in the CLIL group are considered as subsample 1, whereas students in the non-CLIL group are considered as subsample 2. This distinction is worthwhile to highlight, as in order to answer the thesis' first and second research question, these two subsamples must be compared.

Table 2 provides an overview of the classes that participated in the empirical research, including the number of students that formed the final sample (divided into the two sub-samples, CLIL and non-CLIL) and the respective teachers:

Table 2: Overview of the CLIL and non-CLIL group (incl. respective class-teachers)

Class	Total No. of Students	Teachers	No. of Students in Group	Student Gender
3AI	15	C1 and NC	10 CLIL, 5 non-CLIL	5 F, 10 M
3BI	20	C1 and C2	20 CLIL	20 M
3CI	11	C1 and NC	6 CLIL, 5 non-CLIL	11 M

Besides choosing a sufficient sample for the empirical research, identification codes had to be created that would uphold participants' anonymity. The identification codes (IDs) were constituted through the following elements:

- First letter of participant's first name (number 1-26)
- First letter of (one of) participant's parents' first name (number 1-26)
- First number of participant's birthdate (1-31)

The numbers used to construct participant's (and their parents') first name (for the identification code) stem from numbering the alphabet (e.g. A = 1, B = 2, C = 3, … X = 24, Y = 25, Z = 26)[31]. To give an example: Vanessa (first name), Michaela (parent's first name), 08.09.1992 (birthdate) would yield the following identification number: 22-13-08. It was crucial for this thesis that participants were enabled to create their own IDs (which had to be written on the upper-left corner of pre- and post-test as well as survey), since the identification codes not only guaranteed for anonymity, but also helped in terms of maintaining consistency in the coding processes, which made data analysis and cross-references between the test scores possible. In addition, students allocated to the control group had to indicate this by writing "CTRL-G" onto their tests, in order to be able to identify the two sub-samples after the data gathering process.

---

[31] Since some of the participants' (or their parents') first names consisted of "Umlaute" (e.g. ö, ü, ä), the letters were simplified (e.g. oe, ue, ae). Students then had to take the transformed letters and chose the respective numbers, as described above.

4.3 Research Procedure

Before the empirical research was conducted, the Ministry of Education of Vienna had to be contacted in order to obtain their approval that would grant authorization to follow the research procedure as described in the following lines. As soon as their written approval (including parents', headmaster's and technology subject teachers' written and oral permission) was obtained (December 21st, 2016), the research material was piloted in a mechatronic class (the second main branch of the school chosen) of the same school. This class was selected, as the students' language proficiency should resemble the language proficiency of the actual sample selected for the empirical research of this thesis and thus, was expected to yield information on "item discriminability, item difficulty and distractors", "reliability, validity and practicability", as well as the time required for students to complete the pre- and post-test and student survey (Cohen, Manion & Morrison 2007: 421; cf. also subsection 3.7). The information obtained was then used to refine the tests and student survey, which were administered on January 30th, 2017 (pre-test) and March 27th, 2017 (post-test and student survey) during regular school hours in the three classes selected. The above described research schedule had to be chosen, as the respective class-teachers predefined that their CLIL teaching sequences would be held from the beginning of February until the end of March. Thus, the data was gathered in approximately six weeks (at the beginning and end of the research period).

The same pre- and post-test were administered for both groups (i.e. CLIL and non-CLIL) to guarantee that the level of difficulty and items constructed did not affect the respective group's test results (cf. Cohen, Manion & Morrison 2007: 432). However, the post-test differed slightly to the pre-test, in that different listening input material and questions (i.e. items) were used, whereas the task types used remained the same for both tests. The use of different input material was a crucial determinant, as learning effects (i.e. students may remember parts of the pre-test and may then automatically improve their performance in a post-test) had to be minimized, since the research period merely amounted to approximately two months (cf. Rasinger 2010: 55). In general, the tests had an approximate duration of twenty minutes, with circa eight minutes provided for listening to the respective input material (depending on the actual length of the two multimedia materials played) and exactly twelve minutes provided for answering the test items (five minutes for the first task type and seven minutes for the

second task type) (cf. Appendix 9.3.1 and 9.3.2). As the students had to be informed about the procedure beforehand, the total time needed for administering the test amounted to approximately 30 to 40 minutes (depending on whether students' questions had to be answered before conducting the tests). The procedure and timeframe remained the same for both tests, with the first multimedia material having been played once, and students having completed the first task and subsequently having played the second multimedia input (once) and students having completed the second task[32]. Throughout the whole test-administration process, students were not allowed to speak with each other. As specified in the pre- and post-test constructs (cf. Appendix 9.3.1 and 9.3.2), students were allowed to take notes, but were not allowed to look at the questions before having viewed and listened to the multimedia material. Consequently, students first listened to the first input material, could take notes and then proceeded to answer the questions of the first task. The second part of each test was then conducted in the same manner.

As regards the student survey, only the CLIL group was asked to complete the survey (i.e. a "pencil-and-paper questionnaire"), since the questions constructed primarily sought to gather students' respective subjective opinions of CLIL education in HTLs – paramount to answer the third research question (Dörinyei 2003: 6; cf. also subsection 4.1). The student survey was conducted through "self-administration in the presence of the researcher" (Cohen, Manion & Morrison 2007: 344) and "group administration" (Dörnyei 2003: 82). These administration forms were chosen, as "self-administration in the presence of the researcher" is described to "[ensure] a good response rate" and guarantees "that all the questions are completed […] and filled in correctly", since researchers can check whether all questions are answered or can answer clarification questions (Cohen, Manion & Morrison 2007: 344). Moreover, "group administration" was selected, since the students asked to complete the questionnaires were already assembled in their respective classes (Dörnyei 2003: 82). By using this predetermined setting, it was possible to save time, reach a "response rate of nearly 100%" and gather individual survey data simultaneously (Dörnyei 2003: 82; cf. also Cohen, Manion & Morrison 2007: 344). The questions on the survey were

---

[32] The test construct will be further discussed in subsection 4.4.1. Both the pre- and post-test as well as the underlying theoretical principles (test constructs and tasks) can be found in the appendix (subsection 9.3.2 and 9.3.2).

constructed in German (with students being allowed to answer in both English and German) in order to prevent misunderstandings on behalf of the students (cf. Statistics Canada 2010: 57). Although the students were given an hour to complete the questionnaire, most students answered the questions in approximately twenty minutes. The remaining 40 minutes were then used to interactively reflect upon and discuss students' experiences and opinions concerning CLIL education in HTLs.

4.4 Analyzing the Data – Methodology & Research Material

The present subsection will discuss the test constructs (pre- and post-test) as well as the construct of the student survey by connecting them to the respective theory upon which they were devised. In a second step, the analysis procedures (i.e. statistical tests and qualitative analysis), as relevant for section 5, will be described, since these function as preliminary explanations for the proper analysis of the data gathered.

4.4.1 Test Construct & Quantitative Research – Pre- & Post-Test

This subsection will discuss the pre- and post-test construct from a theoretical angle as well as describe the experimental design (and statistical tests) selected to analyze the quantitative data gathered.

Analysis – the Pre- and Post-Test Construct

The pre- and post-test used in the empirical research of this thesis were primarily constructed upon principles brought forward by Buck (2001) and Cohen, Manion and Morrison (2007). As it is out of scope of this research to offer a detailed description of the test construct of the pre- and post-test, the following lines concerning the data collection instrument will aim to provide a brief introduction to the principles upon which the tests are based. Since test usefulness and the task types, employed in the respective tests, have already been dealt with in subsection 3.7, these aspects will solely be referred to in the subsequent lines.

In general, the pre- and post-tests devised can be described as 'proficiency tests' (cf. Buck 2001: 96; subsection 3.7). In contrast to standardized tests, which are typically used with a "large and representative sample" and "are often targeted to special, rather than general populations" (e.g. PISA), the tests constructed for this thesis were not "commercially produced tests", but rather "researcher-produced tests" (Buck 2001: 415f). Although it is argued that "researcher-produced tests" are "time-consuming to devise, pilot, refine and then administer", they offer the benefit of

being "tailored to the local and institutional context very tightly" (ibid: 417). Consequently, it can be argued that if carefully constructed, the "purposes, objectives and content" of such tests will be "deliberately fitted to the *specific* needs of the researcher in a specific, given context" (ibid.)[33].

Before the pre- and post-test of this thesis have been constructed, decisions concerning the purpose, type, objectives, content, item analysis (item discriminability and item difficulty), format and scoring of the test had to be considered and made. As concerns the purpose and type, the pre- and post-test were primarily constructed to be able to measure students' achievement and listening proficiency (in English) over the course of two months. Defining the purpose of the tests was of paramount importance, since it had to be ensured that the examinations test "what [they are] supposed to be testing" (Cohen, Manion & Morrison 2007: 418). The objectives of the tests are closely connected to the technology subject's course topics (and HTL curriculum) as taught during the data collection period, as well as CEFR specifications that identify a B1 level of listening proficiency (applicable to the sample selected for this thesis' study). Thus, the entire test constructs are linked to the technology subject's topics, HTL curriculum, and EFL listening-specific CEFR scales. Holistically, the test constructs have been devised upon Buck's (2001: 113f) default listening construct (cf. subsection 3.7).

The content of a test refers to "what is being tested and what the test items are" (Cohen, Manion & Morrison 2007: 418). In the case of this thesis, the tests' contents resemble the content as taught in the specific technology subject[34]. This is crucial to highlight, since specific target language terminology (in English) of the technology subject in question will have to be taught before students can be tested upon their understanding and listening comprehension in English. Moreover, the post-test content was different to the pre-test content, as learning effects had to be minimized in order to receive reliable and valid test scores (cf. Rasinger 2010: 55). Both, the pre- and post-tests consist of twenty items (i.e. ten items per task, as the tests consist of two tasks), with each item measuring a different part of the test construct (this is specified

---

[33] The framework (i.e. document) selected to devise the pre- and post-test construct was taken from the course 'Testing and Assessment', which I attended during my studies at the Department of English (University of Vienna) in 2016. The framework of the test construct used was designed by the respective course's lecturers, whereas the content was carefully constructed by myself.

[34] In this instance, it is vital to stress that the content of the tests merely resemble the actual content taught in class, as by using the same content in tests, it would have been rendered impossible to analyze the effect that CLIL education may have on students' listening skills in English.

in the test constructs, cf. Appendix 9.3.1 and 9.3.2). As the items were tested in a pilot study, they have been checked upon item discriminability and item difficulty (i.e. whether they discriminate between lower-ability and higher-ability students) (cf. Buck 2001: 142; Cohen, Manion & Morrison 2007: 418). The listening input utilized was multimedia input and was selected upon the notion that multimedia input will not only increase students' understanding of aural input, but also make it possible to analyze listening skills that go beyond aural perception – i.e. resemble more authentic listening events (cf. Vandergrift & Goh 2012: 219)[35]. The listening input was further selected upon students' presumed listening proficiency (B1, CEFR), as specified in the pre- and post-test constructs. The tasks devised (multiple-choice and gap-filling on summaries) are the same in the pre- and post-test, in order to receive comparable and reliable scores. Reasons for choosing the respective task types can be found in subsection 3.7.2, in which both task types were thoroughly discussed. As concerns the format, instructions were placed on the tests and additional oral clarification was provided before the actual test administration took place (cf. Cohen, Manion & Morrison 2007: 418). Since scoring of test items must be planned before administering the test (due to weighting of different test items and ensure consistency), the test construct includes a rubric that specifies the distinct scoring criteria (cf. ibid: 430). The scoring criteria devised are the same for both the pre- and post-test and can be found in the test construct as provided in the appendix (cf. 9.3.1; 9.3.2). In general, students are able to score a total of twenty points (i.e. one point per item) in both tests, with partial-credit scoring being employed for both task types. Moreover, it must be emphasized that the CLIL and non-CLIL group received the same pre- and post-tests, in order to guarantee that the same listening abilities were measured and to ensure that neither group received an easier or more difficult test that would deteriorate the test outcomes (cf. Cohen, Manion & Morrison 2007: 432).

---

[35] See subsection 3.6 for detailed information concerning the use of multimedia input in EFL, ESL and CLIL classrooms.

Data Analysis – Pre-test & Post-test

As described above, both the pre- and post-test consist of twenty test items that will be analyzed quantitatively. A quantitative analysis was selected, as "[q]uantitative data can be analysed by using statistical methods […] which allow [a researcher] to work with numerical data" (Rasinger 2010: 52). As the primary objective of this thesis is to identify whether CLIL education leads to an improvement of students' listening ability, the scores obtained through the pre- and post-test were used as countable variables that can change (cf. Levon 2010: 68f). To be more precise, 'descriptive' and 'inferential' statistics of the CLIL and non-CLIL students' pre- and post-test will be analyzed. These statistics will further assist in identifying whether a correlation between CLIL education and the improvement of listening skills in English exists (cf. Levon 2010: 70). The data obtained will be analyzed by using the "pretest-post-test control and experimental group design", which is a form of true experimental designs commonly used within educational research (Cohen, Manion & Morrison 2007: 276; cf. also Dugard & Todman 1995: 181; Dimitrov & Rumrill 2003: 159). This research design was chosen, since it allows researchers to compare two test-groups with each other and is able to highlight changes that may stem from experimental treatments or interventions that only one test-group (i.e. the experimental group) receives (cf. Dimitrov & Rumrill 2003: 159; Rasinger 2010: 59)[36]. Consequently, first a pre-test will be conducted; then one group will receive/undergo a treatment or intervention (i.e. in this case, will receive CLIL education) whereas the other group will not; and finally, a post-test will be administered (cf. Mujis 2004: 18). Table 3 illustrates the sequence of the experimental design selected:

Table 3: Illustration of the Pre-test Post-Test Control and Experimental Group Design (Mujis 2004: 18).

	1. Pre-test	2. Treatment	3. Post-test
Experimental group	X	X	X
Control group	X		X

---

[36] In the case of this thesis, the CLIL group (experimental group) received CLIL education (intervention), whereas the non-CLIL group (i.e. control group) did not receive this kind of education. Over a course of two months, the pre- and post-test control and experimental group design should yield information upon whether significant differences between both groups' listening proficiencies can be identified.

After the tests are conducted and data is gathered, "statistical analyses [can be] carried out to see whether the treatment [or intervention] has had an effect" (ibid.). The statistical analyses will be carried out with the help of a statistical software, namely SPSS (Statistical Package for the Social Sciences) 24. In order to statistically analyze the data gathered, the data must first be typed into the SPSS program. Thus, variables, such as students' identification numbers, their respective group, and their pre- and post-test scores are created in SPSS. Once the data is typed into the statistics software, the pre- and post-test scores will have to be checked as to whether they are normally distributed. To do so, normality plots (Shapiro-Wilk test and Normal Q-Q Plot) had to be examined. Since both the pre- and post-test scores are normally distributed, independent and dependent t-tests (i.e. parametric tests[37]) can be conducted to receive answers for the thesis' main research questions 1 and 2 (cf. subsection 4.1). In general, t-tests are described to "examine the means and standard deviations of two sample populations in order to determine whether the populations are significantly different from one another" (Levon 2010: 75). To find answers to the first research question and its sub-questions (a, b), dependent-t tests will be carried out. As concerns the second research question (and its sub-questions), which is the main research question of this thesis, an independent-samples t-test will be conducted. The selection of the respective statistical tests is based on Field's (2009: 325) theoretical description that:

1. Dependent t-tests are "used when there are two experimental conditions and the same participants took part in both conditions" (also termed within-group analysis)
2. Independent t-tests are "used when there are two experimental conditions and different participants were assigned to each condition" (also termed between-group analysis)

Consequently, dependent t-tests will provide information on whether the respective groups (CLIL or non-CLIL) improved their listening skills in English (research question 1, a and b), and subsequently the outcomes of independent t-tests will provide an answer concerning whether CLIL education led to an improvement of students' listening skills in English by contrasting the mean gain scores of the respective groups (research question 2, a and b). As emphasized, mean gain scores will have to be used

---

[37] Parametric tests, according to Cohen, Manion and Morrison (2007: 503), are used when statistical data is normally distributed, i.e. when a "normal, Gaussian curve of distribution" can be detected within data.

when conducting independent t-tests, as they illustrate a "measurement of change" (Dimitrov & Rumrill 2003: 161). In general, mean gain scores show the difference between students' pre- and post-test scores and are calculated by "subtracting pretest from posttest scores" (Vogt et al. 2014: 86; cf. also Mujis 2004: 185). Mean gain scores suggest that "if the treatment had an effect, [one] would predict a substantial change for the experimental or treatment group" (Vogt et al. 2014: 86).

4.4.2 Survey Construct & Multi-Method Research – Student Survey

The subsequent lines will first describe the principles upon which the student survey was constructed, before dealing with the specific quantitative and qualitative methods that will be used for analysis purposes in subsection 5.2.

Analysis – the Student Survey Construct

The survey devised is a "self-administered pencil-and-paper questionnaire" that consists of twelve exclusively "[a]ttitudinal questions", which seek to elicit participants "*attitudes, opinions, beliefs, interests,* and *values*" on a specific topic (Dörnyei 2003: 6ff). Although the student survey does not address the primary research questions (cf. 4.1, research question 1 and 2), its main goal is to elicit students' subjective opinions concerning CLIL education in technology subjects (in an Austrian technical college) as well as analyze whether they believe that CLIL education – specifically during the research period – can be defined as the driving factor that helped them to improve their listening skills in English (cf. 4.1, research question 3). In order to receive useful and meaningful questionnaire results, survey questions must adhere to the concepts of reliability and validity (Thayer-Hart et al. 2010: 6)[38]. Thus, when constructing survey questions, researchers must ensure that the formulation of questions will elicit responses that are both reliable and valid. This is done best, if the general features of a survey (e.g. length, layout, language used) and the main parts of the survey (e.g. instructions and survey items) are carefully devised (cf. Dörnyei 2003: 17). As the above stressed features guided the construction of the student survey utilized for the empirical research of this thesis, these will be dealt with in greater detail in the following paragraphs.

---

[38] Reliability refers to "*the extent to which repeatedly measuring the same property produces the same result*", whereas validity refers to "*the extent to which a survey question measures the property it is supposed to measure*" (Thayer-Hart et al. 2010: 6; cf. subsection 3.7.1).

The length of the student survey adheres to the theoretical notion that "self-enumerated questionnaires" should incorporate "less complex and shorter" questions that further take under consideration the importance of the topic for the respondents (Statistics Canada 2010: 56; cf. also Dörnyei 2003: 18). As argued in literature, questionnaires should not exceed four to six pages and should not take longer than half an hour to answer in order to reduce "respondent fatigue" (Statistics Canada 2010: 76; cf. also Dörnyei 2003: 18). Therefore, the student survey consists of three pages that "does not tend to exceed the 30-minute completion limit", which is of utmost importance in school settings, in which time allotment to complete a survey may further be restricted, and students' response rate may suffer from too many questions asked (Dörnyei 2003: 18). As concerns the layout of a questionnaire, it is suggested that it should be "clean, simple and consistent" (Thayer-Hart et al. 2010: 11) and thus, "as uncomplicated as possible" (Cohen, Manion & Morrison 2007: 338). The student survey follows this suggestion in that it features different types of items (closed and open questions) per page, clear wording and a simple design, short unambiguous instructions for each item type and uses the same type of font throughout the whole questionnaire to reduce confusion (cf. Thayer-Hart et al. 2010: 11; Cohen, Manion & Morrison 2007: 338). Although students will be asked to write down their identification code on the first page of the questionnaire, it is worthwhile to reassure them (in written and oral form) that the contents of the questionnaire are entirely confidential (cf. Dörnyei 2003: 23). This is important to emphasize, as reassuring students of their "anonymity and non-traceability" (Cohen, Manion & Morrison 2007: 339) – specifically when evaluating courses or educational approaches – will likely lead to receiving "less self-protective and presumably more accurate" answers (Dörnyei 2003: 24). In terms of the language used, the questionnaire was constructed in German – i.e. the first language of the participants. This is due to the fact that in order to receive rich authentic, useful and meaningful responses, the target population must entirely understand what they are being asked (cf. Statistics Canada 2010: 57). This is further crucial to keep in mind when constructing specific questionnaire items, as the wording must be kept simple and preferably in respondents' everyday language to ensure "that all items are appropriate for the population being surveyed", which will ultimately lead to a "higher quality" of questionnaire data (Statistics Canada 2010: 69).

