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The accent of our native country dwells in the heart and mind as well as on the tongue.

Francois de la Rochefoucauld

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Abstract

For economic, political and educational reasons, an increasing number of institutions of higher education all over the world are now offering programmes taught wholly or partly in English. This approach is generally believed to improve both the student's content knowledge as well as their foreign language competence. However, very little empirical research has been conducted to unveil the impact of this approach on the language learning outcomes. With this context in mind, this study seeks to investigate how English-medium teaching affects the students' pronunciation skills. To provide further insight into a teaching approach that has been sweeping Europe for a number of years now, a longitudinal case study was carried out at the University of Applied Sciences Vienna, where a bilingual (German/English) undergraduate degree programme is offered in which up to 50% of the classes are held in English. With the majority of the lecturers being native speakers of English, the question arises as to whether and to what extent this increased exposure to the target language translates into a reduced foreign accent. To this end, a group of students from the bilingual programme and a control group from the German programme were recorded twice – once at the beginning (2011) and once at the end of their studies (2014). These recordings were then rated by experienced pronunciation instructors from the University of Vienna. The results convincingly showed that both groups managed to ameliorate the degree of foreign-accentedness in their speech. However, a more detailed diachronic and synchronic analysis of the scores obtained revealed that the focus group distinctly outperformed the control group both from a cross-sectional as well as a longitudinal perspective. The findings of this study therefore reject the widely held belief that beyond a certain age adult learners have passed the ideal time window for pronunciation learning. Indeed, significant progress still appears to be possible under the given circumstances. This clearly calls for a reframing of the age-debate in SLA research. As for factors that are frequently considered to be crucial in pronunciation learning, increased exposure to the target language could not be identified as predominately responsible for the phonological development of the learners. Rather, a number of inter-connected factors could be attributed to the success or failure of individual students. In addition, a close investigation of the Austrian accent in English has uncovered segmental as well as supra-segmental features that seem to be least susceptible to change over the given

time period. In this respect the lenis consonants /ð/, /z/, and /d_z/ as well as the diphthongs /ei/ and /əu/ need to be mentioned. On the suprasegmental level, weak forms and linking seem to be particularly challenging for adult Austrian learners at an advanced level. Generally speaking, this case study is meant to contribute significantly to the growing body of research into the impact of tertiary EMI on the students' pronunciation skills by demonstrating that in this particular educational setting linguistic phonological gains are not only possible but also greater than expected.

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List of abbreviations

AH	At Home
AL	Austrian learner
AOL	Age of Onset of Learning
BA	Bachelor
CAH	Contrastive Analysis Hypothesis
CBL	Content-based Learning
CLIL	Content and Language Integrated Learning
CPH	Critical Period Hypothesis
DST	Dynamic Systems Theory
EAP	English for Academic Purposes
EE	Extramural English
EHEA	European Higher Education Area
ELF	English as a Lingua Franca
ELT	English Language Teaching
EMI	English Medium Instruction
EMP	English Medium Programmes
ESP	English for Specific Purposes
FA	Foreign Accent
GA	General American
HE	Higher Education
HEI	Higher Education Institutions
HR	Human Resources
ICLHE	Integrating Content and Language in Higher Education
ID	Individual Differences
L1	First language
L2	Second language

LAD	Language Acquisition Devise
LOR	Length of Residence
MA	Master
NLM	Native Language Magnet
NS	Native Speaker
NNS	Non-Native Speaker
NEST	Native English speaking teacher
NNEST	Non-native English speaking teacher
ÖAD	Österreichischer Akademischer Dienst
PAM	Perceptual Assimilation Model
Q	Questionnaire
RQ	Research Question
RP	Received Pronunciation
SA	Stay Abroad
SCT	Socio-Cultural Theory
SLA	Second Language Acquisition
SLM	Speech Learning Model
T	Time
UAS	University of Applied Sciences
ZPD	Zone of Proximal Development