The items of a questionnaire are considered the "central part" of a survey (Dörnyei 2003: 28). In order to receive useful and meaningful responses that answer research questions in a reliable and valid manner, questionnaire items will have to be carefully devised to be considered "good items" (Dörnyei 2003: 50). Dörnyei's (2003: 52-56), seven basic rules of writing good questionnaire items were used for the construction of good questionnaire items. These rules read as follows: items (1) should be "short and simple", (2) the language used must be natural, interesting and meaningful to the potential respondents, (3) "ambiguous or loaded words and sentences" and (4) "negative constructions" should be avoided, as they unnecessarily confuse respondents, (5) "double-barreled questions" that "ask two (or more) questions in one while expecting a single answer" should also be avoided, as a researcher may not be able to infer which part of the question was answered by respondents, (6) items should be constructed that will not "be answered the same way by everybody" and (7) a questionnaire should "[i]nclude both positively and negatively worded items" (i.e. focus "on negative rather than positive aspects of the target") (ibid.). Following these rules, it had to be considered which item types will elicit the kind of responses crucial to answer the research questions postulated. According to Thayer-Hart et al. (2010: 9), two types of questionnaire items exist, namely closed questions, which "provide a list of acceptable answers", and open-ended questions, which "allow respondents to answer in their own words". Although closed questions are described as "less time-consuming to interpret and analyze", open-ended questions offer the benefits of collecting "increased amounts of reflection", "unanticipated answers" and an accurate account of "respondent's views" (ibid.). Since the questionnaire sought to gather data on students' subjective opinions on CLIL education in an Austrian HTL (including their opinions on whether this educational approach will lead to a significant improvement of their respective listening skills in English), eight closed questions and four open-ended questions were devised.

The closed questions constructed adhere to the concept of "rating scales", which, as argued by Dörnyei (2003: 36) "are undoubtedly the most popular items in research questionnaires", since "they can be used for evaluating almost anything". Items 1 – 4 use a "scaling technique [called] *Likert scale*" and "consist of a series of statements", in which respondents can indicate their degree of their agreement with a distinct question through ticking one of five pre-defined response options (strongly agree,

agree, neither agree nor disagree, disagree, and strongly disagree) (Dörnyei 2003: 36f; cf. also Appendix, subsection 9.3.4). Questionnaire items 6 – 8 feature an altered form of a Likert scale, commonly called three-point scale, in that participants are provided with three response options (yes, partly, and no) (cf. ibid.). Both item types will produce "numerical data", with which it will become possible "to determine the differences and similarities among items and categories of items", by "using statistical analys[e]s" (Brown 2009: 202).

The questionnaire further contains four open-ended questions (items 9 – 12). More specifically, the questions devised "require responses that may be a few phrases or sentences long" and thus, can be termed "**short-answer items**" (Brown 2009: 203). Since the students were asked to describe their experiences with CLIL education in a technical subject during the research period, "[*s*]*pecific open questions*" were constructed that sought to gather "concrete pieces of information" (Dörnyei 2003: 48) and hence, "can usually be answered in one or two lines" (Brown 2009: 203; cf. also Appendix 9.3.3). Open-ended questions were incorporated into the questionnaire, since they "can explore issues that closed-response questions cannot get at" and "offer a far greater richness, [as well as add] more depth and color to the data" (Brown 2009: 204f), since students are asked to provide "honest, personal comment[s]" (Cohen, Manion & Morrison 2007: 330).

Data Analysis – Student Survey
Both closed questions and open-ended questions were constructed for the student survey. Students' responses will be analyzed both quantitatively (closed questions, items 1 – 8) and qualitatively (open-ended questions 9 – 12) by computing descriptive statistics in SPSS as well as analyzing the answers produced by students.

Questionnaire items 1 – 4, as described above, include Likert scales, which offer students' the opportunity to tick one out of five possible options (featured as numbers on the questionnaire), ranging from "strongly agree" (1) to strongly disagree (5) (cf. Appendix 9.3.4). Before the quantitative data can be analyzed by using SPSS, students' answers will have to receive a numerical code. The numerical code is consistent with the numbers featured on the questionnaire. Thus, number 1 will be allocated to "strongly agree", 2 to "agree", 3 to "neutral", 4 to "disagree" and 5 to "strongly disagree". Since the use of a five-point Likert scale may result in "central tendency bias" (i.e. respondents may be "reluctant to rate attributes at the

extremes of the scale" and thus, choose the neutral option provided), the cumulative percentage of strongly agree and agree, as well as disagree and strongly disagree will be used (Smith & Roodt 2003: 64). Utilizing the cumulative percentage of both ends of the five-point Likert scale will allow for a more meaningful report and interpretation of both students' attitudes and opinions.

Questionnaire items 5 – 8 feature an altered form of a Likert scale, namely a three-point scale, in which students are given the opportunity to tick one option out of three (cf. Appendix 9.3.4). The three options offered are "yes", "partly" and "no"; with "yes" receiving the number 1, "partly" receiving number 2 and "no" receiving number 3. As stated, questionnaire items 1 – 8 will produce quantitative data, which shall be analyzed through descriptive statistics, which "do *not* allow drawing any general conclusions that would go beyond the sample" (Dörnyei 2003: 114; cf. also Vogt et al. 2014: 205). This is important to emphasize, as the primary aim of the student survey is to discuss students' respective subjective opinions concerning CLIL education in technical subjects in a specific Austrian HTL, rather than drawing general conclusions, which could be projected onto similar target populations.

Questionnaire items 9 – 12 gather qualitative data by offering students the opportunity to provide answers in their own words (open-ended questionnaire items) (cf. Appendix 9.3.4). To statistically analyze the data collected, students' answers must first be summarized in an "adequate coding frame" (i.e. must be allocated to specific categories) (Dörnyei 2003: 116). In order to allocate students' responses to distinct categories, similarities among their responses must be found. This is best done through writing students' responses into a table, grouping answers that overlap and defining category labels for similar comments (cf. Brown 2009: 211; Cohen, Manion & Morrison 2007: 408). Once categories are identified, the data can be treated as ordinal data, which can subsequently be analyzed in terms of frequency distributions (i.e. descriptive statistics) (cf. Dörnyei 2003: 116; Statistics Canada 2010: 228). The categories constructed for questionnaire items 9 – 12 will be grouped and visualized through bar charts. In general, questionnaire items 9 and 10 consist of four categories, item 11 consists of five categories and item 12 includes six categories.

5 Results

This section will illustrate the results of the pre- and post-test (5.1) as well as the student survey (5.2) both quantitatively and qualitatively. The complete data package (students' scores on the pre- and post-test as well as the students' answers on the student survey) can be found in the Appendix (subsection 9.3.3, 9.3.5).

5.1 Results of the Pre- & Post-Test

The following subsections will report the pre- and post-test results of both the CLIL and non-CLIL group. First, the pre- and post-test results of the CLIL and non-CLIL group will be analyzed separately through the application of dependent t-tests (5.1.1 and 5.1.2), before the test scores of both groups will be analyzed by computing an independent t-test (5.1.3).

5.1.1 Results – CLIL Group

The descriptive statistics are illustrated in Table 4, whereas the inferential statistics (dependent t-test output) are illustrated in Table 5. The descriptive statistics depicted below shows that 36 (= N) CLIL students took both the pre- and post-test. The minimum score reached in the pre-test amounts to 4.58 points, whereas the maximum score amounts to 18.24 points. On average, students of the CLIL group scored 13.50 points (of a maximum of 20 points). The pre-test further shows a standard deviation (SD) of 2.92. The post-test scores of the CLIL group show that the minimum score obtained amounted to 7 and 19 points respectively. On average, students scored 16.03 points on the post-test with an SD of 2.55.

Table 4: Descriptive Statistics - Pre- and Post-Test Results (CLIL Group)

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-Test	36	4.58	18.24	13.50	2.92
Post-Test	36	7.00	19.00	16.03	2.55

Research question 1a aimed to identify whether a difference between students' listening proficiency in English before and after CLIL education can be observed. The result of the dependent t-test shows that the average post-test score of the CLIL group (M = 16.03; SD = 2.92) is significantly higher than the average pre-test score of the CLIL group (M = 13.50; SD = 2.55), $t_{(35)}$ = -5.33, p < 0.001 (cf. Table 5). Hence, the t-test result indicates that the CLIL group's listening proficiency in English significantly improved during the research period (i.e. within two months).

Table 5: Dependent t-test, Pre- & Post-Test Comparison (CLIL Group)

				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean			t	df	Sig. (2-tailed)
				Lower	Upper			
CLIL Group Pre- & Post-Test	-2.52	2.84	0.47	-3.48	-1.56	-5.33	35	0.000

5.1.2 Results – Non-CLIL Group

The descriptive statistics for the non-CLIL group are depicted in Table 6 and the inferential statistics (i.e. the dependent t-test output) are illustrated in Table 7. The descriptive statistics show that 10 (= N) CLIL students took both the pre- and post-test. The minimum scores of the pre- and post-test amount to 7.32 and 13.25 respectively, whereas the maximum points of the pre- and post-test amount to 16.66 and 19.50. On average, the non-CLIL group scored 13.72 points on the pre-test and 17.23 points on the post-test (with a maximum of 20 obtainable points). Moreover, with a SD of 2.53 (pre-test) and 2.03 (post-test), the results can be stated as being representative of the sample.

Table 6: Descriptive Statistics - Pre- and Post-Test Results (non-CLIL Group)

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-Test	10	7.32	16.66	13.72	2.53
Post-Test	10	13.25	19.50	17.23	2.03

Research question 1b sought to identify whether there is a difference between students' listening proficiency in English without having received CLIL education. The result of the dependent t-test shows that the average post-test score of the non-CLIL group (M = 17.23; SD = 2.53) is significantly higher than the average pre-test score of the non-CLIL group (M = 13.72; SD = 2.03), $t_{(9)}$ = -4.98, p < 0.01 (cf. Table 7). Overall, the t-test result shows that the non-CLIL group's listening proficiency in English significantly improved during the research period.

Table 7: Dependent t-test, Pre- & Post-Test Comparison (non-CLIL Group)

| | Paired differences | | | | | | | |
| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | t | df | Sig. (2-tailed) |
				Lower	Upper			
non-CLIL Group Pre- & Post-Test	-3.50	2.22	0.70	-5.09	-1.91	-4.98	9	0.001

5.1.3 Results – CLIL Group vs. Non-CLIL Group

Research question 2 aimed to identify whether a difference between the two sub-samples, CLIL and non-CLIL group, exists. In order to obtain results for the primary research question of this thesis, both groups' mean gain scores must be computed in SPSS (gain score = post-test score – pre-test score). As illustrated in Table 8, the mean gain score of the CLIL group shows an average improvement of M = 2.52 points (SD = 2.83), whereas the mean gain score of the non-CLIL group indicates an average improvement of M = 3.50 points (SD = 2.22). By comparing the groups' mean gain scores, it can be observed that the non-CLIL groups' mean gain score is 1.98 points higher than the CLIL groups mean gain score. A statistical significant difference between the mean gain score of the CLIL group and non-CLIL group cannot be discerned $t_{(44)}$ = -1.00, p > 0.05. The results indicate that CLIL education cannot be identified as the sole determinant that led to the improvement of students' listening skills in English within the research period.

Table 8: Independent t-test, Pre- and Post-Test Comparison (CLIL & non-CLIL Group)

| | Paired differences | | | | | |
	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
CLIL Group Pre- & Post-Test	36	2.52	2.83			
non-CLIL Group Pre- & Post-Test	10	3.50	2.22	-1.00	44	0.32

5.2 Results of the Student Survey

The present subsection will report the findings of the student survey, which was completed by the CLIL group (N = 36). Students' responses will be analyzed both quantitatively (questionnaire items 1 – 8) and qualitatively (questionnaire items 9 – 12) by using SPSS. Descriptive statistics will provide an insight into students' subjective opinions on CLIL education and their perceived improvement concerning their listening skills in English and thus, aim to bring forth answers to research question 3, as posed in subsection 4.1. As it is out of scope of this thesis to discuss every questionnaire item in detail, only the most striking items – in relation to research question 3 – will be reported. However, for the sake of completeness, the quantitative results of questionnaire items 1 – 8 can be found in the Appendix (cf. 9.3.5).

5.2.1 Results of Questionnaire Items 1 – 8

Questionnaire item 1 asked students' whether they would want to receive more CLIL education to improve their language competence in English as well as further their content knowledge in a content subject (cf. Figure 6). While 50% of the CLIL group would welcome more CLIL education in technical subjects, only 19.5% of the students appear to reject this educational approach of teaching both a foreign language and content subject in a dual-focused manner. Out of 36 respondents, 30.6% neither agree nor disagree with the option of receiving more CLIL education.

*N = 36 (Total Response Rate = 100%)[39]
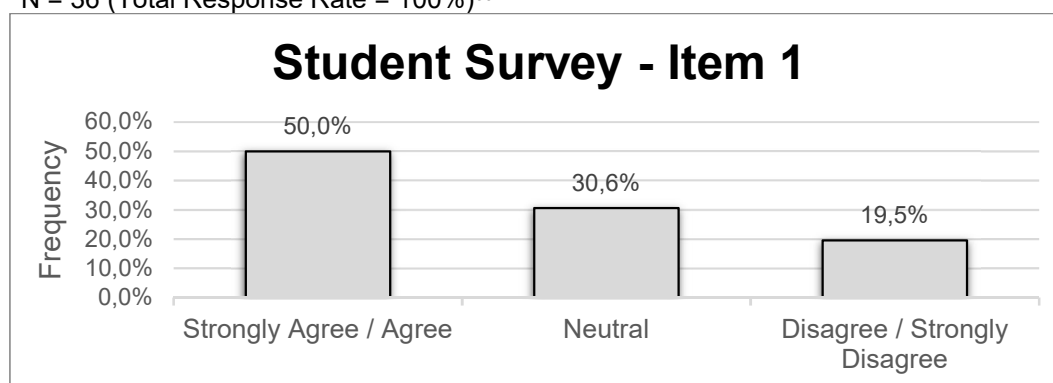
Figure 6: Questionnaire Item No. 1, "I would like to receive more CLIL lessons in technical subjects in order to improve both my language competence in English and further my content knowledge in a content subject".

---

[39] The total percentage may exceed 100%, due to rounding interferences produced by SPSS.

Questionnaire item 3 aimed to elicit responses concerning CLIL education and the – perceived – improvement of students' listening skills. As illustrated in Figure 7, the majority of the CLIL group (41.7% opposed to 22.2%) believes that CLIL education did not substantially assist them in improving their listening skills in English. Overall, 36.1% of the CLIL group neither agree nor disagree that CLIL education helped them to improve their listening skills in English.

*N = 36 (Total Response Rate = 100%)
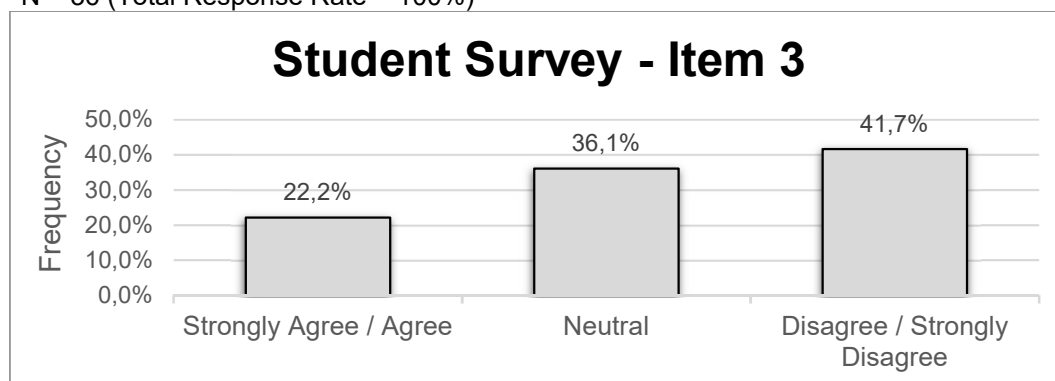
Figure 7: Questionnaire Item No. 3, "CLIL lessons in a technical subject have helped me to improve my listening skills in English".

Questionnaire item 4 sought to answer whether students are more motivated to use a foreign language within CLIL lessons than in traditional EFL lessons. As shown in Figure 8, the responses indicate that half of the CLIL group is not more motivated to use a foreign language during CLIL lessons. In contrast to that, 36.1% of students are more motivated to use a foreign language in CLIL lessons, whereas 16.7% did not state their precise opinion on this question.

*N = 36 (Total Response Rate = 100%)
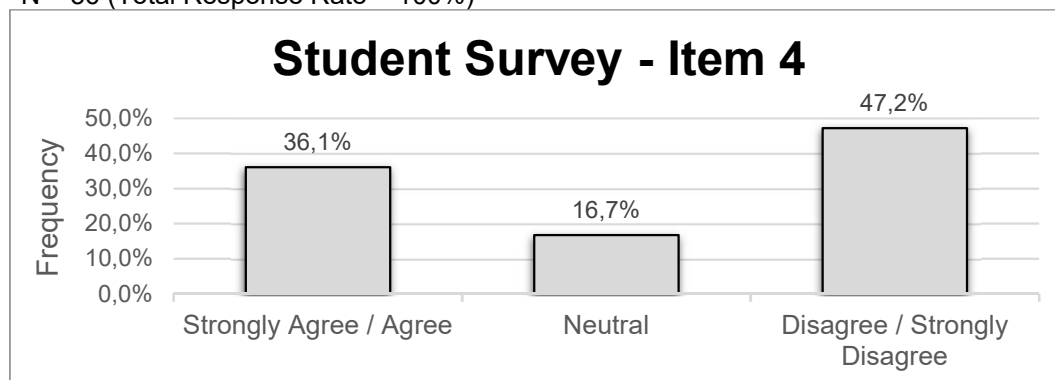
Figure 8: Questionnaire Item No. 4, "I am more motivated to use a foreign language (e.g. English) in CLIL lessons than in traditional foreign language lessons".

Item 5 on the student survey asked students whether they would like to obtain the right of co-determination concerning the technical topics taught in CLIL lessons. Whilst half of the CLIL group chose the option "yes", indicating that they would wish to partake in choosing topics intended to be taught through CLIL, only 5.6% reject this option. However, a rather large number (44.4%) of the CLIL group would want to receive a partial right of co-determination.

*N = 36 (Total Response Rate = 100%)
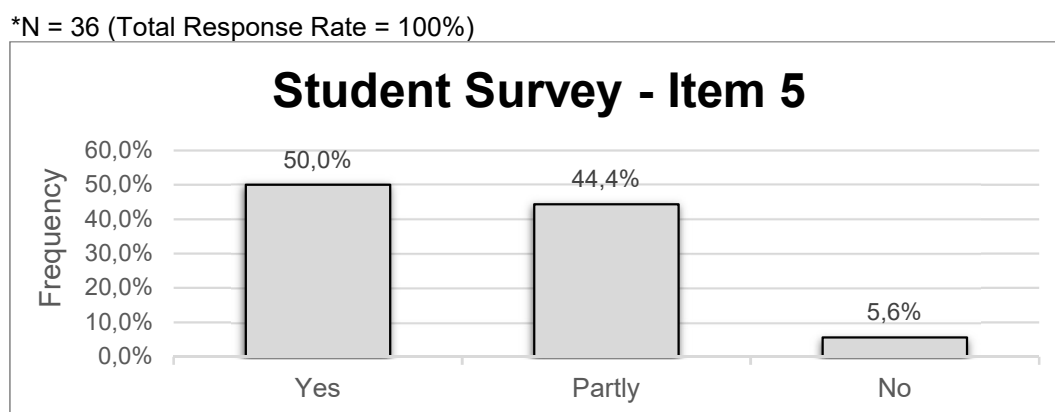
Figure 9: Questionnaire Item No. 5, "Should students receive a right of co-determination in terms of the technical topics taught in CLIL lessons?".

Questionnaire item 7 asked students if they felt that the language level during the received CLIL lessons was appropriate and whether they were able to follow the lessons without having experienced any major difficulties. Figure 10 shows that 91.7% of the CLIL group perceived the language level as appropriate and further indicated that they were able to follow CLIL lessons without having experienced any major difficulties. In contrast to that, a rather low percentage of CLIL students (8.3%), stated that they have faced partial difficulties within CLIL lessons and thus, were not able to entirely follow the lessons. Surprisingly, none of the CLIL students chose the third option, i.e. "no".

*N = 36 (Total Response Rate = 100%)
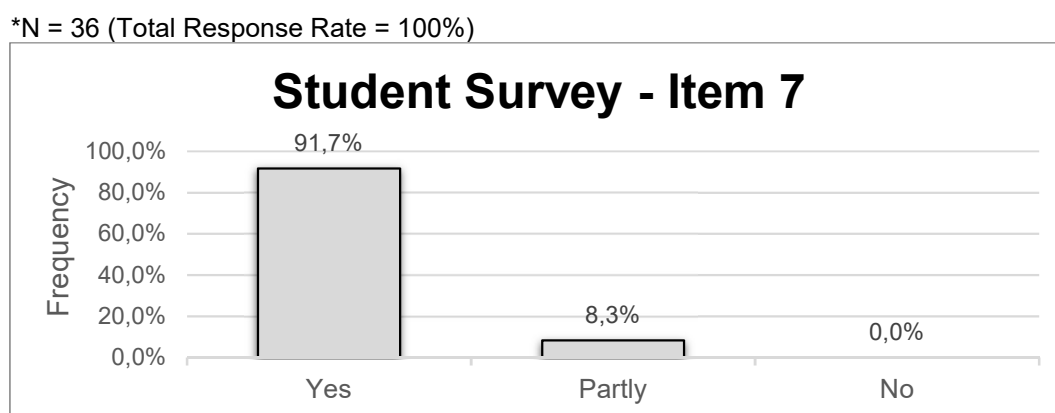
Figure 10: Questionnaire Item No. 7, "The language level during the CLIL lessons of the last two months was appropriate and I was able to follow the lessons without experiencing any major difficulties".

5.2.2   Results of Questionnaire Items 9 – 12

The first open-ended question of the student survey (item 9), asked students to state the positive experiences they have made during CLIL education in a technical subject (cf. Figure 11). The most prominent positive experience, with 58.3%, appears to be that students were able to learn technical terms in English, rather than German. In fact, diverse students stated that CLIL education in a technical subject will help them to learn and retain technical vocabulary, useful for their later (international) occupation. One participant stated the following:

> 'Man verbessert seine Fähigkeiten in fachbezogenem Vokabular viel mehr durch Ausarbeitungen oder Abgaben (z.B. technical terms) (wo im normalen Unterricht sonst nur „normale" Wörter gelernt werden)'.

In contrast to that, 19.4% of the CLIL group stated that they used English more often during CLIL lessons, than they would use it otherwise. Moreover, 13.9% (categorized as "Other"), stated that the CLIL lessons received generated positive experiences as they were able to produce videos by using English (5.6%), whereas other students stated that they did not experience anything positive in the CLIL lessons received (8.3%). Overall, 8.3% did not provide an answer to questionnaire item 9, which results in a total response rate (TRR) of 91.6%.

*N = 36 (Total Response Rate = 91.6%)
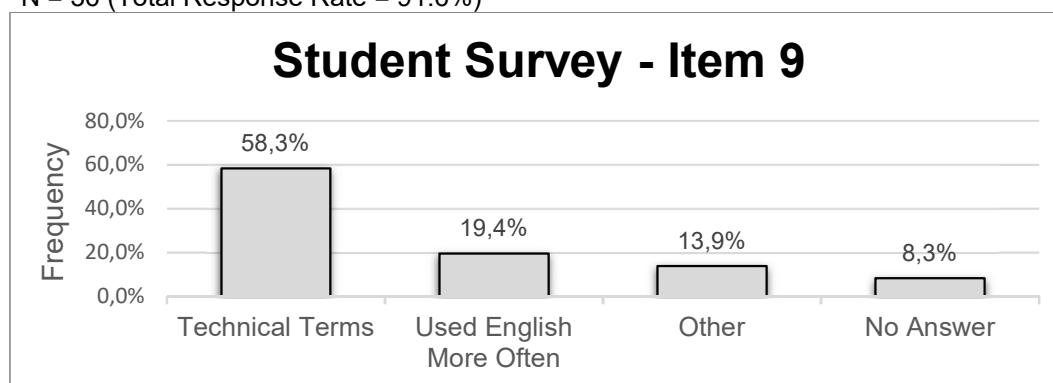
Figure 11: Questionnaire Item No. 9, "I have made the following positive experiences (in terms of foreign language learning) during CLIL education in a technical subject".

99

Questionnaire item 10 asked students to state reasons why they presume that CLIL education (during the research period) helped them to improve their listening skills in English. As apportioned in Figure 12, students believe that their listening skills improved as the exposure to English drastically increased in CLIL lessons (38.9%) and they were obliged to understand diverse individuals whose first language is not English (8.3%). One student wrote:

> 'Da nicht nur Lehrer, sondern auch Schüler, Englisch sprechen im CLIL-Unterricht, und die Kenntnisse und Fähigkeiten variieren, verbessert es das Hörverständnis schon etwas, da man auch lernt Dinge zu verstehen, die nicht perfekt ausgesprochen oder betont werden'.

In contrast to that, 36.1% of the respondents stated that CLIL education did not substantially assist them in improving their listening skills, since they believe that their listening proficiency in English has already been 'good enough' before they have received CLIL education. Since 16.7% did not provide an answer to questionnaire item 10, the TRR amounts to 83.3%.

*N = 36 (Total Response Rate = 83.3%)

Student Survey - Item 10
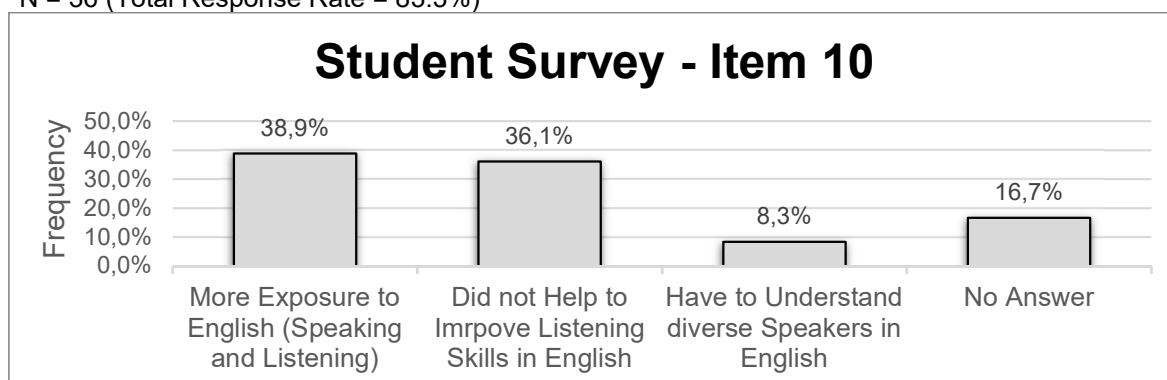
Figure 12: Questionnaire Item No. 10, "Because of these reasons, I was able to improve my listening skills in English during CLIL education in a technical subject".

Questionnaire item 11 sought to elicit whether students would want to receive more or less CLIL education in technical subjects and asked them to provide reasons for their choice. As illustrated in Figure 13, the vast majority of the CLIL group (66.7%) stated that they would welcome more CLIL education. Students' statements concerning the wish for more CLIL education include that CLIL lessons during the research period has helped them to improve their overall language competence in English, and that this educational approach will prepare them for their future occupation, in which an advanced level of English proficiency is valuable. The following two statements can be seen as representative of the students' who stated that they would like to receive more CLIL education:

'Ich würde gerne mehr CLIL-Unterricht haben, da sich meine Englischkennt-nisse in dieser Zeit verbessert haben und dadurch werden sie nur noch besser'.

'Mehr. Es wäre hilfreich um sich auf das Berufsleben vorzubereiten, da Englisch eine wichtige Sprache ist'.

Besides the students who would like to receive more CLIL education, 13.9% wrote that the CLIL lessons they receive are enough. However, 8.3% answered that they would rather be offered less CLIL lessons, either because of resentment to use English or because they feel that alternating between German and English is too demanding. In total, 5.6% of the CLIL group stated that they have no distinct preference of whether more or less CLIL education should be provided. As 8.3% did not answer questionnaire item 11, this results in a TRR of 94.5%.

*N = 36 (Total Response Rate = 94.5%)
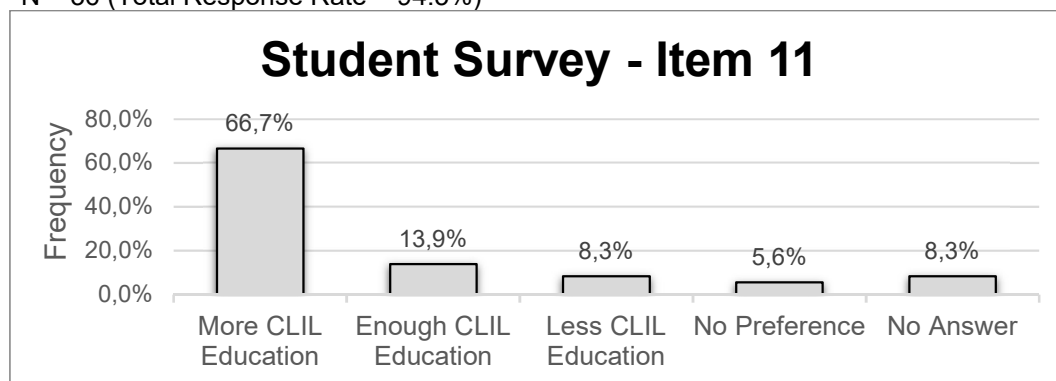
Figure 13: Questionnaire Item No. 11, "Because of these reasons, I would like to receive more/less CLIL education in technical subjects".

The last questionnaire item (i.e. item 12) of the student survey gave students the opportunity to voice their opinion in terms of what they would want to change about CLIL education (cf. Figure 14). Diverse responses were gathered through this item, among which the category "Teacher Qualification" was uttered considerably often (19.4%). In fact, students stated that in order to improve CLIL education and render CLIL lessons rewarding and useful for students and teachers alike, prospective CLIL teachers should receive teacher training (specifically, to become proficient users of the FL used as a medium of instruction). The following two statements were provided by two students:

'Dass Lehrpersonen eine zumindestens mündliche Überprüfung machen, um zu schauen ob die Lehrperson qualifiziert ist für diese Unterrichtsart'.

'Die Lehrer sollten selbst zumindest akzeptable Englisch-Kenntnisse/ -Aussprache haben, wenn sie CLIL unterrichten'.

Students further stated that they would appreciate the right to choose whether they want to receive CLIL education (i.e. offering two groups, with one group receiving content subject education in German, and the other one through CLIL), as highlighted in the category "Two Groups" (11.1%). Another recurring theme stated by respondents appears to be that they would like to receive more materials in English, which may complement their language learning (8.3%). In addition, diverse answers were grouped into the category "Other" (22.2%), with students stating that they would like to receive more time to communicate in English (8.3%), would welcome the obligatory use of English throughout CLIL lessons (8.3%), would want to learn more technical terms during CLIL lessons (2.8%) and demand CLIL teachers to install tests in order to check students' foreign language competence (2.8%).

Although the majority of students provided concrete responses in terms of what they would want to change about CLIL education, 16.7% stated that they enjoyed the CLIL lessons they have received and do not desire to alter anything. Overall, 22.2% of the participants did not provide an answer to questionnaire item 12, which amounts to a TRR of 77.8%.

*N = 36 (Total Response Rate = 77.8%)
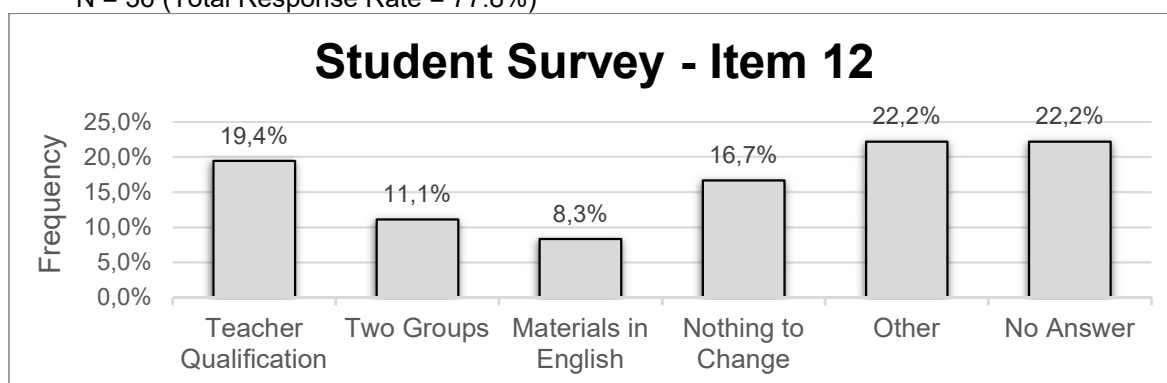
Figure 14: Questionnaire Item No. 12, "If I were able to, I would change the following on CLIL education".

6 Discussion of Results

The primary aim of the empirical research of this thesis is to identify whether CLIL education in technical subjects in third grades of an Austrian technical college will lead to a significant improvement of students' listening skills in English (research question 1, a and b, and research question 2, see 4.1). The empirical study further gave students the opportunity to voice their subjective opinions as concerns CLIL education in technical subjects through the administration of a student survey (research question 3, see 4.1). The following subsections will discuss the results of the pre- and post-test (6.1) as well as student survey (6.2) in relation to the theory outlined in section 2, section 3 and previous research outcomes on CLIL education linked to the research questions of the thesis at hand. In addition, subsection 6.3 will highlight the limitations of the empirical research of this thesis, as well as discuss future directions for CLIL research in Europe, and specifically Austria.

6.1 Discussion of Pre- and Post-Test Results

The following subsections will discuss the research findings obtained through the pre- and post-test and will address research question 1 (a, b) and 2. In order to compare, contrast and link the research findings to the respective literature, a brief literature review will be provided before the results will be evaluated.

6.1.1 Literature Review – CLIL & Listening Skill

Before the results reported in the preceding section can be evaluated and connected to the research questions posed, it is crucial to briefly review corresponding literature. As literature on CLIL and the improvement of students' listening skills within secondary education is rather scarce, this subsection will concentrate on five European key studies (Spain and Germany) conducted in this specific research field (cf. Pérez-Vidal & Roquet 2015; Dallinger et al. 2016; Lasagabaster 2008; Prieto-Arranz et al. 2015; Lorenzo, Casal & Moore 2009). These scholarly studies are nearly compliant with the research aims of the present thesis, as they compare the scores on tests obtained by CLIL and non-CLIL students of mainstream education (secondary level, fifth to eighth grade) and thus, investigate whether CLIL education significantly contributes to students' skill development in a foreign language (i.e. listening, reading, writing and speaking in English) – outcomes concerning the improvement of students' listening skills through CLIL education are of particular importance in the light of this thesis'

study. Although the studies selected share similar research aims with the thesis at hand, it must be noted that the content subjects taught during the research periods of these studies are not comparable with the specific content subject taught during the empirical research of this thesis. Nevertheless, the selected studies yield valuable information concerning the impact of CLIL education on students' listening skills and will further serve as the backbone of the discussion.

The key studies addressed above are primarily longitudinal studies (spanning from one academic year to three academic years), with the exception of the study by Lorenzo, Casal and Moore (2009) and Lasagabaster (2008) who measured and assessed CLIL and non-CLIL students' language skills by the use of merely one diagnostic test. Nevertheless, by primarily adopting a pre-test post-test control group design – similar to the method chosen for this thesis –, these studies examined CLIL students' relative as well as total linguistic gains in contrast to those of non-CLIL students. Across the board, the scholars reported that – regarding general language proficiency – CLIL students substantially outstripped their respective non-CLIL counterparts in secondary education, with the improvement of productive skills being significantly higher than the improvement of perceptive skills. The German study carried out by Dallinger et al. (2016: 29), which – due to its proximity to Austrian CLIL research contexts – is specifically important to the empirical research at hand, diverges from this general claim, since in contrast to the other four key studies highlighted, the results obtained suggest "positive CLIL-effects on the receptive skill listening and the insignificant effect on productive English skills". However, by examining the enhance-ment of students' listening skill as an effect of CLIL education, diverging results have been found. Whereas the studies conducted by Lasagabaster (2008), Dallinger et al. (2016) and Prieto-Arranz et al. (2015) suggest that CLIL students obtained significantly higher scores on listening proficiency tests (primarily general listening ability) compared to non-CLIL students, the studies carried out by Pérez-Vidal and Rouqet (2015) and Lorenzo, Casal and Moore (2009) show that although CLIL students' listening skills improved, the same was true for non-CLIL students (i.e. both groups shared similar relative gains). Moreover, Pérez-Vidal and Rouqet (2015) as well as Lorenzo, Casal and Moore (2009) claim that among the four language skills investi-gated, CLIL students' listening skills improved the least. Various reasons may be linked

to this phenomenon, which will be extrapolated and thoroughly discussed in the next subsection (6.1.2).

Having found merely five compliant empirical studies on a similar research topic implies that there is an utmost need for further research that takes under consideration the influence that CLIL education may exert on students' listening skills. In other words, CLIL will have to be examined in additional European countries, including various school types, age groups and content subjects to be able to determine its effectiveness and justify an extensive implementation of CLIL education in schools across Europe, which is best supported by concrete empirical evidence. The present thesis ties in with this, in that the primary research question addresses whether CLIL education leads to a significant improvement of students' listening skill, and thus aims to add valuable insights to the research pool outlined above.

6.1.2 Evaluation of Results

The primary aim of this thesis, namely to find out whether two months of CLIL education in technical subjects leads to a substantial improvement of students' listening skills in English, is directly represented by the first two research questions. Thereby, the first question aimed to reveal whether a significant improvement of listening skills in English within the CLIL and non-CLIL group can be observed (sub-questions a and b), and the second research question sought to investigate whether CLIL education can be identified as the sole determinant that may cause this (anticipated) improvement. In order to answer these research questions, two within-group analyses and one between-groups analysis have been conducted.

Research question 1 revealed two distinct findings. The first finding (research question 1a) indicates that the CLIL group significantly improved their listening skills within the research period (cf. Table 4 and Table 5). The second finding (research question 1b) shows that the non-CLIL group, too, was able to improve their listening skills in a two-month timeframe (cf. Table 6 and Table 7). Consequently, both groups were able to significantly develop their listening skills regardless of having received CLIL education. According to the above outlined research findings, it can be inferred that CLIL education in a technical subject is not the sole determinant that has provoked an improvement in students' listening skills in English. This is further backed by the results obtained through an independent t-test, which contrasted the mean gain scores

of both groups (research question 2) and has unveiled that no statistical difference between the respective groups' listening test scores can be discerned (cf. Table 8).