PART I

1. Introduction

In the 21st century, the internationalization of education and the wish to compete globally have caused an increase in English-medium instruction (EMI) in higher education around the world. This international call for EMI is deeply rooted in the common belief that language learning takes place incidentally during content delivery in a foreign language. And indeed, empirical research in the field of language learning and teaching at secondary school level seems to support the assumption that a second language is learned most effectively when it is used to convey content that is both interesting and relevant to the learner. However, to date tertiary education has seen little empirical evidence that this is in fact the case. Especially the field of pronunciation learning appears to be characterized by a dearth of longitudinal scientific data to confirm or reject the view that EMI has a positive effect on the learners. As it is far from clear whether or to what extent English-medium instruction impacts on the learners' pronunciation skills, there is a definite need for further research to grasp the linguistic gains of an approach that appears to be sweeping across Europe at incredible speed. This dissertation project seeks to do exactly that by investigating an EMI programme at an Austrian university of applied sciences with a view to establishing the linguistic changes in the students' pronunciation over a period of roughly three years. This chapter sets out to describe the background to the research and the motivation for the study. Following this, the research questions and the purpose of the study will be detailed. Finally, the structure of the thesis will be outlined.

1.1. Background and motivation for the study

The research presented in this study developed out of a personal interest and involvement in two core areas of applied linguistic research, namely the current spread of English-medium instruction at European universities on the one hand and the development of L2 pronunciation skills on the other hand.

In 2002 the University of Applied Sciences (UAS) Vienna where I was teaching ESP (English for specific purposes) courses at the time, pioneered a bilingual Bachelor programme (German/English) as a novelty in the field of business education. This move was triggered not only by the demand of the management to pay tribute to

a number of policies introduced by the European Union that aimed to promote multilingualism, but also by their wish to attract excellent local as well as international students. In those early days of English-medium instruction, institutional decision-makers hoped that the use of English to teach content courses would enhance both content and language competence at the same time assuming that the learners benefit from “two for the price of one” (Bonnet 2012: 66). This idea was further reinforced by the fact that the truly global society of the 21st century makes it more important than ever for business people working with colleagues, customers and partners across borders to understand each other and thus to form effective and productive working relationships. Business students today are expected to speak more than one language to occupy a favourable position in society and also on the labour market where the “war for talent” (Michaels et al. 2001) is still said to be raging around the globe. In other words, the UAS Vienna identified a clear need for graduates who have the necessary skills to operate in culturally and linguistically diverse environments and to this end, content courses in English were introduced.

Given its status as a global language or Lingua Franca, English is often the first choice when selecting a second language to be learnt and taught. As a result, more and more educational institutions, particularly in Europe, are now promoting the learning of English to pay tribute to the changing demands of the labour market. This also ties in with the fact that English is already the most dominant language of research in higher education (Ament & Perez-Vidal 2015). Of course, caution has to be exercised as the concentration on one single language, i.e. English, may be counter-productive in that one language is monopolized and thereby the use of others gets severely restricted. Thus it comes as little surprise that some already see English as the “killer language” (Price 1984: 170) fostering linguistic hegemony, whereas for others it is the key that may open the door to the global market place.

Regardless of the perspective from which these undeniable changes are viewed, internationalisation has become a hard and fast reality. To keep up with this trend, educational institutions all over the world have introduced strategies for internationalising their programmes. In Europe, raising international awareness, teaching intercultural communication skills and increasing foreign language competence are often considered central educational concerns. A closer look at

regional practices to achieve these goals brings forth a multi-faceted and multi-layered picture of how educational institutions cope with the changing demands of professional bodies and the labour market. This becomes evident in a plethora of measures and strategies employed such as cross-border study programmes and research projects, the recruitment of international staff and students, or the introduction of internationalised curricula (Knight 2008: ix-xi). Recognizing the need to respond swiftly and effectively to those global changes, the UAS Vienna took up this challenge and responded by offering one of three parallel classes of the Entrepreneurship BA programme as a bilingual degree programme with the intention of attracting both international students as well as international lecturers.

One of the major challenges the UAS' introduction of this programme brought along was the task to hire suitable teachers for their English-taught courses. As it turned out, first and foremost native speakers of English were recruited. In hindsight, this circumstance can only be seen as a mere coincidence rather than a strategic choice. As far as I know there was never an official commitment of the institute head neither oral nor in writing stating that preference should be given to L1 speakers of English. At a time when recruitment was not centralised in the form of an established HR department, the institute head relied heavily on existing or newly formed partnerships with other universities mainly located in the United States and Australia to recruit guest lecturers for the EMI courses. Slowly, a network of L1 teachers of English unfolded and gave the UAS the chance to distinctly set itself apart from other business degree programmes by offering a bilingual (German/English) programme which was to a large extent taught by native speakers of English.

Having witnessed the various stages of this newly-created programme since its very beginning and having the knowledge gained in the course of this project about the various implications of the successful implementation of EMI, one can now only marvel at the courage it took the programme designers to implement an approach for which they did not even have a name let alone a conceptual framework. Initially, it was strongly believed that this transition would not entail any major changes to the curriculum. The only challenge appeared to be to find lecturers who could teach the subject matter - as described in detail in the German curriculum - in English. In fact, the international office of the UAS, which was installed around the same time, and established partnerships with universities abroad, proved to

be of great help in this respect. Although the programme has undergone a number of significant changes since then, it still enjoys a unique position in the Viennese educational landscape today with high numbers of applicants and overwhelmingly satisfied graduates confirming its popularity (www.fh-wien.ac.at).

What particularly spurred my interest in this context, however, was how these L1 teachers' accents impacted on the students' pronunciation skills. As a pronunciation teacher at the University of Vienna, I felt particularly inclined to investigate the implications of implicit pronunciation learning in the bilingual programme. In particular, the questions I asked myself were: Do the students simply pick up the teacher's accent without consciously engaging in the matter or is it irrelevant what accent (foreign or native) the teacher speaks as adult learners at this level have already passed the critical period for acquiring a native-like accent?

As English-medium teaching is still a fairly new field, it comes as no surprise that studies into linguistic gains of tertiary EMI students are still scarce (see Chapter 3.3.2.). Still, it has to be noted that in the last few years growing scholarly interest in the teaching of content courses in English can be observed as demonstrated by the number of specialized conferences (e.g. the ICLHE in Maastricht in 2013 and then again in 2015 in Brussels) as well as several publications (e.g. Wilkinson & Walsh 2015; Smit 2010c; Fortanet-Gomez & Räsänen 2008; Wilkinson & Zegers 2007). Nonetheless, there are numerous fields which require further investigation to shed light on the significance of EMI in the university context, with students' language competence being one of them. Owing to a general dearth of reliable data on language outcomes, it seems useful to draw on results reported in the secondary school context always bearing in mind that the learners differ considerably regarding a number of factors, most notably age and motivation.

Generally speaking, a considerable body of research carried out at primary or secondary schools suggests that CLIL (content and language integrated learning) is an effective way of increasing students' foreign language competence (e.g. Dalton-Puffer & Nikula 2006; Lasagabaster 2008; Ruiz de Zarobe 2008; Nikula et al. 2013). Indeed, one of the most frequently given arguments in favour of CLIL is the assumption that increased exposure to and active use of L2 in the classroom enhances language proficiency. However, certain aspects of language competence are said to develop more than others. According to Dalton-Puffer (2008), receptive

skills, vocabulary, morphology, creativity, risk-taking, fluency, quantity, and affective outcomes benefit most, whereas syntax, writing, informal language, pragmatics and pronunciation appear to remain unaffected. In fact, pronunciation seems to be the least affected of the speaking dimensions (Dalton-Puffer 2011). So far, there has been little empirical evidence to support this claim (for further discussion see Chapter 3.3.2.).

By and large, research seems to suggest that the main reasons why English-medium teaching has so little impact on the students' pronunciation skills are related to three central issues: firstly, the quantity of input (only a few courses are taught in English); secondly, the quality of input (teachers are often L2 speakers of English); and thirdly, a clear lack of long-term observation. This is precisely where the current longitudinal study comes into play since it provides the ideal context and setting to answer questions that have not been addressed in empirical research so far.

1.2. Research questions and main objective

The main objective of the present study is to investigate a specific EMI setting at an Austrian university of applied sciences with regard to the development of the students' pronunciation skills. To this end, two cohorts were tracked over a period of roughly three years (the entire duration of their BA studies); namely a group of students in the bilingual programme (focus group) and a group of students in the German programme (control group). The curriculum was the same for both groups yet the EMI group had up to 50% of their content courses taught in English mostly by L1 speakers of the language.