The findings highlighted above are largely inconsistent with the results found in the corresponding literature, in that part of the literature discussed indicates that CLIL students significantly outperform non-CLIL students regarding the improvement of listening skills in English (cf. Dallinger et al. 2016; Prieto-Arranz et al. 2015; Lasaga-baster 2008). However, the results of two Spanish studies conducted by Pérez-Vidal and Rouqet (2015) and Lorenzo, Casal and Moore (2009) partly correspond to the results obtained in this study, as they have revealed that although CLIL students' listening proficiency improved, the same improvement has been observed within the respective non-CLIL groups. Numerous reasons may correlate with the above highlighted (in)consistencies, among which the respective research period, learning effects, the use of multimedia material, and the learning of technical terms in English (i.e. content-specific vocabulary) in technical subjects may have played a significant role.

The first reason that may have caused an inconsistency between the research findings of the literature discussed (6.1.1) and the research findings of the thesis at hand, might be linked to the rather restricted research timeframe, which amounted to approximately two months between the administration of the pre- and post-test. In fact, most longitudinal studies, which examined students' development of English listening skills through CLIL education and ranged between one to three academic years (or have tested students' listening skills after them having had several years of CLIL education), have shown a significant improvement of CLIL students' listening skills (cf. Dallinger et al. 2016; Prieto-Arranz et al. 2015; Lasagabaster 2008). In contrast to that, but in line with the research findings of this thesis, lies Lorenzo, Casal and Moore's (2009) study, which examined CLIL and non-CLIL students' listening skills in English within a three-month research period, and found that although CLIL students significantly outperformed their non-CLIL counterparts, their listening proficiency improved the least. Another exception within these five studies can be found in the longitudinal study carried out by Pérez-Vidal and Rouqet (2015), who, after one academic year, did not find a significant difference between CLIL and non-CLIL students' listening skills. Moreover, as the research literature outlined above investigated CLIL students' general linguistic progress, it is suggested that among the four

skills examined, CLIL students' listening skills improved the least, implying that in contrast to the other macro skills, listening appears to take longer to develop within CLIL lessons (cf. Dallinger et al. 2016; Prieto-Arranz et al. 2015; Lasagabaster 2008; Lorenzo, Casal & Moore 2009; Pérez-Vidal & Rouqet 2015). This is quite interesting to examine, given the fact that L2 students (and it could further be inferred that this applies to CLIL students) spend a substantial amount of time listening to diverse speakers and input materials in everyday life as well as classroom lessons (cf. Morley 2001: 73; Hedge 2000: 228; Vandergrift & Goh 2012: 26; Buck 2001: 12).

Learning effects, a direct effect of the rather short research period, appear to be another determinant that may have led to the insignificant listening skill results of both groups. Although the input material used for both tests dealt with different topics of the content of the technical subject in which students received either CLIL education or their traditional content subject education, it is likely that the content of the input material used was too similar to the content taught during the research period. In addition, it must be underscored that although the pre-test content was different to the post-test content, the same task types were used, which, too, may have contributed to the generation of further learning effects and may have ultimately distorted both groups' test scores (cf. Rasinger 2010: 55). However, the same task types were used within both the pre- and post-test, since an alteration of the task types utilized may have directly affected students' test performance in that the scores obtained would have been rendered unreliable and invalid (cf. Rost 2002: 219-221)[40].

Another possible argument that may explain the rather similar results obtained by both groups appears to have been the use of multimedia material. In fact, English and German multimedia material is oftentimes used in technical subjects taught in the Austrian HTL under investigation, since it combines aural input with corresponding visual components, and thereby offers students an additional aid in understanding various speakers and concepts (cf. Wagner 2010: 1; Oddone 2011: 106). It is further the technical aspect of multimedia material, that seems to render this input material attractive for using it in HTLs (cf. Chen et al. 2014: 53). Consequently, since not merely used within CLIL contexts in the respective school, but throughout various content

---

[40] Since the five studies outlined in the literature review (6.1.1) did not discuss 'learning effects', no (in)consistencies – related to such an effect – between the present research and these studies can be highlighted.

subjects (and, presumably, more often during the research period than in regular content subject education), students may have become used to this type of input material, which might have contributed to the improvement of both groups' listening skills. Moreover, it could be argued that since multimedia input provides students with input enhancers (e.g. non-verbal cues), specifically less-proficient L2 or foreign language listeners may have been supplemented with additional information and consequently a distortion of CLIL and non-CLIL students' pre- and post-test scores may have occurred (cf. Aldera 2015: 1983; İnceçay & Koçoğlu 2017: 903).

Teachers of technical subjects in Austrian HTLs primarily teach technical terms in English, even if the language of instruction is German. This is due to the fact that technical subjects – even without adopting CLIL methodology – make use of English terms, instead of translating every technical term used into its German equivalent. Hence, although the CLIL group has been primarily taught in English, while the non-CLIL group has received instructions in German, both groups have learnt technical terms in English, which may have been used in the pre- and post-test. Consequently, it can be reasoned that "crosslinguistic influence may have [had] an impact on the learners' command of […] vocabulary in an additional language", which may have exerted an additional influence on the respective groups' pre- and post-test scores (Prieto-Arranz et al. 2015: 123).

6.2 Widening the Discussion – Test & Student Survey Results

A second aim of this thesis was to highlight students' subjective opinions on CLIL education in technical subjects in an Austrian HTL, as represented by the third research question (cf. 4.1). To elicit students' opinions on both CLIL education and their perceived development of listening skills in English through this educational approach, the CLIL group was asked to provide answers to eight closed and four open-ended questionnaire items. The most noteworthy findings will be discussed in the six subsequent subsections in relation to both the theory, the research findings outlined in this thesis and the test results obtained.

6.2.1 Demand for More or Less CLIL Lessons?

The research findings indicate that in general, the vast majority of students demands more CLIL education in technical subjects, stating that CLIL education has helped them to improve their overall language competence in English, which is further

perceived as important for finding a future occupation in an ever-increasing international job market (cf. Figure 6 and Figure 11).

The general opinion, namely demanding more CLIL education to be best suited to enter the increasingly interconnected European economic market in the field of engineering, is shared by Dalton-Puffer et al. (2009: 18), who claim that especially in HTLs, where only a limited number of EFL lessons per week is offered, CLIL education provides students' with additional exposure to a foreign language, which further equips them with content-specific (foreign) language knowledge required for workforces who aim to pursue international careers. Further research findings, as those by Lasagabaster (2011), Lasagabaster and Sierra (2009) and Ruiz de Zarobe (2013), correlate with the findings of the thesis at hand, in that they report that the students questioned perceive CLIL as a promising educational approach that offers them "better job prospects in the labour market" (Lasagabaster 2011: 7), and thus, presumably raises their affective factors to actively participate in such provisions.

6.2.2 Motivation to Use a FL in CLIL Lessons

Although it may be presumed that CLIL education, perceived as valuable for future occupations in internationalized job markets, will boost students' motivation to enthusiastically participate in such provisions, diverging opinions have been obtained from the CLIL group (cf. Figure 8). That is, whereas almost half of the group stated that they were not more motivated to use a foreign language during CLIL lessons (as opposed to traditional foreign language lessons), approximately two-fifths indicated that the contrary is true for them.

This research finding does not only (partly) lie in contrast with the CLIL groups' general demand for more CLIL education in technical subjects (cf. subsection 6.2.1), but is further inconsistent with research findings obtained by Lasagabaster (2011: 14), Lasagabaster and Sierra (2009) Merisuo-Storm (2007), Seikkula-Leino (2007) and Dalton-Puffer et al. (2008), who generally claim that a rather "strong relationship between the CLIL approach and motivation" (Lasagabaster 2011: 14) can be observed. However, when interpreting the feedback obtained in the present study, it could be inferred that two-fifths of the CLIL group are more motivated to use a foreign language in CLIL lessons, since they are presented with a more meaningful and authentic approach to language learning and using, and thus, are provided with more naturalistic approach to learning a foreign language – as outlined in Krashen and Terell's (1982)

'Natural Approach' (cf. Dalton-Puffer 2007: 3; Dalton-Puffer 2011: 193; Ruiz de Zarobe 2013: 234; subsection 2.2.1). It appears thus, that while CLIL education foregrounds the actual use of an additional language situated in specific contexts – useful for their future professional lives –, EFL lessons primarily seek to engage learners in working on language tasks for the sake of learning a specific language – partially distant to its real-life use (cf. Lasagabaster & Sierra 2009; Rost 2002: 161; Coyle, Hood & Marsh 2010: 54). In this respect, another reason that may spark some students' motivation to use a foreign language within CLIL rather than EFL contexts may be that, supposedly, CLIL lessons provide a "safe environment" in which students can use a foreign language without the fear of being penalized for language mistakes (Lasagabaster & Doiz 2016: 111; cf. also Dalton-Puffer 2011: 194). As concerns almost half of the CLIL group, which stressed that CLIL education did not substantially motivate them to use a foreign language, possible reasons may be a disregard for learning a content-subject in a foreign language, the particular language learnt, a dissatisfaction with content teachers' language proficiency, possibly already satisfactory EFL lessons and the mandatory status of CLIL education in HTLs, as will be further discussed in subsection 6.2.4.

6.2.3 CLIL Education and Students' Listening Skills in English

In general, the results show that a large number of the CLIL group feels that CLIL education did not substantially help them to improve their listening skills in English (cf. Figure 7). This is accompanied by the recurring response that they believe that their listening proficiency in English has already been 'good enough' before they have received CLIL education in a technical subject (cf. Figure 9).

The above outlined self-perception of students' listening skill improvement is inconsistent with research findings by Lasgabaster and Doiz (2016: 122), Lasagabaster (2011) and Aguilar and Rodríguez (2011), as they report that students "acknowledge the improvement of their language proficiency in English" (Lasagabaster & Doiz 2016: 122), with listening having been perceived as having improved to a significant extent through CLIL education within these studies. However, in the light of the empirical research of the thesis at hand, students' self-perception is largely consistent with the pre- and post-test results obtained, which indicate that although both the CLIL and non-CLIL group improved their English listening skills, CLIL cannot be stated as the sole determinant that caused this improvement (cf. subsection 5.1).

Three reasons, which may have led to the respective self-perception in the thesis at hand, can be identified. First, the most salient reason of the discussed finding may be that the duration of the CLIL lessons (i.e. two months) has not been enough for students to experience a substantial improvement of their listening skills. Second, it may have been the case that their traditional EFL lessons have already prepared them to a significant extent to listen to, as well as comprehend, content-subject education in a foreign language. Third, and as a result of the second assumption, it may be possible that the language level in CLIL lessons was appropriate (cf. Figure 10), but too low, and thus, it is possible that students were not properly linguistically challenged. Taking into consideration Coyle, Hood and Marsh's (2010: 11, 43) argument, effective learning in CLIL lessons will only occur if learners engage in cognitive processes appropriate to their cognitive and linguistic level. Thus, CLIL teachers must be aware of the linguistic and cognitive level of their students and adapt linguistic input to their specific needs in order to reduce or increase the cognitive load posed upon CLIL learners (cf. Coyle, Hood & Marsh 2010: 43; Rost 2002: 172). It might further be suggested that CLIL teachers should choose linguistic input that adheres to Krashen's (1982: 20f, 66) concept of "i+1", namely exposing learners to linguistic input that is slightly above their linguistic competence, but still comprehensible, for language learning to occur (cf. Rost 2002: 152; Cárdenas-Hagan 2016: 31).

6.2.4 Right of Co-Determination

Receiving a right of co-determination seems to play a crucial role for CLIL students, since a large number of the CLIL group indicated that they would like to have a say concerning the topics taught during CLIL lessons (cf. Figure 9). As no study found on this aspect can be compared to the feedback obtained in this instance, merely the possible reasons for students' demand of the right of co-determination can be discussed. In this respect, specifically oral feedback that has been gathered after the administration of the student survey has revealed that students would like to receive a greater right of co-determination for one recurring reason. That is, they would like to be allowed to choose whether a specific content-subject topic is taught through CLIL methodology, depending on the difficulty of the respective topic. Consequently, it seems reasonable to assume that students' fear that if a topic within a technical subject is too cognitively demanding and taught further through CLIL, they will not be able to grasp underlying concepts and further develop their respective content knowledge.

This appears to be an important argument brought up on behalf of students, and it seems to be vital to stress that teachers must be aware of what Coyle, Hood and Marsh (2010: 37-43) describe as the "language *of* learning" in order that linguistic demands on students are neither too low nor too high and are further consistent with the topic taught.

6.2.5   Positive Experiences Through CLIL Education

As concerns the positive experiences students made during CLIL education, the gathered statements indicate that the learning of technical terms in CLIL lessons is an unquestionable positive aspect that CLIL seems to entail (cf. Figure 11). This appears to be of paramount importance for students attending technical colleges in Austria, since they believe that knowledge of technical vocabulary will be of great value in their future careers.

Similar statements have been obtained by Dalton-Puffer et al. (2009), who gathered HTL students' opinions on CLIL education in technical subjects. In general, it has been elicited that students ascribe the learning of technical terms in HTLs a key role within CLIL lessons, since they feel that possessing a broad repertoire of technical vocabulary will be of undeniable importance in their future professional careers (cf. ibid.). Consequently, since the learning of technical and semi-technical vocabulary is noted to be relevant and interesting to CLIL students, this is claimed to result in higher attention rates, positive experiences, motivation and, as emphasized by Pérez-Cañado (2012), European Commission (2014), Merisuo-Storm (2007) and Lasagabaster (2008), is directly reflected in the observed improvement of CLIL students' lexical knowledge in a foreign language.

6.2.6   Students' Suggestions for Change in CLIL Education

Having further asked CLIL students to provide suggestions for improvement regarding CLIL education in technical subjects, two recurring themes emerged, namely teacher qualification and the mandatory status of CLIL education within HTL curricula (cf. Figure 14).

First, learners emphasized that CLIL teachers should preferably possess certain qualifications to render CLIL education indispensable. This is reflected by the relatively large amount of responses in which students noted that they were generally dissatisfied with their CLIL teachers' language proficiency. In fact, similar responses have

been obtained by Aguilar and Rodríguez (2011: 194) and Dalton-Puffer et al. (2009: 18), who underscore that students demand "a certain threshold proficiency level […] for a teacher to operate effectively in the language of instruction" (Dalton-Puffer et al. 2009: 18). It further appears that the students' responses are consistent with the unequivocal need for an implementation of compulsory (CLIL) in pre- and in-service teacher training programs in Austria, since content teachers are not required to hold certificates that serve as proof that their language proficiency in a target language is sufficient (cf. European Commission 2017: 92; Eurydice 2006: 52, 57). It may thus be advisable to introduce pre- and in-service CLIL teacher training programs in Austria that primarily support content teachers in acquiring methodological expertise as well as language-specific skills, for CLIL to become deeply entrenched and accepted within mainstream education (see Coyle, Hood & Marsh 2010: 162 and Marsh et al. 2010 for an exhaustive list of CLIL teacher training initiatives).

The second theme that emerged is that students would like to be allowed to choose whether they participate in CLIL education; a topic that students' have also emphasized when asked about their right of co-determination and their overall motivation to use a foreign language in CLIL lessons (cf. subsection 6.2.1 & 6.2.4). As CLIL education is deeply anchored within HTL curricula since 2011, with HTLs having to offer a minimum of 72 hours of CLIL education per year, it is unlikely that this wish will be fulfilled (cf. subsection 2.7.2). Much rather, this response could be seen as an impulse for CLIL teachers and policy-makers to find solutions that aim to present CLIL education as a fruitful and promising educational approach to learners. In fact, a starting point may be to consistently inform and educate stakeholders about the benefits that CLIL education entails and repeatedly adapt CLIL education to individual learners' specific content and language needs. In this respect, it further seems to be advisable to conduct empirical research on CLIL students' beliefs, knowledge and motivation concerning CLIL education in Austrian HTLs, as outcomes of such studies may be well-suited to provide insights useful to refine present CLIL programs that take under consideration students' respective needs.

6.3 Limitations and Future Directions

The main limitations that can be identified in the light of the empirical part of this thesis may be the small number of participants, convenience sampling, the rather short research period as well as central tendency bias detected within the student survey.

With regard to the relatively small number of participants, especially obtaining an obligatory written parental approval for students to partake in the empirical study presented itself as a restricting factor. It is possible to further infer that another large part of the initially anticipated sample (i.e. 90 students) did not participate in the empirical research, since it was conducted on a voluntary basis. As two students were absent during the administration of the post-test, the final sample was reduced from 48 to 46 students.

Since the final sample of the study was gathered through convenience sampling and is further rather small, it must be stated that the results and findings of both the tests and student survey obtained are largely confined to the school under investigation. However, this form of sampling had to be selected, as the classes examined for the empirical research receive CLIL or non-CLIL education as predetermined by the respective technology subject teachers. In addition, it must be criticized that the students were unevenly distributed to either the CLIL or non-CLIL group, with 36 students having received CLIL education and 10 students having received their traditional technology subject education. This, again, was predetermined by the respective content subject teachers, as the technology subject, in which the research was conducted, splits classes into halves, with two teachers per class being in charge of teaching the same content. These factors directly affected the representativeness of the results obtained through the pre- and post-test as well as student survey, and thus, Consequently, it must be acknowledged that an even distribution of both groups or larger (sub-)sample size may have yielded different outcomes and may have rendered the obtained findings generalizable to this specific school type.

The rather short research period (i.e. two months) may have been the most salient limiting factor. Although it was attempted to analyze CLIL and non-CLIL students' listening skill development and subjective opinions over a longer period of time, typical CLIL education in Austrian HTLs does not permit a longer research period. Although HTL curricula state that a minimum of 72 hours of CLIL education per year must be taught on an obligatory basis, these hours are distributed among various

compulsory content subjects. This is due to the fact that schools are given educational autonomy, which, in the case of this study, resulted in the analysis of students' listening skill development and subjective opinions in what Mehisto, Marsh and Frigols (2008: 12) describe as a "short term and lower intensity" approach to teaching CLIL (cf. Eurydice 2005: 8).

Although the responses obtained through the student survey has shed light on various aspects of CLIL education in technical subjects, using a five- and three- point Likert scale has resulted in central tendency bias (cf. 4.4.2). Central tendency bias, albeit compensable through grouping (pre-determined) positive, neutral and negative options, can be easily avoided through the implementation of four-point or seven-point Likert scales on questionnaires. However, while grouping variables has minimized central tendency bias within the student survey, the implementation of Likert scales which do not allow for such a bias to occur may have generated a more conclusive picture.

Future research concerning CLIL in combination with the improvement of students' listening skills in English should generally aim to reduce the limitations described above. Moreover, as literature on the development of students' listening skills in secondary education (and especially in Austrian HTLs) is rather scarce, more quantitative as well as qualitative empirical evidence is yet to be obtained to confirm the (purported) effectiveness and benefits of CLIL education in combination with listening. At best, longitudinal studies, which look at the students' linguistic progress while receiving CLIL education, should be conducted to progressively fill this research gap as well as provide concrete empirical evidence that aims to justify the implementation of CLIL methodology in Austrian HTLs.

7 Conclusion

The primary aim of this thesis was to investigate whether CLIL education exerts a notable influence on students' listening proficiency in English. Since research on this respective skill in combination with CLIL education is rather scarce, the main research question posed in this thesis primarily addressed a research gap. In order to illustrate the anticipated effectiveness of CLIL education on students' listening skills, a pre- and post-test were administered in both a CLIL and non-CLIL group. An additional research objective postulated was to elicit CLIL students' subjective opinions on CLIL education after two months of CLIL in the respective Austrian Technical College (HTL), a school type that offers a combination of upper secondary, professional and academic education and is primarily found within the Austrian education system. The following lines will briefly summarize the theoretical concept of CLIL and the listening skill, as has been established in the initial sections of this thesis and as has served as the backbone for the empirical research conducted. Subsequently, the key findings obtained through the empirical research of this thesis will be summarized and concluded in connection to its limitations and future research recommendations.