Owing to the fact that there is generally very little to no language teaching in EMI courses, it must be assumed that what the learners learn or do not learn relates – to a large extent – to the conditions of language use that are given during content teaching. In other words, the quality of classroom discourse is crucial when investigating learning outcomes. Thus, the question arises as to whether and to what extent increased exposure to the target language in English-medium classrooms can lead to incidental learning of L2 pronunciation.

To address this gap in the existing research, this project seeks to explore how pronunciation skills develop when learners are exposed to increased native speaker input in the EMI classroom. Thus, the following main and over-arching research question will be addressed:

How does English-medium instruction affect the pronunciation of Austrian business students at tertiary level over a period of three years?

Given seemingly favourable conditions for improving the learners' spoken language competence, it is hypothesized that the EMI students' pronunciation skills develop more rapidly and that they will surpass their control peers in this respect.

In pursuit of a profound approach to the investigation of the impact of EMI on the students' pronunciation skills, the following – more detailed – sub-questions were formulated:

RQ 1) How does the degree of foreign accent develop longitudinally under EMI instruction as opposed to ESP instruction?

RQ 2) Which factors contribute to the changes in the students' pronunciation observed in the two groups?

RQ 3) What are the most prominent segmental and supra-segmental features of the Austrian accent that are least susceptible to change?

Whereas the first two research questions are aimed at measuring the development of the learners' foreign accent (RQ1) and exploring potential reasons for those changes (RQ2), the third question focuses on the production of adult language learners' speech sounds in an attempt to identify significant characteristics of the Austrian accent in English that remain unaffected over a longer period of time.

1.3. What this thesis is not

This project touches upon two very sensitive and highly disputed issues related to teaching and learning in the foreign language classroom; namely the notion of the native speaker norm on the one hand and the role of foreign-accented speech in communication on the other hand.

As far as norms are concerned, the highly controversial dichotomy involving the two concepts 'native speaker' (NS) versus 'non-native speaker' (NNS) has triggered a wide-ranging discussion on the implications stemming from internationalisation and the diversification of English as a Lingua Franca. As a consequence, probing questions about ownership (Widdowson 1994), standards or norms (Ellis 1997) and models (Kirkpatrick 2006) have found their way into the EFL classroom. A key concern that has been hotly debated in this context pertains to the question: Should learners aim at native-speaker norms of English when in fact English is increasingly used in non-native speaker contexts (e.g. Walker 2010)? Apart from the notion that a native speaker accent does not seem to be an attainable target for many a language learner (see Chapter 4), it has also been argued that NS norms do not reflect linguistic realities where non-native speaker developments in English often do not adhere to native-speaker norms (Walker 2010: 5). For these reasons it is of paramount importance for me to clarify upfront what this study is not in order to disqualify false assumptions and inferences that might be created here.

Firstly, for this project a case study employing a mixed-method approach was deemed most suitable to answer the research questions detailed above. As this design allows for an in-depth exploration of the given EMI setting, it is of course meant to be **descriptive** in its nature and certainly not prescriptive. In no way has it been my intention to raise my voice in favour of native English-speaking teachers (NESTs) setting the norm. Far from that, my intention was to put the students' language competence to the test. It is therefore the learners who are in the limelight and not the teachers.

Secondly, I am not suggesting that language learners need to aim at native speaker pronunciation. By attempting to describe a certain phenomenon in a real-life setting, I looked at the **development** of the learners' foreign-accented speech and not at their ultimate attainment. Hence it was not my aim to identify those learners whose pronunciation most closely resembled that of an L1 speaker of English. Had I been interested in measuring overall achievement and identifying the highest performers, the design and methodology of the study would certainly have had to be different.

Lastly, I was also interested in eliciting typical features of the Austrian learners' foreign accent in English. In its design, this study is not an investigation of the

implications of this particular accent such as perception by interlocutors, comprehensibility or intelligibility. In other words, I was looking at the **form** of foreign accent and not the function. A number of empirical studies, however, have done exactly that. For example, in Bent and Bradlow's (2003) listening comprehension experiment, NS and NNS participants were confronted with text passages read aloud by NS and NNS of English. Interestingly, the results reveal that NS understand other NS better than NNS. Yet NNS also understand other NNS equally well as NS provided that they share the same L1 (Bent & Bradlow 2003: 1607). Clearly, there is no sound empirical basis for the default assumption that native speech is by nature more intelligible than non-native speech.

1.4. Structure and layout of the thesis

This thesis has been divided into two main parts. Part I provides a general overview of the problem and a thorough literature review. Part II, on the other hand, focuses on the empirical study by explaining the design and methodology and presenting the most important findings.

As far as part 1 is concerned, this introductory chapter will be followed by a general overview of the reasons for the spread of English-medium instruction in European Higher Education (Chapter 2). There, a number of policies and developments which have prompted the internationalisation of HEIs will be discussed as they are largely held responsible for the dramatic rise of English-medium teaching. Special emphasis here will be attributed to the situation of Austria. Chapter 3 will first offer a detailed discussion of competing labels that have come to be used in this context by providing an overview of the distinguishing features of the various acronyms. Then, the chapter proceeds to explore the question of how languages are learned in the EMI classroom. To this end, a selected number of established theoretical language learning theories and their purported benefits will be scrutinized and reassessed in terms of their applicability to the topic of the present thesis. Next, Chapter 4 seeks to define foreign accent and elaborates on theoretical concepts that are related to pronunciation learning as well as the development of foreign accented speech, among which the Critical Period Hypothesis is of central concern. Drawing on the latest research in the field, Chapter 5 will then explore a number of individual factors that are commonly considered to be influential in

pronunciation learning (i.e. age of the learners, exposure to the target language, motivation, attitude, or type of instruction). Following this, Chapter 6 will be devoted to differences between German and English phonology. With reference to scientific research into the pronunciation of English in Austria, the chapter ends with a list of segmental as well as suprasegmental features of Austrian-accented English.

Having established in part I the theoretical and contextual frameworks through which the data will be analysed, the focus of part II is on the empirical project itself. Therefore Chapter 7 explains in detail the design, the research questions and the methodology, also providing a close description of the organization and the project phases. Chapter 8 constitutes the core part of the thesis, the presentation of the findings, i.e. the answers to the research questions. The final chapter (9) will synthesise the most important findings derived from the data sets and concludes this thesis by outlining the study's significance and limitations, before providing suggestions for future research.

2. English-medium instruction in European higher education

This chapter seeks to contextualise the present study within the field of European tertiary education in the 21st century. First, some of the most recent political and economic changes that have greatly shaped the European higher education scene will be discussed. Most notably, the growing pressure on academic institutions stemming from the reconsideration of the economic role or marketization of higher education will be outlined, as this is often claimed to have triggered the rise of English-medium instruction. Next, an overview of current themes and findings related to research into the spread of EMI programmes in Europe will be provided. Thereby the focus will be laid on the situation in Austria.

2.1. Internationalizing higher education in Europe

In the last decade, powerful changes have affected all the various levels of the European educational landscape, leaving their imprint on an environment that used to be characterized by great disparity. This gradual reorganisation process has been triggered by a series of political and strategic reforms to make educational practices more transparent, more uniform and also more effective.

Above all, it was the Bologna Declaration of 1999 (European Ministers of Education 1999) and its aim to create a common European Higher Education Area (EHEA) that has fundamentally transformed the face of European higher education thereby paving the way for new ideas that serve the needs of a changing society. Against the backdrop of regional requirements, a number of strategies have been introduced to modify and unify basic higher education structures and to advance quality assurance systems in order to promote cross-border student and staff mobility (European Commission/EACEA/Eurydice 2015).

As far as HE in Austria is concerned, the aftermath of the Bologna Declaration precipitated a number of fundamental and far-reaching changes. Austrian universities were faced with the adoption of the three cycle system (bachelor/master/doctoral) and the development of a European Credit Transfer and Accumulation System (ECTS). This switch did not only find supporters but also

met with harsh criticism from influential people, mostly from the fields of Law, Medicine, and Teacher Education. For instance, the president of the Austrian Bar Association argued that the Bologna Process was inapplicable to the education of jurists, claiming that the Bachelor's diploma was insufficient and a Master programme unnecessarily long. This, he added, would only lead to additional costs for Austrian Universities that had been suffering from financial problems for a long time (cf. Maier 2010). Also, the curriculum of medicine seemed to be difficult to convert into a two-cycle system. In fact, the very last degree programme in Austria to adopt the Bachelor-Master system was teacher education where the go-ahead was finally given in October 2014 (Figl 2013).