This thesis began by providing a general overview of the concept of CLIL, as has been widely realized in European mainstream schools since the 1990s (cf. Dalton-Puffer, Faistauer & Vetter 2011: 196; Smit 2004: 77). Moreover, the concept of CLIL has been reviewed in relation to five of its theoretical backbones, situated within second language acquisition (SLA) and learning (SLL) theories, of which especially Vygotsky's (1978) Sociocultural Theory appears to be a key concept adopted within CLIL methodology (cf. Dalton-Puffer 2007: 263). The concept of CLIL has further been discussed in relation to content and language teaching, and thus, Coyle's 4Cs framework and language triptych (cf. Coyle, Hood & Marsh 2010: 41, 36-38). In addition, this section has emphasized the importance of pre- and in-service CLIL teacher training programs, as widely – but not sufficiently – realized within Europe and Austria and demanded by numerous stakeholders. At last, and in close connection to the research conducted, an overview of several implementation processes of CLIL methodology within Europe and Austria has been offered, with considerable attention having been ascribed to the realization of CLIL provisions within Austrian HTLs.

The second focus of this thesis was to provide a thorough theoretical overview of one of the four communicative macro-skills, namely the listening skill, in relation to its

116

underlying processes and the teaching realm. This receptive skill, which has oftentimes been neglected by researchers and language teachers alike, is claimed to play a substantial role in human communication and especially in language learning (cf. Nunan 2002: 238; Martínez-Flor & Úso-Juan 2006: 31). Given this outstanding role, the listening skill presents itself as a highly interesting – yet challenging – language skill to examine, especially since its underlying processes are not directly observable (Brindley 1997: 65; Rost 2002: 205).

As concerns the empirical research of this thesis, which aimed to find out whether CLIL education leads to a significant improvement of students' listening skills (research questions 1a, b and 2) as well as gathered students' subjective opinions on this educational approach (research question 3), the findings revealed that both the CLIL and non-CLIL group improved their listening skills in English within a two-month research timeframe. In fact, as the mean gain scores of both the CLIL and non-CLIL group's listening tests did not show a significant statistical difference, it can be argued that CLIL education cannot be defined as the sole determinant that has facilitated the improvement of students' listening skills. However, as these findings are largely inconsistent with research findings obtained by researchers such as Dallinger et al. (2016), Prieto-Arranz et al. (2015), Lasagabaster (2008), it appears to be essential to highlight some of the reasons that may have led to this thesis' research findings. These reasons include the rather restricted research frame (i.e. two months), convenience sampling, the relatively small number of participants, possible learning effects, the use of multimedia material in the pre- and post-test and the learning of technical terms in English as common in technical subjects in Austrian HTLs. Overall, as students' listening skills are argued to develop the slowest in contrast to the other three macro-skills, it seems to be advisable for future research to adopt longitudinal research designs, in order to render the improvement of students' listening skills observable as well as gradually fill this research gap (cf. Dallinger et al. 2015; Prieto-Arranz et al. 2015; Lasagabaster 2008; Lorenzo, Casal & Moore 2009; Pérez-Vidal & Rouqet 2015).

The findings of the student survey, employed as a quantitative and qualitative instrument to gather students' subjective opinions on CLIL education in technical subjects of an Austrian HTL, has generated a manifold variety of interesting responses. First, CLIL – although a fairly new educational approach in Austrian HTLs – seems to enjoy an excellent reputation among students' in that the majority of the respondents

sees its benefits within the learning of content-specific vocabulary and language knowledge useful for their future professional careers as engineers. This is directly reflected in the numerous responses that indicate a demand for more CLIL lessons as well as the positive experiences that students made during the research period. Second, it has been discovered that students call for a right of co-determination regarding the topics taught through CLIL methodology. According to some of the responses, this may result in a more positive attitude toward CLIL education on behalf of students, since they would be able to choose whether a topic should be taught in their first language or a foreign language. Third, the student survey results show that in general, CLIL students believe that their listening proficiency did not significantly improve through CLIL education (which is consistent with the test-results). Although this could be due to the rather restricted research period, in which no significant difference between the CLIL and non-CLIL group could be discerned, it may also be the case that CLIL teachers simply did not provide challenging listening input that may have provoked a different self-perception within CLIL students. Finally, having asked CLIL students what they would like to change about CLIL education in Austrian HTLs, a prominent theme seems to be their CLIL teachers' language proficiency in the vehicular language. That is, a substantial number of students note that they were dissatisfied with their CLIL teachers' language proficiency, and thus, demand compulsory pre- and in-service teacher training programs for prospective CLIL teachers.

In conclusion, although the research findings of the thesis at hand did not show significant differences between CLIL and non-CLIL students' listening skills in English, this methodological approach, which integrates content and language teaching and learning, has numerous benefits to offer for students. Nevertheless, in order to prove its effectiveness and justify its implementation within the teaching and learning realm, continuous empirical evidence must be gathered. It is through the provision of quantitative as well as qualitative findings that stakeholders will be able to fully seize the opportunities that lie within this educational approach that is capable to prepare students for an ever-increasing interconnected world, in which both broad language and content knowledge does not only lead to intercultural understanding and tolerance toward other cultures, but is further perceived to generate valuable tacit knowledge that is bound to enhance students' chances to set foot in the European economic market.

8 Bibliography

Abuja, Gunther. 2007. "Austria". In Maljers, Anne; Marsh, David; Wolff, Dieter (eds.). *Windows on CLIL. Content and Language Integrated Learning in the European Spotlight*. Alkmaar (NL): Ter Burg Offset, 24-24.

Aguilar, Marta; Rodríguez, Rosa. 2011. „Lecturer and student perceptions on CLIL at a Spanish university". *International Journal of Bilingual Education and Bilingualism* 15(2), 183-197.

Ableeva, Rumia. 2008. "Listening Comprehension in Foreign Language Instruction". *CALPER Professional Development Document (CPDD0810), 1-12.*

Aldera, Abdullah S. 2015. "Investigating Multimedia Strategies to Aid L2 Listening Comprehension in EFL Environment". *Theory and Practice in Language Studies* 5(10), 1983-1988.

Anckar, Joanna. 2011. *Assessing Foreign Language Listening Comprehension by Means of the Multiple-Choice Format: Processes and Products.* Jyväskylä: University of Jyväskylä.

Anderson, Anne; Lynch, Tony. 1988. *Listening.* Oxford: Oxford University Press.

Anderson, John R. 2015. *Cognitive Psychology And Its Implications*. (8th edition). New York, NY: Worth Publishers.

Bozorgian, Hossein. 2012. "Listening Skill Requires a Further Look into Second/Foreign Language Learning". *International Scholarly Research Network* 2012, 1-10.

Brindley, Geoff. 1997. "Investigating second language listening ability: listening skills and item difficulty". In Brindley, Geoff; Wigglesworth, Gillian (eds.). *Access: Issues in language test design and delivery*. Sydney: Macquarie University, 65-85.

Brown, James D. 2009. "Open-Response Items in Questionnaires". In Heigham, Juanita; Croker, Robert A. (eds.). *Qualitative Research in Applied Linguistics. A Practical Introduction*. Houndmills, England: Palgrave Macmillan, 300-219.

Brown, Steven. 2006. *Teaching Listening*. Cambridge: Cambridge University Press.

Bundesarbeitsgemeinschaft CLIL. 2016. "CLiL. Content and Language Integrated Learning. Leitfaden zur Umsetzung an HTLs". http://www.htl.at/file admin/content/clil/Samples/CLIL_Leitfaden_2016_17.pdf (4 Oct. 2017).

BGBl. II (Bundeskanzleramt Rechtsinformationssystem). 2011(300)a, Anlage 1.5. "Bundesgesetz über die Ordnung von Unterricht und Erziehung in den im Schulorganisationsgesetz geregelten Schulen (Schulunterrichtsgesetz – SchUG)". http://www.ris.bka.gv.at/GeltendeFassung/Bundesnormen/10009600/ SchUG%2c%20Fassung%20vom%2003.01.2018.pdf (3 Jan. 2018).

BGBl. II (Bundeskanzleramt Rechtsinformationssystem). 2011(300)b. „Verordnung der Bundesministerin für Unterricht, Kunst und Kultur über die Lehrpläne der Höheren technischen und gewerblichen Lehranstalten (Lehrplan 2011); Bekanntmachung der Lehrokäne für den Religionsunterricht". https://www.ris.bka.gv.at/GeltendeFassung/Bundesnormen/20007451/Lehrpl%C3%A4ne%20der%20H%C3%B6heren%20technischen%20und%20gewerblichen%20Lehranstalten%20%2c%20Fassung%20vom%2003.01.2018.pdf (3 Jan. 2018).

Buck, Gary. 2001. *Assessing Listening*. Cambridge: Cambridge University Press.

Cárdenas-Hagan, Elsa. 2016. "Listening Comprehension. Special Considerations for English Learners". *Perspectives on Language and Literacy* 42(3), 31-35.

Çekrezi, Rozeta. 2011. "CLIL and Teacher Training". *Procedia Social Behavioral Sciences* 15, 3821-3825.

Chen, Chan; Wang, Lei; Xu, Lena. 2014. „A Study of Video Effects on English Listening Comprehension". *Studies in Literature and Language* 8(2), 53-58.

Cohen, Louis; Manion, Lawrence; Morrison, Keith. 2007. *Research Methods in Education.* (6th edition). London: Routledge.

Council of Europe. 2008. *Language Education Policy Profile. Austria.* Strasbourg: Language Policy Division.

Coyle, Do. 2007. "Content and Language Integrated Learning: Towards a Connected Research Agenda for CLIL Pedagogies". *International Journal of Bilingual Education and Bilingualism* 10(5), 543-562. 2nd

Coyle, Do. 2008. "CLIL – A Pedagogical Approach from the European Perspective". In Van Deusen-Scholl, Nelleke; Hornberger, Nancy H. (eds.). *Encyclopedia of Language and Education 4*. (2nd edition), 97-111.

Coyle, Do. 2010. "Relevance of CLIL to the European Commission's Language Learning Objectives". In Marsh, David (ed.). *CLIL/EMILE. The european dimension. Actions, Trends and Foresight Potential.* Finland: UniCOM, Continuing Education Centre, 27-28.

Coyle, Do; Hood, Philip; Marsh, David. 2010. *CLIL Content and Language Integrated Learning.* Cambridge: Cambridge University Press.

Cross, Jeremy. 2015. "Metacognition in L2 Listening: Clarifying Instructional Theory and Practice". *TESOL Quarterly* 49(4), 883-892.

Dallinger, Sara; Jonkmann, Kathrin; Hollm, Jan; Fiege, Christiane. 2016. "The effect of content and language integrated learning on students' English and history competences – Killing two birds with one stone?". *Learning and Instruction* 41, 23-31.

Dalton-Puffer, Christiane. 2007. *Discourse in Content and Language Integrated Learning (CLIL) Classrooms.* Amsterdam: John Benjamins Publishing Company.

Dalton-Puffer, Christiane. 2011. "Content-and-Language-Integrated-Learning: From Practice to Principles?" *Annual Review of Applied Linguistics* 31, 182-204.

Dalton-Puffer, Christiane; Faistauer, Renate; Vetter, Eva. 2011. "Research on language teaching and learning in Austria (2004-2009)". *Language Teaching* 44(2), 181-211.

Dalton-Puffer, Christiane; Hüttner, Julia; Jexenflicker, Silvia; Schindelegger, Veronika; Smit, Ute. 2008. "CLIL an österreichischen HTLs. Kurzfassung des Forschungs-projekts – Executive Summary". http://www.htl.at/fileadmin/content/clil/executive_final_mit_titelblatt.pdf (19 July 2017).

Dalton-Puffer, Christiane; Hüttner, Julia; Schindelegger, Veronika; Smit, Ute. 2009. "Technology-Geeks Speak Out: What Students Think About Vocational CLIL". *International CLIL Research Journal* 1(2), 18-25.

Dalton-Puffer, Christiane; Nikula, Tarja. 2014. "Content and language integrated learning". *The Language Learning Journal* 42(2), 117-122.

Dalton-Puffer, Christiane; Nikula, Tarja; Smit, Ute. 2010. "Charting Policies, premises and research on content and language integrated learning". In Dalton-Puffer, Christiane; Nikula, Tarja; Smit, Ute (eds.). *Language Use and Language Learning in CLIL Classrooms* 7. Amsterdam: John Benjamins Publishing Company, 1-19.

Dalton-Puffer, Christiane; Smit, Ute. 2007. "Introduction". In: Dalton-Puffer, Christiane; Smit, Ute (eds.). *Empirical Perspectives on CLIL Classroom Discourse*. Vienna: Peter Lang, 7-23.

Dalton-Puffer, Christiane; Smit, Ute. 2013. "Thinking Allowed. Content and Language Integrated Learning: A research agenda". *Language Teaching* 46(4), 545-559.

De Graaff, Rick; Koopman, Gerrit J.; Anikina, Yulia; Westhoff, Gerard. 2007. "An Observation Tool for Effective L2 Pedagogy in Content and Language Integrated Learning (CLIL)". *International Journal of Bilingual Education and Bilingualism* 10(5), 603-624.

Dimitrov, Dimiter M.; Rumrill, Phillip D. Jr. 2003. "Pretest-posttest designs and measurement of change". *Work* 20(2), 159-165.

Dugard, Pat; Todman, John. 1995. "Analysis of Pre-test-Post-test Control Group Designs in Educational Research". *Educational Psychology* 15(2), 181-198.

Dörnyei, Zoltán. 2003. *Questionnaires in Second Language Research. Construction, Administration, and Processing.* Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc., Publishers.

Ehteshami, Azdeh; Salehi, Hadi. 2016. "Impact of Audio-viewing Materials on Iranian Upper-Intermediate EFL Learners' Listening Comprehension". *International Journal of Applied Linguistics & English Literature* 5(7), 132-141.

Ellis, Rod. 1997. *Second Language Acquisition.* Oxford: Oxford University Press.

European Commission. 2014. *Improving the effectiveness of language learning: CLIL and computer assisted language learning.* London: Education and Training.

European Commission. 2017. *Key Data on Teaching Language at School in Europe – 2017 Edition. Eurydice Report.* Luxembourg: Office of the European Union.

Eurydice. 2005. *Content and Language Integrated Learning (CLIL) at School in Europe. Austria. National Description 2004/5.* Brussels: Eurydice.

Eurydice. 2006. *Content and Language Integrated Learning (CLIL) at School in Europe.* Brussels: Eurydice.

Eurydice. 2012. *Key Data on Teaching Languages at School in Europe 2012.* Brussels: Eurydice.

Field, Andy. 2009. *Discovering Statistics using SPSS. (and sex and drugs and rock 'n' roll).* (3rd edition). Los Angeles: SAGE Publications Inc.

Field, John. 2002. "The Changing Face of Listening". In Richards, Jack C.; Renandya, Willy A. (eds.). *Methodology in Language Teaching. An Anthology of Current Practice.* Cambridge: Cambridge University Press, 242-247.

Field, John. 2008. *Listening in the Language Classroom.* Cambridge: Cambridge University Press.

Flowerdew, John; Miller, Lindsay. 2005. *Second Language Listening. Theory and Practice.* Cambridge: Cambridge University Press.

Flowerdew, John; Miller, Lindsay. 2010. "Listening in a Second Language". In Wolving, Andrew D. (ed.). *Listening and Human Communication in the 21st Century.* Malden: Blackwell Publishing Ltd, 266-286.

Gilakjani, Abbas P.; Ahmadi, Mohammad R. 2011. "A Study of Factors Affecting EFL Learners' English Listening Comprehension and the Strategies for Improvement". *Journal of Language Teaching and Research* 2(5), 977-988.

Gilakjani, Abbas P.; Sabouri, Narjes B. 2016. "The Significance of Listening Comprehension in English Language Teaching". *Theory and Practice in Language Studies* 6(8), 1670-1677.

Goh, Christine, C. M. 2000. "A cognitive perspective on language learners' listening comprehension problems". *System* 28, 55-65.

Graham, Suzanne; Santos, Denise. 2015. *Strategies for Second Language Listening. Current Scenarios and Improved Pedagogy.* England: Palgrave Macmillan.

Harrop, Ena. 2012. "Content and Language Integrated Learning (CLIL): Limitations and Possibilities". *Encuentro* 21, 57-70.

Hedge, Tricia. 2000. *Teaching and Learning in the Language Classroom.* Oxford: Oxford University Press.

Hillyard, Susan. 2011. "First steps in CLIL: Training the Teachers". *Latin American Journal of Content & Language Integrated Learning* 4(2), 1-12.

Hinkel, Eli. 2006. "Current Perspectives on Teaching the Four Skills". *TESOL Quarterly* 40(1), 109-131.

Hoven, Debra. 1999. "A Model for Listening and Viewing Comprehension in Multimedia Environments". *Language Learning and Technology* 3(1), 73-90.

İnceçay, Volkan; Koçoğlu, Zeynep. 2017. "Investigating the effects of multimedia input modality on L2 listening skills of Turkish EFL learners". *Education and Information Technologies* 22(3), 901-916.

Ioannou-Georgiou, Sophie. 2012. "Reviewing the puzzle of CLIL". *ELT Journal* 66(4), 495-504.

Jones, Linda C. 2009. "Supporting Student Differences in Listening Comprehension and Vocabulary Learning with Multimedia Annotations". *CALICO Journal* 26(2), 267-289.

Krashen, Stephen D. 1982. *Principles and Practice in Second Language Acquisition.* Oxford: Pergamon Press Ltd.

Lantolf, James P. 2012. "Sociocultural Theory: A dialectical approach to L2 research". In Gass, Susan M.; Mackey, Alison (eds.). *The Routledge Handbook of Second Language Acquisition*. New York, NY: Routledge.

Lasagabaster, David. 2008. "Foreign Language Competence in Content and Language Integrated Courses". *The Open Applied Linguistics Journal* 1, 31-42.

Lasagabaster, David. 2011. "English achievement and student motivation in CLIL and EFL settings". *Innovation in Language Learning and Teaching* 5(1), 3-18.

Lasagabaster, David; Doiz, Aintzane. 2016. "CLIL students' perceptions of their language learning process: delving into self-perceived improvement and instructional preferences". *Language Awareness* 25(1-2), 110-126.

Lasagabaster, David; Sierra, Juan M. 2009. „Language Attitudes in CLIL and Traditional EFL Classes". *International CLIL Research Journal* 1(2), 4-17.

Lasagabaster, David; Sierra, Juan M. 2010. „Immersion and CLIL in English: more differences than similarities". *ELT Journal* 64(4), 367-375.

Levon, Erez. 2010. "Organizing and Processing Your Data: The Nuts and Bolts of Quantitative Analyses". In Litosseliti, Lia. (ed.). *Research Methods in Linguistics*. London: Continuum International Publishing Group, 68-92.

Long, Donna R. 1990. "What you don't know can't help you. An Exploratory Study of Background Knowledge and Second Language Listening Comprehension". *Studies in Second Language Acquisition* 12, 65-80.

Lorenzo, Francisco; Casal, Sonia; Moore, Pat. 2009. "The Effects of Content and Language Integrated Learning in European Education: Key Findings from the Andalusian Bilingual Sections Evaluation Project". *Applied Linguistics* 31(3), 418-442.

Mackey, Alison; Abbuhl, Rebekha; Gass, Susan M. 2012. "Interactionist Approach". In Gass, Susan M.; Mackey, Alison (eds.). *The Routledge Handbook of Second Language Acquisition.* New York, NY: Routledge.