In their attempt to establish a coherent and cohesive HE area, European universities have generated new opportunities for the increased mobility of students and faculty encouraging cooperation among institutions. However, this has also meant that universities entered into a European-wide competition with critical voices lamenting this "marketization" (Molesworth et al. 2009) or "commercialisation" (Knight 2008: 13) of formal education which seems to have reached a point at which instruction has become "an internationally tradable service" (Knight 2008: 13). Clearly, research thrives on the exchange of expertise and resources, and networking across cultures and countries is becoming increasingly important, not only among research institutions but also between research and industry. Therefore, HEIs can no longer afford to stay local if they want to acquire external research funds and attract excellent students and lecturers. In order to remain competitive, they seem to strive for an international profile which is often a decisive criterion on which global university rankings are based.

This is the context in which the current orientation of the tertiary sector towards internationalization and globalisation has to be seen. Student and teacher mobility and close co-operation in teaching and research across national borders are essential instruments to enhance the status and profile of a university as a competitive player in the global education market (Wächter & Maiworm 2008: 15). Being internationally attractive or "marketable" (Molesworth et al. 2009) is generally seen as an indicator of the quality of the study programmes on offer and thus linked directly to the employability of their graduates. In other words, owing

to this marketization of educational institutions, international university rankings (Egron-Polak & Hudson 2010: 6) have come to play a decisive role these days.

In addition to the immediate consequences linked to the re-structuring of their curricula, universities have also been faced with an increasing demand for didactic innovation such as learner autonomy, the promotion of foreign languages, multidisciplinary thinking, or intercultural awareness. These driving forces are increasingly met by implementing English-medium teaching both at course as well as programme level. Accordingly, Jenkins sees EMI as a strategic response to the globalisation of HEIs (Jenkins 2014: 5), implying that if universities want to stay competitive, they need to offer content courses taught in English. As a consequence, English-medium education has become an important strategic management tool (Maiworm & Wächter 2003: 13-14; Wilkinson 2008a: 178).

A number of studies have explored the more specific reasons which have prompted universities to introduce English-taught courses (e.g. Räsänen 2000; Amon & McConnell 2002; Marsh & Laitinen 2005). In this respect, Coleman (2006: 4) has identified seven different categories of reasons why universities adopt EMI: CLIL, internationalization, student exchanges, teaching and research materials, staff mobility, graduate employability and the market in international students. Clearly, this rainbow of motives has ethical, pedagogical, pragmatic and commercial implications for all the stakeholders.

A logical consequence of the rapid implementation of EMI programmes in tertiary education is the reinforcement of English as the language of higher education. Hence it comes as little surprise that the point of criticism that has frequently been raised concerns the assumption that although the Bologna Process originally aimed to preserve linguistic diversity, it in fact seems to support an English-only policy (e.g. Räsänen & Fortanet-Gomez 2008: 1; Ruiz-Garrido & Fortanet-Gomez 2009: 183). In this respect, an international conference in Segovia, Spain, in 2013 on “The role of English in Higher Education: Issues, policy and practice”, triggered a debate on the rising prominence of English as a lingua franca at university level. There the director of the British Council in Spain, Rod Pryde (quoted in Rigg 2013), pointed out that EMI is clearly on the rise all across Europe, with an increase of 30% in the number of degrees taught entirely in English. Particularly in countries where the national language(s) are little spoken or taught elsewhere, staff mobility and student exchanges across borders are often only possible if courses are taught

in an international language, which is most frequently English. Brumfit (2004: 166) claims that from a global perspective, English is already the most dominant L2 medium of instruction and Marsh and Laitinen (2005: 2) expect it to gain further momentum.

This thorny issue of perilous English hegemony has prompted researchers to bemoan the death of languages today with the real culprits being identified as brutal market forces (Skutnabb-Kangas 2001: 201) or – more specifically - English as the “killer language” (Price 1984) or even the “Tyrannosaurus Rex” (Swales 1997: 374). Critics fear that this trend could foster inequality between those students who can speak English, who are often from wealthier backgrounds, and those who cannot (de Cillia & Schweiger 2001). From a more pragmatic view, English acts as a Lingua Franca in the academic world in order to promote student and staff mobility. English can thus be seen as a means to facilitate academic discourse, the shared language of teachers and students in internationalised programmes which have a culturally and linguistically diverse faculty and student body (Smit 2010: 379).