Marsh, David. 2010. *CLIL/EMILE: The european dimension: Actions, Trends and Foresight Potential.* Finland: UniCOM, Continuing Education Centre.

Marsh, David; Mehisto, Peeter; Wolff, Dieter; Frigols Martín, María J. 2010. *European Framework for CLIL Teacher Education*. Graz: European Center for Modern Languages.

Martínez-Flor, Alicia; Usó-Juan, Esther. 2006. "Towards acquiring communicative competence through listening". In Martínez-Flor, Alicia; Usó-Juan, Esther (eds.). *Studies on Language Acquisition. Current Trends in the Development and Teaching of the Four Language Skills.* Berlin: Mouton de Gruyter, 29-46.

McDougald, Jermaine S. 2016. "CLIL Approaches in Education: Opportunities, Challenges, or Threats?". *Latin American Journal of Content and Language Integrated Learning* 9(2), 253-266.

McLaughlin, Barry. 1987. *Theories of Second-Language Learning.* London: Edward Arnold (Publishers) Ltd.

McMillan, James H. 1996. *Educational Research. Fundamentals for the Consumer.* (2nd edition). New York, NY: HarperCollins College Publishers.

Mead, Nancy A.; Rubin, Donald L. 1985. "Assessing Listening and Speaking Skills". *ERIC Digest,* 1-3.

Mehisto, Peeter; Marsh, David; Frigols, María J. 2008. *Uncovering CLIL. Content and Language Integrated Learning in Bilingual and Multilingual Education.* London: Macmillan Education ELT.

Merisuo-Storm, Tuula. 2007. "Pupils' attitudes towards foreign-language learning and the development of literacy skills in bilingual education". *Teaching and Teacher Education* 23(2), 226-235.

Mevada, Shemal P.; Shah, Sunil. 2015. "Visuals and their Effect in Listening Comprehension". *ELT Voices-India* 5(1), 25-34.

Meyer, Oliver. 2011. "Introducing the CLIL-Pyramid: Key Strategies and Principles for Quality Planning and Teaching". In Eisenmann, Maria; Summer, Theresa (eds.). *Basic Issues in EFL Teaching*. Heidelberg: Universitätsverlag Winter, 295-313.

Mitchell, Rosamond; Myles, Florence. 1998. *Second Language Learning Theories*. London: Arnold.

Moate, Josephine. 2010. "The Integrated Nature of CLIL: A Sociocultural Perspective". *International CLIL Research Journal* 1(3), 38-45.

Morley, Joan. 2001. "Aural Comprehension Instruction: Principles and Practices" In Celce-Murcia, Marianne (ed.). *Teaching English as a Second or Foreign Language*. (3rd edition). Boston: Heinle & Heinle.

Muijs, Daniel. 2004. *Doing Quantitative Research in Education with SPSS.* London: Sage Publications.

Nation. Ian S. P.; Newton, Jonathan. 2009. *Teaching ESL/EFL Listening and Speaking.* New York: Routledge.

Nunan, David. 2002. "Listening in Language Learning". In Richards, Jack C.; Renandya, Willy A. (eds.). *Methodology in Language Teaching. An Anthology of Current Practice.* Cambridge: Cambridge University Press, 238-241.

Oddone, Christina. 2011. "Using Videos from Youtube and Websites in the CLIL Classroom". *Studies About Languages* 18, 105-110.

Paradis, Carita. 2013. "Lexical Semantics". *The Encyclopedia of Applied Linguistics*, 1-9.

Paran, Amos. 2012. "Language Skills: questions for teaching and learning". *ELT Journal* 66(4), 450-458.

Pérez-Cañado, María L. 2012. "CLIL research in Europe: past, present, future". *International Journal of Bilingual Education and Bilingualism* 15(3), 315-341.

Pérez Cañado, María L. 2016. "Are teachers ready for CLIL? Evidence from a European study". *European Journal of Teacher Education* 39(2), 202-221.

Pérez Cañado, María L. 2017. "CLIL teacher education: Where do we Stand and Where do we Need to Go?" In Gómez Parra, María E.; Johnstone, Richard (eds.). *Bilingual Education: Educational Trends and Key Concepts.* Spain: Ministerio de Educación, Cultura Y Deporte, 129-144.

Pérez-Vidal, Carmen; Roquet, Helena. 2015. "The linguistic impact of a CLIL *Science* programme: An analysis measuring relative gains". *System* 54, 80-90.

Peterson, Pat W. 2001. "Skills and Strategies for Proficient Listening". In Celce-Murcia, Marianne (ed.). *Teaching English as a Second or Foreign Language.* (3rd edition). Boston: Heinle & Heinle.

Prieto-Arranz, José I.; Rallo Fabra, Lucrecia; Calafat-Ripoll, Caterina; Catarin-González, Magdalena. 2015. "Testing Progress on Receptive Skills in CLIL and Non-CLIL Contexts". In Juan-Garau, Maria; Salazar-Noguera, Joana (eds.). *Content-based Language Learning in Multilingual Educational Environments*. Springer, 123-137.

Rapi, Leonard; Miconi, Harallamb. 2014. "Theoretical and Practical Problems in Designing Tests for Foreign Language Programs". *European Scientific Journal* 10(29), 156-164.

Rasinger, Sebastian M. 2010. "Quantitative Methods: Concepts, Frameworks and Issues". In Litosseliti, Lia. (ed.). *Research Methods in Linguistics*. London: Continuum International Publishing Group, 49-67.

Richards, Jack C. 1988. "Designing Instructional Materials for Teaching Listening Comprehension". *University of Hawai'i Working Papers in ESL* 7(1), 171-202.

Richards, Jack C. 2008. *Teaching Listening and Speaking*. Cambridge: Cambridge University Press.

Rixon, Shelagh. 1986. *Developing Listening Skills.* London: Macmillan Publishers Ltd.

Rost, Michael. 2002. *Teaching and Researching Listening*. (2nd edition). Harlow: Pearson Education Limited.

Rost, Michael. 2006. "Areas of research that influence L2 listening instruction". In Martínez-Flor, Alicia; Usó-Juan, Esther (eds.). *Studies on Language Acquisition. Current Trends in the Development and Teaching of the Four Language Skills*. Berlin: Mouton de Gruyter, 47-74.

Ruiz de Zarobe, Yolanda. 2013. "CLIL implementation: from policy-makers to individual initiatives". *International Journal of Bilingual Education and Bilingualism* 16(3), 231-243.

SchUG (Schulunterrichtsgesetz), Bundesgesetz über die Ordnung von Unterricht und Erziehung in den im Schulorganisationsgestz geregelten Schulen. 1986(472). http://www.ris.bka.gv.at/GeltendeFassung/Bundesnormen/10009600/SchUG%2c%20Fassung%20vom%2003.01.2018.pdf (3 Jan. 2018).

Seikkula-Leino, Jaana. 2007. "CLIL Learning: Achievement Levels and Affective Factors". *Language and Education* 21(4), 328-341.

Shi, Jun. 2015. "A Comparative Investigation into Response Types in Listening Comprehension Test". *Theory and Practice in Language Studies* 5(9), 1901-1907.

Smit, Ute. 2004. "Language policies in Viennese schools: the roles English plays". *Vienna English Working paperS (VIEWS)* 13(2), 69-87.

Smit, Ute; Finker, Thomas. 2016. "Zur Implementierung von CLIL in den Regelunterricht an HTL: Fragenentwicklung für die Evaluation und Fallstudien zur Unterrichtspraxis. Executive Summary des Forschungsprojekts". Wien: BMUKK.

Smith, Stan; Roodt, Gert. 2003. "An evaluation of response scale formats of the Culture Assessment Instrument". *SA Journal of Human Resource Management* 1(2), 60-75.

Statistics Canada. 2010. *Survey Methods and Practices*. http://www.statcan. gc.ca/pub/12-587-x/12-587-x2003001-eng.pdf (24 Feb. 2017).

Stempleski, Susan. 2002. "Video in the ELT Classroom: The Role of the Teacher". In Richards, Jack C.; Renandya, Willy A. (eds.). *Methodology in Language Teaching. An Anthology of Current Practice.* Cambridge: Cambridge University Press, 364-367.

Swain, Merrill. 1985. "Communicative Competence: Some Roles of Comprehensible Input and Comprehensible Output in its Development". In Gass, Susan; Madden, Carolyn G. (eds.). *Input in Second Language Acquisition.* Cambridge: Newbury House, 235-253.

Taylor, Lynda; Geranpayeh, Ardeshir. 2011. "Assessing Listening for academic purposes: Defining and operationalising the test construct". *Journal of English for Academic Purposes* 10, 89-101.

Thayer-Hart, Nancy; Dykema, Jennifer; Elver, Kelly; Schaeffer, Nora C.; Stevenson, John. 2010. *Survey Fundamentals: A Guide to Designing and Implementing Surveys.* Madison, WI: University of Wisconsin System Board of Regents.

Ur, Penny. 1984. *Teaching Listening Comprehension.* Cambridge: Cambridge University Press.

Vandergrift, Larry. 2007. "Recent developments in second and foreign language listening comprehension research". *Language Teaching* 40(3), 191-210.

Vandergrift, Larry; Goh, Christine C. M. 2012. *Teaching and Learning Second Language Listening. Metacognition in Action*. New York, Routledge.

Vogt, Paul W.; Vogt, Elaine R.; Gardner, Dianne C.; Haeffele, Lynne M. 2014. *Selecting the Right Analyses for Your Data. Quantitative, Qualitative and Mixed Methods.* New York, NY: The Guilford Press.

Wagner, Elvis. 2010. "The effect of the use of video texts on ESL listening test-taker performance". *Language Testing* XX(X), 1-21.

Wilson, Jeremy J. 2008. *How to teach listening.* Harlow: Pearson Education Limited.

Wolff, Dieter. 2010. "On the importance of CLIL in the context of the debate on plurilingual education in the European Union". In Marsh, David (ed.). *CLIL/EMILE: The european dimension: Actions, Trends and Foresight Potential.* Finland: UniCOM, Continuing Education Centre, 44-48.

Yang, Hui-Yu. 2014. "Does multimedia support individual differences? – EFL learners' listening comprehension and cognitive load". *Australasian Journal of Educational Technology* 30(6), 699-713.

Zhyrun, Iryna. 2016. "Culture through comparison: Creating audio-visual listening materials for a CLIL course". *Latin American Journal of Content and Language Integrated Learning* 9(2), 345-373.

9 Appendix

9.1 Abstract in English

Content and Language Integrated Learning (CLIL) is a relatively new educational approach that synthesizes the teaching and learning of both content and language. Having been implemented into nearly all European mainstream schools in the past two decades, CLIL appears to be a promising educational approach that is perceived to be capable to prepare students for an increasingly interconnected economic market, in which a broad repertoire of knowledge and skills are of paramount importance. This thesis will specifically deal with one of the four macro-skills, namely listening, in relation to CLIL education. In this respect, the primary aim of this thesis was to investigate whether CLIL education leads to a significant improvement of students' listening skills in English. A second aim of this thesis was to elicit students' subjective opinions on CLIL, after having received CLIL education for two months.

The empirical research of this thesis was conducted in an Austrian technical college (HTL), in which CLIL education is offered from the third grade onward. The sample, comprised of 46 students, was taken from three third grades of the IT department of a Viennese HTL, in which 36 students received CLIL education with English as the medium of instruction (CLIL group), and 10 students received their traditional content-subject education in German (non-CLIL group). The research period amounted to two months, in which the CLIL students participated in a total of 18 CLIL lessons. With regard to the first research aim, a pre- and post-test were constructed to investigate the development of CLIL and non-CLIL students' listening skills in English. The utilization of a 'pre-test post-test control group design' has revealed that CLIL education, offered in a two-month timeframe, does not lead to a significant improvement of students' listening skills. Although this finding implies that CLIL education did not substantially assist students in the endeavor to enhance their listening skills in English, it must be noted that comparable research findings suggest that the improvement of listening skills through CLIL education requires more time to develop. With regard to the second research aim, a student survey was devised, which aimed to elicit CLIL students' subjective opinions on CLIL in technical subjects. The findings disclosed that in general, the students would readily welcome more CLIL education in technical subjects, as they primarily perceive its benefits within the learning of content-specific technical vocabulary, useful for their future professional careers. Moreover, a substantial number of students demand a right of co-determination regarding the topics taught within this methodological approach, as well as emphasized that CLIL teachers should preferably possess certain language teaching qualifications which may render CLIL

education rewarding. Concerning students' self-perception of the improvement of their listening skills through CLIL, the general opinion stated that they did not believe that this skill significantly improved. Finally, diverging opinions have been gathered concerning whether students are more motivated to use a foreign language within CLIL lessons than traditional language lessons.

Further research on the development of students' listening skills in combination with CLIL education in secondary education is recommended, as literature and research evidence on the respective language skill is rather scarce. At best, future research should aim to employ a longitudinal research design, including quantitative as well as qualitative measures, which may be best suited to invest gate students' linguistic progress, as well as take into account students' respective perceptions and attitudes toward CLIL education.

9.2 Summary in German

Content and Language Integrated Learning (CLIL) ist eine verhältnismäßig neue Lehrmethode, die das Lehren und Lernen von Fachunterricht und Sprachunterricht vereint. In den letzten zwei Jahrzehnten wurde CLIL in nahezu allen europäischen Regelschulen eingeführt, da es sich als vielversprechender Bildungsansatz erwies, von dem angenommen wird dazu im Stande zu sein, SchülerInnen auf einen zunehmend vernetzen Wirtschaftsraum vorzubereiten, in welchem ein umfassendes Wissens- und Fähigkeits-Repertoire zwingend notwendig ist. Diese Diplomarbeit wird sich gezielt mit einem der vier Makro-Sprachfähigkeiten, nämlich dem Hörverständnis im Zusammenhang mit CLIL-Unterricht, beschäftigen. Primäres Ziel dieser Diplomarbeit war es zu erforschen, ob CLIL-Unterricht zu einer signifikanten Verbesserung des englischen Hörverständnisses von SchülerInnen führt. Desweiteren wurde die subjektive Meinung von CLIL-SchülerInnen, nach zweimonatigem Erhalt dieser Unterrichtsmethodik, erhoben.

Die empirische Studie dieser Diplomarbeit wurde in einer österreichischen Höheren Technischen Lehranstalt (HTL) durchgeführt, in welcher CLIL-Unterricht ab der dritten Schulstufe angeboten wird. Die Stichprobe, welche 46 SchülerInnen beinhält, wurde aus drei dritten Klassen der IT Abteilung einer Wiener HTL entnommen. Während 36 SchülerInnen CLIL-Unterricht, mit English als Unterrichtssprache, erhielten (CLIL group), wurden 10 SchülerInnen in ihren traditionellen Fachunterricht in Deutsch unterrichtet (non-CLIL group). Der Forschungszeitraum betrug zwei Monate, in welchem die CLIL-Gruppe in insgesamt 18 CLIL-Unterrichtseinheiten teilnahm. In Bezug auf den ersten Forschungsschwerpunkt wurde ein Pre-Test und Post-Test entworfen, welcher die Entwicklung des englischen Hörverständnisses der CLIL und non-CLIL SchülerInnen untersuchte. Die Anwendung einer 'pre-test post-

test control group'-Methodik ergab, dass CLIL-Unterricht – in einem Zeitraum von zwei Monaten – zu keiner signifikanten Verbesserung des Hörverständnisses führt. Obwohl diese Untersuchungsergebnisse andeuten, dass CLIL-Unterricht SchülerInnen nicht nennenswert bei dem Vorhaben unterstützt, ihr Hörverständnis in einer Fremdsprache zu verbessern muss hervorgehoben werden, dass vergleichbare Studienergebnisse darauf hinweisen, dass die Verbesserung des Hörverständnisses durch CLIL-Unterricht einen weitaus längeren Zeitraum in Anspruch nimmt. In Bezug auf den zweiten Forschungsschwerpunkt wurde ein Fragebogen entwickelt, welcher die subjektive Meinung der CLIL-Gruppe im Zusammenhang mit technischem Fachunterricht erfassen sollte. Die Forschungsergebnisse ergaben, dass eine beträchtliche Zahl an SchülerInnen mehr CLIL-Unterricht in technischen Unterrichtsgegenständen bereitwillig begrüßen würden, da sie dessen Stärken vor allem im Erlernen von technischem Vokabular sehen, welches für ihre spätere berufliche Laufbahn von großer Bedeutung zu sein scheint. Zusätzlich fordert ein großer Teil der CLIL-SchülerInnen ein Mitbestimmungsrecht in Bezug auf die Themengebiete, die in diesem Lehr- und Lernformat unterrichtet werden. Ein weiterer großer Themenschwerpunkt der im Rahmen des Fragebogens geäußert wurde ist, dass CLIL-Lehrer vorzugsweise über ausreichende Qualifikationen über das Unterrichten von Fremdsprachen in einem Fachgegenstand verfügen sollten, um CLIL als vollends bereichernden Zusatz sehen zu können. Bei der Befragung der Selbstwahrnehmung der CLIL-SchülerInnen kam zum Vorschein, dass sie nicht der Meinung sind, dass CLIL-Unterricht erheblich zur Verbesserung ihres Hörverständnisses beigetragen hat. Abschließend wurden divergierende Meinungen erfasst, die darauf hindeuten, dass CLIL – im Vergleich zu traditionellem Fremdsprachenunterricht – keine erhöhte Motivation begünstigt.

Weiterführende Forschungsarbeiten in Bezug auf die Entwicklung des Hörverständnisses im Zusammenhang mit CLIL-Unterricht in der Sekundarstufe wird empfohlen, da Literatur und Forschungsevidenzen zu der besagten Sprachfähigkeit kaum vorhanden sind. Bestenfalls würden weiterführende Forschungsarbeiten ein Längsschnittstudien-Design verwenden, in welchem quantitative und qualitative Daten erhoben werden, die dazu geeignet sind sowohl den sprachlichen Fortschritt, als auch die jeweiligen Empfindungen und Einstellungen der Schülerinnen im Zusammenhang mit CLIL-Unterricht darzustellen.

9.3 Material – Empirical Research

The following pages include the Item Characterization Form (ICF) of the pre- and post-test (incl. the tests), the complete scores of the pre- and post-test, the student survey and the quantitative scores of questionnaire items 1 – 8.

9.3.1 Pre-Test – Test Construct & Test

Test Construct & Tasks (Listening Skills)
PRE-TEST

Task developer: Vanessa Döring
Description of the test-takers: – <u>School Type:</u>   Austrian Technical College (Focus: Information Technology) – <u>Age of Students:</u> 16-17yrs – <u>Classes:</u>   3AI, 3BI, 3CI – <u>CEFR-Scale:</u>   B1
Constructs which were defined on the basis of the course topics: – Can understand straightforward factual information about job related topics, identifying both general messages and specific details, provided speech is clearly articulated in a generally familiar accent (**CEFR B1, Reception Spoken**). – Can understand main points of clear standard speech on familiar matters regularly encountered in school and lectures (**CEFR B1, Reception Spoken**). – Can follow a lecture or talk within his/her own field, provided the subject matter is familiar and the presentation straightforward and clearly structured (**CEFR B1, Reception Spoken**). – Can understand simple technical information (**CEFR B1, Reception Spoken**). – Can understand a large part of topics of personal interest such as short lectures when the delivery is relatively slow and clear (**CEFR B1, Reception Audio/Visual**). – Can identify unfamiliar words from the context on topics related to his/her field and interests (**CEFR B1, Reception**) – Can paraphrase short written passages in a simple fashion, using the original text wording and ordering (**CEFR B1, Processing Text**)
Constructs which are represented in the chosen items: The test-taker has the ability to – process texts that have the linguistic characteristics of typical spoken language automatically and in real-time. – understand the basic linguistic information in a text dealing with video editing basics, video formats and video codecs (grammatical knowledge). – extract the main idea of a certain topic given in a lecture. – process longer texts (discourse knowledge, pragmatic knowledge and strategic knowledge). – understand inferred meanings, and thus can go beyond the literal meaning of texts. – produce knowledge-dependent interpretations (based on video editing basics, video formats and video codecs). – process clearly stated information concerning the target-language use situation. – ignore irrelevant information of a text.

Input:
 – Listening text (lecture on video editing basics, video formats and video codecs)
 – Length: 08:28 (total)
    – **Task 1:** 04:27 (played once)
    – **Task 2:** 04:01 (played once)
 – Instructions (written)
 – Questions (written)
	Authenticity (TLU):
	 – **Listening text (Lecture)**
	    – Sample of authentic speech
	      – Ensures actual target language use
	 – **Test rubric**
	    – Replicates the effects of a real-world listening purpose (same structure)
	    – **Task 2:** Questions are given before the listening comprehension (language use takes place for a definite purpose → extracting details)
	 – **Situational Authenticity altered**
	    – **Task 1:**
	      – Played once; no listening for detail
	      – Test-takers are allowed to take notes (resembles lecture)
	    – **Task 2:**
	      – Text played once; listening for detail
	      – Test-takers can skim through the summary before listening to the text
	      – Test-takers are allowed to take notes (resembles lecture)
	 – **Visual Information**
	    – Improves situational and interactional authenticity

Topic(s): – **Task 1:** Video editing basics – **Task 2:** Video formats & video codecs	**Concrete/abstract:** – Content (Task 1 & Task 2) = concrete
Register/style: – (rather) Formal register and style	**Note taking:** – **Task 1:** Allowed – **Task 2:** Allowed

Test methods:
 – **Multiple-Answer (Task 1)**
    – Literal level (gram. Knowledge)
    – Combining information from different parts of the text
    – Making pragmatic inferences
    – Understanding implicit meanings
    – Extracting details
	Level of difficulty (CEFR):
	 – Task 1: B1
	 – Task 2: B1

	– **Gap-Filling (Task 2)**
	   – Extracting details
	   – Process longer texts
	   – Process clearly stated infor-
	     mation
	   – Ignore irrelevant information	

	Task 1: Listening Comprehension (Video Editing Basics)
	Source: https://vimeo.com/17853140
	Text title: Video 101: Editing Basics
	Topic: Video Editing Basics
	Author: Vimeo Video School
Items/Task (source)	**Date of publication:** Dec 16th, 2010

	Characteristics of the input:
	   – **Format:** spoken, visual input, length: 04:27
	   – **Language of input:** grammatical knowledge, pragmatic knowledge, sociolinguistic knowledge
	   – **Topical knowledge:** none needed

	Characteristics of the expected response:
	   – **Format:** selected, items: 10
	   – **Language of expected response:** L2, more than one correct answer possible

	Task: Listening Comprehension (Video Formats & Codecs)
	Source: https://youtu.be/2cbXxyr0DCY
	Text title: Encoding 101 - learn the basics of video encoding
	Topic: Video Formats & Codecs
	Author: Sorenson Media - Squeeze
Items/Task (source)	**Date of publication:** Mar 30th, 2011

	Characteristics of the input:
	   – **Format:** spoken, visual input, length: 04:01
	   – **Language of input:** grammatical knowledge, pragmatic knowledge, sociolinguistic knowledge
	   – **Topical knowledge:** none needed

	Characteristics of the expected response:
	   – **Format:** constructed, items: 10
	   – **Language of expected response:** L2, only one correct answer possible

Characteristics of the setting

– **Physical Characteristics:** HTL classroom, no background noise, recorded listening text (video input)
 – **Participants (46):**
   o 3AI: 15 (10 Male, 5 Female)
   o 3BI: 20 (Male only)
   o 3CI: 11 (Male only)
 – **Time allotment for Tasks:** 12 minutes in total (Listening passage = ~8:28 minutes)

Time allotment:	Weighting of items:
– **Listening texts:** 8:28 minutes – **Preparation time:** 10 minutes – **Task 1:** 5 minutes – **Task 2:** 7 minutes	– **Task 1:** up to 1 point per item – **Task 2:** up to 1 point per item o Variation: 0.5 points per item, if misspelled, incomplete word (or false form of word)

Scoring method / criteria:
- Clear directions for scoring.
- Uniform rubrics for scoring.
- Tasks/items are unambiguous to the test-taker.
  - Task 1:
    - Partial credit scoring (score depends on the correct options of each item – maximum points that can be reached per item = 1, minimum points that can be reached per item = 0; score per item cannot be negative)
      - 1 correct, 3 incorrect
        - Correct option = 1pt
        - Incorrect option = -0.33
      - 2 correct, 2 incorrect
        - Correct option = 0.5
        - Incorrect option = -0,5
      - 3 correct, 1 incorrect
        - Correct option = 0,33
        - Incorrect option = -1
      - 4 correct, 0 incorrect
        - Correct option = 0.25
        - Incorrect option = 0
  - Task 2:
    - Partial credit scoring (0 / 0.5 /1)
    - Spelling mistakes and incomplete words (or false form of word/s) will not lead to a score of zero, but will lead to a deduction of 0.5 points (even if the right word was chosen)

Items

	Construct	Does the item need revising? (Yes/No; brief info)	What CEFR level does a candidate minimally have to be to get the item right?
0	What part of the construct does this item measure?	Were any alterations made on the items taken from another source? If so, which?	Items must not necessarily be on the same level.
Task 1 – Video Editing Basics			
1	Grammatical knowledge, extracting details, comprehension process, retrieval process, discourse knowledge	No	**B1**
2	Grammatical knowledge, discourse knowledge, retrieval process	No	**B1**
3	Grammatical knowledge, sociolinguistic knowledge, retrieval process, comprehension process, pragmatic inference	No	**B1**
4	Grammatical knowledge, retrieval process, memory process	No	**B1**
5	Grammatical knowledge, comprehension process, extracting details	No	**B1**
6	Discourse knowledge, comprehension process, sociolinguistic knowledge, understanding implicit meanings	No	**B1**
7	Extracting details, grammatical knowledge, comprehension process, memory process, retrieval process	No	**B1**
8	Extracting details, grammatical knowledge, comprehension process, memory process, retrieval process	No	**B1**
9	Extracting details, grammatical knowledge, comprehension process, memory process, retrieval process	No	**B1**
10	Discourse knowledge, sociolinguistic knowledge, pragmatic inference	No	**B1**

	Task 2 – Video Formats & Codecs		
11	Extracting details, grammatical knowledge, processing longer texts, processing clearly stated information, memory process, retrieval process	No	**B1**
12	----- ,, ---------	No	**B1**
13	----- ,, ---------	No	**B1**
14	----- ,, ---------	No	**B1**
15	----- ,, ---------	No	**B1**
16	----- ,, ---------	No	**B1**
17	----- ,, ---------	No	**B1**
18	----- ,, ---------	No	**B1**
19	----- ,, ---------	No	**B1**
20	----- ,, ---------	No	**B1**

Answer key:

Task 1	Task 2
1. B, C	11. codecs
2. B, C	12. formats
3. A, B, D	13. formats
4. A, B, C, D	14. codecs
5. B, C	15. Adobe Flash format
6. D	16. progressive download
7. A, B, D	17. streaming
8. B, D	18. uncompressed
9. B	19. format
10. A	20. audio

Task 1 – Video Editing Basics

Having listened to the text, choose the most suitable option/s out of four options given (⊠). It is possible that more than one option is correct (1, 2, 3 or 4 options can be correct). Each question is worth one point.

1. <u>According to Steve, what is needed to transfer files from a device to a computer?</u>

☐	**A**	A camera.
☐	**B**	A memory card reader.
☐	**C**	A USB cord.
☐	**D**	A USB stick.

2. <u>Why does Joe have to produce folders on his desktop?</u>

☐	**A**	To label his footage.
☐	**B**	For organizing purposes.
☐	**C**	To have a storage place for his footage.
☐	**D**	to be able to edit the footage.

3. <u>Why does Joe ask Steve if he wants to have a glass of water?</u>

☐	**A**	Because he wanted to be nice.
☐	**B**	Because he was transferred from the camera to the computer.
☐	**C**	Because Steve asked for a glass of water.
☐	**D**	Because the transfer has shaken Steve a little.

4. <u>What are the basic elements of video editing, named in the passage?</u>

☐	**A**	Importing video material.
☐	**B**	Frequent saving.
☐	**C**	Adding clips.
☐	**D**	Cutting clips.

5. <u>When you add music to your video, what do you have to do?</u>

☐	**A**	Add a title.
☐	**B**	Ask the author for permission.
☐	**C**	Drag the music file into the timeline.
☐	**D**	Upload it on a video platform.

6. <u>Why was the file that Joe created deleted?</u>

☐	**A**	Because it was saved.
☐	**B**	Because the computer shut down.
☐	**C**	Because It was already uploaded on a video platform.
☐	**D**	Because it was not saved.

7. Where are clips uploaded in a program?

☐	**A**	In the bin
☐	**B**	In the program
☐	**C**	In the item storage
☐	**D**	In the file organization folder

8. Before editing a footage, what should be done?

☐	**A**	The original file should be uploaded into the program.
☐	**B**	A copy of the original files.
☐	**C**	Files should be uploaded onto a website.
☐	**D**	Files should be stored on a hard drive or DVD.

9. What does Steve tell Joe to do before working on a video project?

☐	**A**	Record a footage.
☐	**B**	Organize available files.
☐	**C**	Open the video editing program.
☐	**D**	Turn on the computer.

10. Why does Joe mention his wife?

☐	**A**	Because she knows that Joe is a good organizer.
☐	**B**	Because she knows that he has no profession in video editing.
☐	**C**	Because he offered Steve a glass of water.
☐	**D**	Because she has the camera footage.

Scoring:
- Each question is worth one point.
- Depending on the total of correct and incorrect options of each question, partial points are given.
- The passing rate is 60% (= 6 points).
- The maximum of points that can be reached is 10 points (= 100%).
- The minimum of points that can be reached is 0 points (= 0%).

Points/Percentage reached:

Task 2 – Video Formats & Codecs

Having listened to the text, choose the most appropriate word as given in the box below the summary. Each correctly filled gap is worth one point.

Each encoded video contains two major parts. _____ (which compress the video), and _____ (the file-type that is output after the compression). The _____ are shipping boxes and the _____ are the goods inside. The majority of the video on the web is in the _____. Before being able to encode videos, one must understand the two methods of delivering videos online (= Delivery Method). The first method called _____, is mostly used for videos uploaded on the internet, and typically used for videos under ten minutes in length. The second method is called _____ and is easier to navigate through, because you can easily click "Play" and jump to any point in the video. When encoding, it is best to use _____ camera footage. Also, when encoding videos, make sure to choose the best _____ for your audience. Lastly, don't forget about the _____, and remember the old saying that says "Good sound is half the picture"!

Words:

uncompressed	practices	h.264	codec/s
low data	progressive download	delivery system	browser
Windows Media format	picture	format/s	Adobe Flash format
tone	editing system	compressed	Flash player
file	source	audio	streaming

Scoring:
- Each question is worth one point.
- The passing rate is 60% (= 6 points).
- The maximum of points that can be reached is 10 points (= 100%).
- The minimum of points that can be reached is 0 points (= 0%).

Points/Percentage reached:

9.3.2 Post-Test – Test Construct & Test

Test Construct & Tasks (Listening Skills)
POST-TEST

Task developer: Vanessa Döring
Description of the test-takers: – <u>School Type:</u>   Austrian Technical College (Focus: Information Technology) – <u>Age of Students:</u> 16-17yrs – <u>Classes:</u>   3AI, 3BI, 3CI – <u>CEFR-Scale:</u>   B1
Constructs which were defined on the basis of the course topics: – Can understand straightforward factual information about job related topics, identifying both general messages and specific details, provided speech is clearly articulated in a generally familiar accent (**CEFR B1, Reception Spoken**). – Can understand main points of clear standard speech on familiar matters regularly encountered in school and lectures (**CEFR B1, Reception Spoken**). – Can follow a lecture or talk within his/her own field, provided the subject matter is familiar and the presentation straightforward and clearly structured (**CEFR B1, Reception Spoken**). – Can understand simple technical information (**CEFR B1, Reception Spoken**). – Can understand a large part of topics of personal interest such as short lectures when the delivery is relatively slow and clear (**CEFR B1, Reception Audio/Visual**). – Can identify unfamiliar words from the context on topics related to his/her field and interests (**CEFR B1, Reception**) – Can paraphrase short written passages in a simple fashion, using the original text wording and ordering (**CEFR B1, Processing Text**)
Constructs which are represented in the chosen items: The test-taker has the ability to – process texts that have the linguistic characteristics of typical spoken language automatically and in real-time. – understand the basic linguistic information in a text dealing with video shooting basics, video formats and video codecs (grammatical knowledge). – extract the main idea of a certain topic given in a lecture. – process longer texts (discourse knowledge, pragmatic knowledge and strategic knowledge). – understand inferred meanings, and thus can go beyond the literal meaning of texts. – produce knowledge-dependent interpretations (based on video shooting basics, video formats and video codecs). – process clearly stated information concerning the target-language use situation. – ignore irrelevant information of a text.

141

Input:	Authenticity (TLU):

– Listening text (lecture on video editing basics, video formats and video codecs)
– Length: 08:07 (total)
    – **Task 1:** 04:25 (played once)
    – **Task 2:** 03:42 (played once)
– Instructions (written)
– Questions (written)
	– **Listening text (Lecture)**
	    – Sample of authentic speech
	        – Ensures actual target language use
	
	– **Test rubric**
	    – Replicates the effects of a real-world listening purpose (same structure)
	    – **Task 2:** Questions are given before the listening comprehension (language use takes place for a definite purpose → extracting details)
	
	– **Situational Authenticity altered**
	    – **Task 1:**
	        – Played once; no listening for detail
	        – Test-takers are allowed to take notes (resembles lecture)
	    – **Task 2:**
	        – Text played once; listening for detail
	        – Test-takers can skim through the summary before listening to the text
	        – Test-takers are allowed to take notes (resembles lecture)
	
	– **Visual Information**
	    – Improves situational and interactional authenticity

Topic(s):	**Concrete/abstract:**
– **Task 1:** Video shooting basics – **Task 2:** Video formats & video codecs	– Content (Task 1 & Task 2) = concrete
Register/style:	**Note taking:**
– (rather) Formal register and style	– **Task 1:** Allowed – **Task 2:** Allowed

Test methods:	Level of difficulty (CEFR):

– **Multiple-Answer (Task 1)**
  – Literal level (gram. Knowledge)
  – Combining information from different parts of the text
  – Making pragmatic inferences
  – Understanding implicit meanings
  – Extracting details
– **Gap-Filling (Task 2)**
  – Extracting details
  – Process longer texts
  – Process clearly stated information
  – Ignore irrelevant information
	– Task 1: B1
	– Task 2: B1

Items/Task (source)	
	Task 1: Listening Comprehension (Video Shooting Basics)
	Source: https://vimeo.com/17853099
	Text title: Video 101: Shooting Basics
	Topic: Video Shooting Basics
	Author: Vimeo Video School
	Date of publication: Dec 16th, 2010
	Characteristics of the input: – **Format:** spoken, visual input, length: 04:25 – **Language of input:** grammatical knowledge, pragmatic knowledge, sociolinguistic knowledge – **Topical knowledge:** none needed
	Characteristics of the expected response: – **Format:** selected, items: 10 – **Language of expected response:** L2, more than one correct answer possible

Items/Tasks (source)	
	Task: Listening Comprehension (Video Formats & Codecs)
	Source: https://www.youtube.com/watch?v=fLlkgTRZSzc
	Text title: What's the Difference Between AVCHD and H.264?
	Topic: Video Formats & Codecs
	Author: Videomaker
	Date of publication: Nov 1st, 2013

	Characteristics of the input: – **Format:** spoken, visual input, length: 03:42 – **Language of input:** grammatical knowledge, pragmatic knowledge, sociolinguistic knowledge – **Topical knowledge:** none needed
	Characteristics of the expected response: – **Format:** constructed, items: 10 – **Language of expected response:** L2, only one correct answer possible

Characteristics of the setting
- **Physical Characteristics:** HTL classroom, no background noise, recorded listening text (video input)
- **Participants (48):**
  - 3AI: 15 (10 Male, 5 Female)
  - 3BI: 22 (Male only)
  - 3CI: 11 (Male only)
- **Time allotment for Tasks:** 12 minutes in total (Listening passage = ~8:07 minutes)

Time allotment: – **Listening texts:** 08:07 minutes – **Preparation time:** 10 minutes – **Task 1:** 5 minutes – **Task 2:** 7 minutes	**Weighting of items:** – **Task 1:** up to 1 point per item – **Task 2:** up to 1 point per item o Variation: 0.5 points per item, if misspelled, incomplete word (or false form of word)

Scoring method / criteria:
- Clear directions for scoring.
- Uniform rubrics for scoring.
- Tasks/items are unambiguous to the test-taker.
  - Task 1:
    - Partial credit scoring (score depends on the correct options of each item – maximum points that can be reached per item = 1, minimum points that can be reached per item = 0; score per item cannot be negative)
      - 1 correct, 3 incorrect
        - Correct option = 1pt
        - Incorrect option = -0.33
      - 2 correct, 2 incorrect
        - Correct option = 0.5
        - Incorrect option = -0.5
      - 3 correct, 1 incorrect
        - Correct option = 0.33
        - Incorrect option = -1
      - 4 correct, 0 incorrect
        - Correct option = 0.25
        - Incorrect option = 0
        - Not ticked = -0.25
  - Task 2:
    - Partial credit scoring (0 / 0.5 /1)
    - Spelling mistakes and incomplete words (or false form of word/s) will not lead to a score of zero, but will lead to a deduction of 0.5 points (even if the right word was chosen)

144

Items

	Construct	Does the item need revising? (Yes/No; brief info)	What CEFR level does a candidate minimally have to be to get the item right?
0	What part of the construct does this item measure?	Were any alterations made on the items taken from another source? If so, which?	Items must not necessarily be on the same level.
Task 1 – Video Shooting Basics			
1	Extracting details, comprehension process, retrieval process	No	B1
2	Grammatical knowledge, discourse knowledge, retrieval process	No	B1
3	Grammatical knowledge, sociolinguistic knowledge, retrieval process, comprehension process	No	B1
4	Grammatical knowledge, retrieval process, memory process, comprehension process, extracting details	No	B1
5	Grammatical knowledge, comprehension process, extracting details	No	B1
6	Comprehension process, grammatical knowledge, extracting details, retrieval process	No	B1
7	Discourse knowledge, grammatical knowledge, extracting details, comprehension process, retrieval process	No	B1
8	Extracting details, grammatical knowledge, comprehension process, memory process, retrieval process	No	B1
9	Extracting details, grammatical knowledge, comprehension process, memory process, retrieval process	No	B1
10	Discourse knowledge, sociolinguistic knowledge, pragmatic inference	No	B2

<table>
<tr><td colspan="4" align="center">**Task 2 – Video Formats & Codecs**</td></tr>
<tr>
<td>11</td>
<td>Extracting details, grammatical knowledge, processing longer texts, processing clearly stated information, memory process, retrieval process</td>
<td>No</td>
<td>**B1**</td>
</tr>
<tr>
<td>12</td>
<td>----- ,, ----------</td>
<td>No</td>
<td>**B1**</td>
</tr>
<tr>
<td>13</td>
<td>----- ,, ----------</td>
<td>No</td>
<td>**B1**</td>
</tr>
<tr>
<td>14</td>
<td>----- ,, ----------</td>
<td>No</td>
<td>**B1**</td>
</tr>
<tr>
<td>15</td>
<td>----- ,, ----------</td>
<td>No</td>
<td>**B1**</td>
</tr>
<tr>
<td>16</td>
<td>----- ,, ----------</td>
<td>No</td>
<td>**B1**</td>
</tr>
<tr>
<td>17</td>
<td>----- ,, ----------</td>
<td>No</td>
<td>**B1**</td>
</tr>
<tr>
<td>18</td>
<td>----- ,, ----------</td>
<td>No</td>
<td>**B1**</td>
</tr>
<tr>
<td>19</td>
<td>----- ,, ----------</td>
<td>No</td>
<td>**B1**</td>
</tr>
<tr>
<td>20</td>
<td>----- ,, ----------</td>
<td>No</td>
<td>**B1**</td>
</tr>
</table>

Answer key:

Task 1	Task 2
11. A, C	11. containers
12. B	12. file extensions
13. A, B, C, D	13. containers
14. D	14. codec
15. A	15. decompress
16. A, C	16. codec
17. A, B, C, D	17. formats
18. A, B	18. categorize
19. A	19. h.264
20. A, C	20. AVCHD

Task 1 – Video Shooting Basics

Having listened to the text, choose the most suitable option/s out of four options given (☒). It is possible that more than one option is correct (1, 2, 3 or 4 options can be correct). Each question is worth one point.

1. <u>Which parts of your camera should you check before filming?</u>

☐	**A**	The battery.
☐	**B**	The tripod.
☐	**C**	The memory card.
☐	**D**	The lighting.

2. <u>When filming, you must keep an eye on lighting. What tip does Dan give?</u>

☐	**A**	The primary light source should always come from behind.
☐	**B**	The primary light source should always face the subjects.
☐	**C**	The primary light source should always be above the subjects.
☐	**D**	The primary light source should always be beside the subjects.

3. <u>Which tips does Dan give Joe on camera and filming stability?</u>

☐	**A**	Joe should use a tripod.
☐	**B**	Joe should use two hands to film.
☐	**C**	Joe should put the camera on a steady surface.
☐	**D**	Joe should stand shoulder width apart with his feet.

4. <u>When filming, how many seconds should a subject stay in the camera (at least)?</u>

☐	**A**	2 seconds.
☐	**B**	3 seconds.
☐	**C**	4 seconds.
☐	**D**	5 seconds.

5. <u>Dan mentions a horizontal and vertical division of the frame. How many frames are there to each?</u>

☐	**A**	The frame is divided into horizontal and vertical thirds.
☐	**B**	The frame is divided into horizontal and vertical fourths.
☐	**C**	The frame is divided into horizontal and vertical fifths.
☐	**D**	The frame is divided into horizontal and vertical sixths.

6. <u>When filming, subjects should …</u>

☐	**A**	… not stand in the middle of the frame.
☐	**B**	… stand in the middle of the frame.
☐	**C**	… stand a little to the left or right of the frame.
☐	**D**	… should be tall enough to fill the frame.

7.　Which of the tips below are mentioned in the text?

☐	**A**	The camera lens should be kept clean.
☐	**B**	The battery of the camera should be charged.
☐	**C**	The memory card should have plenty of space.
☐	**D**	The primary lighting should always face the subjects.

8.　What equipment can be used to reduce unwanted shadows?

☐	**A**	A sheet of white paper.
☐	**B**	A piece of cardboard.
☐	**C**	A new lens.
☐	**D**	Nothing.

9.　What technical term for moving a camera vertically is used in the clip?

☐	**A**	Tilt.
☐	**B**	Pan.
☐	**C**	Mode.
☐	**D**	Focus.

10.　Why does Joe always try to get away from Dan?

☐	**A**	Because Dan follows Joe around.
☐	**B**	Because Dan gives Joe useful shooting tips.
☐	**C**	Because Dan distracts Joe.
☐	**D**	Because Dan does not want to receive any advice on filming.

Scoring:
- Each question is worth one point.
- Depending on the total of correct and incorrect options of each question, partial points are given.
- The passing rate is 60% (= 6 points).
- The maximum of points that can be reached is 10 points (= 100%).
- The minimum of points that can be reached is 0 points (= 0%).

Points/Percentage reached:

Task 2 – Video Formats & Codecs

Having listened to the text, choose the most appropriate word as given in the box below the summary. Each correctly filled gap is worth one point.

Some common _____ are: AVI, MOV, MTS, MXF, OGG, MP4, FLV. Anyone who has worked on a PC has probably seen these _____. In these _____ multiple types of data, such as video data, audio data, a timecode and certain instructions, are stored. In order to reduce file size, a _____, which can compress and _____ video and audio data, can be used. However, in order to play and work with a file, you must have the right _____ installed on your system. When discussing this topic, one has to mention _____, as they are names given to a standard set of rules that apply to the way videos are taken. Through these, we can _____ codecs and video options. The best known codec is called _____ and according to the presenter from "Videomaker", _____ is a format that uses this codec.

Words:

decompress	streaming	codec	delete
upload	audio file	Adobe Flash	containers
include	file extensions	compress	source
h.264	standardize	formats	browsers
download	AVCHD	file	categorize

Scoring:
- Each question is worth one point.
- The passing rate is 60% (= 6 points).
- The maximum of points that can be reached is 10 points (= 100%).
- The minimum of points that can be reached is 0 points (= 0%).

Points/Percentage reached:

9.3.3 Pre- & Post-Test – Test Results

Class	ID	Group	Sex*	Pre-Test (Task 1)**	Pre-Test (Task 2)	Pre-Test (Sum)	Post-Test (Task 1)	Post-Test (Task 2)	Post-Test (Sum)
3AI	16-02-11	CLIL	M	**8.24** (82.40%)	**10** (100%)	**18.24** (91.20%)	**9.5** (95%)	**8** (80%)	**17.5** (87.50%)
	13-18-19	CLIL	M	**7.08** (70.80%)	**8** (80%)	**15.08** (75.40%)	**8.66** (86.60%)	**6** (60%)	**14.66** (73.30%)
	13-07-29	CLIL	M	**5.74** (57.40%)	**9** (90%)	**14.74** (73.70%)	**9** (90%)	**9** (90%)	**18** (90%)
	06-13-19	CLIL	M	**5.65** (56.50%)	**9** (90%)	**14.65** (73.25%)	**8** (80%)	**9** (90%)	**17** (85%)
	20-18-19	CLIL	M	**7.49** (74.90%)	**9** (90%)	**16.49** (82.45%)	**9** (90%)	**9** (90%)	**18** (90%)
	13-16-31	CLIL	M	**7.24** (72.40%)	**7** (70%)	**14.24** (71.20%)	**8.25** (82.50%)	**7** (70%)	**15.25** (76.25%)
	05-20-02	CLIL	F	**6.33** (63.30%)	**5** (50%)	**11.33** (56.65%)	**9.25** (92.50%)	**7** (70%)	**16.25** (81.25%)
	20-01-18	CLIL	F	**5.99** (59.90%)	**7** (70%)	**12.99** (64.95%)	**7.25** (72.50%)	**9** (90%)	**16.25** (81.25%)
	11-11-12	CLIL	F	**5.66** (56.60%)	**10** (100%)	**15.66** (78.30%)	**6.75** (67.50%)	**7** (70%)	**13.75** (68.75%)
	19-03-09	CLIL	F	**6.15** (61.50%)	**8** (80%)	**14.15** (70.75%)	**8.25** (82.50%)	**9** (90%)	**17.25** (86.25%)
	14-04-09	CTRL-G	F	**4.32** (43.20%)	**3** (30%)	**7.32** (36.60%)	**7.25** (72.50%)	**6** (60%)	**13.25** (66.25%)
	20-19-05	CTRL-G	M	**6.48** (64.80%)	**7** (70%)	**13.48** (67.40%)	**9.5** (95%)	**10** (100%)	**19.5** (97.50%)
	20-12-11	CTRL-G	M	**6.66** (66.60%)	**10** (100%)	**16.66** (83.30%)	**8.5** (85%)	**10** (100%)	**18.5** (92.50%)
	13-08-01	CTRL-G	M	**6.57** (65.70%)	**8** (80%)	**14.57** (72.85%)	**8.75** (87.50%)	**9** (90%)	**17.75** (88.75%)
	13-04-26	CTRL-G	M	**6.24** (62.40%)	**10** (100%)	**16.24** (81.20%)	**8** (80%)	**7** (70%)	**15** (75%)
* M = Male, F = Female; **** Score (Percentage of Score)**				**Max Pts. = 10** **Max % = 100%**	**Max Pts. = 10** **Max % = 100%**	**Max Pts. = 20** **Max % = 100%**	**Max Pts. = 10** **Max % = 100%**	**Max Pts. = 10** **Max % = 100%**	**Max Pts. = 20** **Max % = 100%**

Class	ID	Group	Sex*	Pre-Test (Task 1)**	Pre-Test (Task 2)	Pre-Test (Sum)	Post-Test (Task 1)	Post-Test (Task 2)	Post-Test (Sum)
3BI	13-02-06	CLIL	M	5.49 (54.90%)	8 (80%)	13.49 (67.45%)	8.25 (82.50%)	8 (80%)	16.25 (81.25%)
	02-02-21	CLIL	M	7.99 (79.90%)	7 (70%)	14.99 (74.95%)	9.5 (95%)	9 (90%)	18.5 (92.50%)
	06-10-01	CLIL	M	7.74 (77.40%)	8 (80%)	15.74 (78.70%)	9 (90%)	9 (90%)	18 (90%)
	03-10-17	CLIL	M	6.99 (69.90%)	10 (100%)	16.99 (84.95%)	9.5 (95%)	8 (80%)	17.5 (87.50%)
	19-09-12	CLIL	M	7.93 (79.30%)	7.5 (75%)	15.43 (77.15%)	9 (90%)	10 (100%)	19 (95%)
	19-02-29	CLIL	M	5.99 (59.90%)	9 (90%)	14.99 (74.95%)	9.5 (95%)	9 (90%)	18.5 (92.50%)
	01-05-12	CLIL	M	4.49 (44.90%)	6 (60%)	10.49 (52.45%)	7.5 (75%)	8 (80%)	15.5 (77.50%)
	14-20-17	CLIL	M	7.82 (78.20%)	8 (80%)	15.82 (79.10%)	9.5 (95%)	9 (90%)	18.5 (92.50%)
	11-04-13	CLIL	M	6.16 (61.60%)	6 (60%)	12.16 (60.80%)	6.75 (67.50%)	7 (70%)	13.75 (68.75%)
	16-16-06	CLIL	M	7.99 (79.90%)	8 (80%)	15.99 (79.95%)	7.5 (75%)	9 (90%)	16.5 (82.50%)
	19-12-05	CLIL	M	1.58 (15.80%)	3 (30%)	4.58 (22.90%)	6.25 (62.50%)	9 (90%)	15.25 (76.25%)
	06-18-26	CLIL	M	4.99 (49.90%)	10 (100%)	14.99 (74.95%)	9.25 (92.50%)	9 (90%)	18.25 (91.25%)
	13-14-27	CLIL	M	6.66 (66.60%)	4.5 (45%)	11.16 (55.80%)	2.75 (27.50%)	6 (60%)	8.75 (43.75%)
	04-04-25	CLIL	M	6.99 (69.90%)	7 (70%)	13.99 (69.95%)	9.75 (97.50%)	8 (80%)	17.75 (88.75%)
	10-10-20	CLIL	M	4.91 (49.10%)	5 (50%)	9.91 (49.55%)	3 (30%)	4 (40%)	7 (35%)
	13-11-31	CLIL	M	7.32 (73.20%)	7 (70%)	14.32 (71.60%)	6.75 (67.50%)	9 (90%)	15.75 (78.75%)
	19-10-04	CLIL	M	6.24 (62.40%)	7 (70%)	13.24 (66.20%)	8.5 (85%)	8 (80%)	16.5 (82.50%)
	19-07-02	CLIL	M	5.81 (58.10%)	1 (10%)	6.81 (34.05%)	8.5 (85%)	7 (70%)	15.5 (77.50%)
	12-24-25	CLIL	M	5.91 (59.10%)	4.5 (45%)	10.41 (52.05%)	8.5 (85%)	5 (50%)	13.5 (67.50%)
	19-19-15	CLIL	M	6.16 (61.60%)	6 (60%)	12.16 (60.80%)	7.75 (77.50%)	6 (60%)	13.75 (68.75%)
* M = Male, F = Female; ** Score (Percentage of Score)				Max Pts. = 10 Max % = 100%	Max Pts. = 10 Max % = 100%	Max Pts. = 20 Max % = 100%	Max Pts. = 10 Max % = 100%	Max Pts. = 10 Max % = 100%	Max Pts. = 20 Max % = 100%

Class	ID	Group	Sex*	Pre-Test (Task 1)**	Pre-Test (Task 2)	Pre-Test (Sum)	Post-Test (Task 1)	Post-Test (Task 2)	Post-Test (Sum)
	06-13-09	CLIL	M	3.16 (31.60%)	8 (80%)	11.16 (55.80%)	9.25 (92.50%)	7 (70%)	16.25 (81.25%)
	22-18-26	CLIL	M	7.74 (77.40%)	9 (90%)	16.74 (83.70%)	8.75 (87.50%)	9 (90%)	17.75 (88.75%)
	12-11-06	CLIL	M	6.49 (64.90%)	6 (60%)	12.49 (62.45%)	10 (100%)	9 (90%)	19 (95%)
	18-01-24	CLIL	M	6.33 (63.30%)	7 (70%)	13.33 (66.65%)	8.5 (85%)	7 (70%)	15.5 (77.50%)
	04-22-04	CLIL	M	8.33 (83.30%)	9 (90%)	17.33 (86.65%)	8.5 (85%)	7 (70%)	15.5 (77.50%)
3CI	26-06-00	CLIL	M	4.83 (48.30%)	5 (50%)	9.83 (49.15%)	8 (80%)	7 (70%)	15 (75%)
	04-11-01	CTRL-G	M	6.32 (63.20%)	8 (80%)	14.32 (71.60%)	8 (80%)	9 (90%)	17 (85%)
	19-03-09	CTRL-G	M	6.49 (64.90%)	7 (70%)	13.49 (67.45%)	9 (90%)	9 (90%)	18 (90%)
	10-02-18	CTRL-G	M	5.15 (51.50%)	9 (90%)	14.15 (70.75%)	9 (90%)	10 (100%)	19 (95%)
	13-05-20	CTRL-G	M	6.82 (68.20%)	7 (70%)	13.82 (69.10%)	9.75 (97.50%)	9 (90%)	18.75 (93.75%)
	13-22-22	CTRL-G	M	7.16 (71.60%)	6 (60%)	13.16 (65.80%)	5.5 (55%)	10 (100%)	15.5 (77.50%)
* M = Male, F = Female; ** Score (Percentage of Score)				Max Pts. = 10 Max % = 100%	Max Pts. = 10 Max % = 100%	Max Pts. = 20 Max % = 100%	Max Pts. = 10 Max % = 100%	Max Pts. = 10 Max % = 100%	Max Pts. = 20 Max % = 100%

9.3.4 Student Survey

CLIL – Student Survey

Dieser Fragebogen ist anonym auszufüllen und dient dazu herauszufinden, ob CLIL-Unterricht in einem technischen Unterrichtsgegenstand einen wesentlichen Beitrag zum besseren Hörverständnis in einer Fremdsprache (Englisch) geführt hat.

Kreuze an, inwiefern die Aussage für dich zutrifft / nicht zutrifft (1-5).

1. Ich möchte mehr CLIL-Unterricht in technischen Unterrichtsgegenständen erhalten, um sowohl meine Sprachkompetenzen verbessern zu können, als auch mein Fachwissen erweitern zu können.

Trifft zu	1	2	3	4	5	Trifft überhaupt nicht zu

2. CLIL-Unterricht in einem technischen Unterrichtsgegenstand bietet mir die Möglichkeit meine Sprachkompetenz zu verbessern.

Trifft zu	1	2	3	4	5	Trifft überhaupt nicht zu

3. CLIL-Unterricht in einem technischen Unterrichtsgegenstand hat mir dabei geholfen, mein Hörverständnis in der englischen Sprache zu verbessern.

Trifft zu	1	2	3	4	5	Trifft überhaupt nicht zu

4. CLIL-Unterricht motiviert mich mehr eine Fremdsprache (z.B. Englisch) zu verwenden als herkömmlicher Fremdsprachen-Unterricht.

Trifft zu	1	2	3	4	5	Trifft überhaupt nicht zu

Wähle eine von den drei gegebenen Antwortmöglichkeiten.

5. Sollen SchülerInnen mehr Mitbestimmungsmöglichkeiten erhalten, hinsichtlich der technischen Themengebiete die in Form von CLIL-Unterricht bearbeitet werden?

Ja	Teilweise	Nein

6. In CLIL-Unterrichtseinheiten traue ich mich mehr in einer Fremdsprache zu kommunizieren, als im herkömmlichen Sprachunterricht (Englisch).

Ja	Teilweise	Nein

7. Das Sprachlevel in den CLIL-Unterrichtseinheiten war angemessen, und ich konnte dem Unterricht ohne größere Schwierigkeiten folgen.

Ja	Teilweise	Nein

8. CLIL-Unterricht motiviert mich, mir nicht nur Fachwissen anzueignen, sondern auch meine Sprachkompetenzen in einer Fremdsprache (z.B. Englisch) zu verbessern.

Ja	Teilweise	Nein

Die folgenden Fragen geben dir die Möglichkeit deine subjektive Wahrnehmung und dein Empfinden bezüglich CLIL-Unterricht in technischen Unterrichtsgegenständen zu äußern. Schreibe mindestens einen Satz unter jede Fragestellung.

9. Folgende positive Ereignisse (bzgl. Fremdsprachenerwerb) haben sich durch den CLIL-Unterricht in einem technischen Unterrichtsgegenstand für mich ergeben:

_____

_____

10. Deswegen hat mir CLIL-Unterricht in einem technischen Unterrichtsgegenstand dabei geholfen, mein Hörverständnis in einer Fremdsprache zu verbessern:

_____

_____

11. Darum würde ich gerne mehr / weniger CLIL-Unterricht in technischen Unterrichtsgegenständen erhalten:

_____

_____

12. Wenn ich könnte, würde ich folgendes am CLIL-Unterricht ändern:

_____

_____

9.3.5 Quantitative Results of Questionnaire Items 1 – 8

	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Median	TRR
1	I would like to receive more CLIL lessons in technical subjects, in order to improve both my language competence in English and further my content knowledge in a content subject.	16,70%	33,30%	30,60%	13,90%	5,60%	2,50	100% (N=36)
2	CLIL lessons in a technical subject offer me the opportunity to enhance my language competence in general.	22,20%	25,00%	30,60%	19,40%	2,80%	3	100% (N=36)
3	CLIL lessons in a technical subject have helped me to improve my listening skills in English.	2,80%	19,40%	36,10%	30,60%	11,10%	3	100% (N=36)
4	I am more motivated to use a foreign language (e.g. English) in CLIL lessons than in traditional foreign language lessons.	22,20%	13,90%	16,70%	25,00%	22,20%	3	100% (N=36)

	Item	Yes	Partly	No	Median	TRR
5	Should students receive a right of co-determination in terms of the technical topics taught in CLIL lessons?	50,00%	44,40%	5,60%	1,50	100% (N=36)
6	I am more confident to communicate in English during CLIL lessons than in traditional foreign language lessons.	16,70%	25,00%	58,30%	3	100% (N=36)
7	The language level during the CLIL lessons of the last two months was appropriate and I was able to follow the lessons without experiencing major difficulties.	92,70%	8,30%	0%	1	100% (N=36)
8	CLIL lessons motivate me to acquire content knowledge and improve my language competence in a foreign language (e.g. English).	25,00%	55,60%	19,40%	2	100% (N=36)