Leaving aside the perspective from which the spread of English as the language of instruction in HE is seen, it is clear that the implementation of EMI is a reality in European higher education that cannot be ignored. Van Leeuwen (2007), for instance, asserts that teaching content courses in English is now “more than just a fashion; it is a new reality in hundreds of higher education institutions, which changes the life of thousands of staff and the new generations of students” (van Leeuwen 2007: 7). This, however, bears the great risk of external factors (such as university rankings) prompting a speedy and ill-considered introduction of EMI (Räsänen & Fortanet-Gómez 2008: 20). As a consequence, a great number of “organisational and pedagogical implications tend to be overlooked” (Unterberger & Wilhelmer 2011: 94). Without doubt, policy makers’ aims to internationalise educational institutions rapidly by introducing EMI may have a harmful effect on the quality of the respective programmes.

As has been shown, significant global challenges in the field of Higher Education have reinforced the implementation of EMI programmes as a commonly considered end to meet the requirements posed by political, economic and social realities in the 21st century. Phillipson (2009: 37) puts it in a nutshell “What emerges is that

in the Bologna process, internationalization means English-medium higher education”.

2.2. Research into the spread of EMI in European HE institutions

To date, a number of large-scale studies documenting the spread of English-medium degree programmes in Europe have been carried out. In their survey at the beginning of the 21st century, Ammon and McConnell (2002) claimed that from 22 European countries that they analysed, the Netherlands and Finland, followed by Germany, took the lead in offering EMI courses in higher education.

The most comprehensive account of the exponential rise of English-medium programmes in Europe can be found in a series of three studies published by Maiworm and Wächter in the years 2002, 2007 and then again in 2014.

In the academic year 2001/2002, Maiworm and Wächter (2002) embarked on a large-scale survey analyzing 1,558 institutions of higher education in 19 different European countries. Interestingly, they placed Austria at the bottom of the league with only 6 EMPs being reported by the 47 participating Austrian institutions (Maiworm & Wächter 2002: 26–28). This finding was also confirmed by DeCillia and Schweiger (2001) in their article on “English as a language of instruction in Austrian universities”. The authors claimed that while English was on the brink of replacing German as the most influential scientific language, only very few Austrian universities offered content courses in English and public interest in the matter was negligible. They see Austria’s EU membership, the opening of Eastern Europe resulting in increased cultural and business activities in Central and Eastern Europe, as well as globalisation processes per se, as the main reasons that led to a loosening of the law stating that only German could be used as a language of instruction in Austrian schools. As a consequence, the amended School Organisation Act of 1997 allowed schools to introduce a foreign language of instruction “if this appears useful in view of the number of foreigners speaking foreign languages and living in Austria” (SchuG Schulunterrichtsgesetz article 3 § 16). However, the actual implementation thereof took time.

Maiworm and Wächter's follow-up study five years later (2007) included 2,381 HE institutions in 27 European countries. Again, they listed the Netherlands on top of the table with 774 EMI programs reported from 30 institutions. Comparing the data from 2001/02 with the findings in 2006/07, the total number of EMPs in Europe increased six-fold between 2002 and 2007. As far as Austria is concerned, the authors identified 23 programmes at 36 participating Austrian universities. This already indicated that in Austria the number of courses quadrupled in as little as five years.

In addition, Maiworm and Wächter found that the average percentage of international students who were enrolled in the universities surveyed was 8.4% (up from 6.8% in 2002). In Switzerland the percentage was highest at 19.6%, followed by Germany (15.5%) and Austria (13.9%). The high percentage values for Switzerland and Austria were in line with OECD data for the higher education systems of these countries (Switzerland: 18.4% and Austria: 14.1%). This means that for a small European country like Austria student mobility was a particularly important issue.

Two further findings by Maiworm and Wächter concerned the content subjects and the level of the degree programme. Across Europe, the subject area in which English-taught programmes seemed to be most frequently offered was engineering (27%), followed by business studies (24%), and the social sciences (21%). These three subject areas together constituted 72 percent of all programmes offered. As regards academic degrees, English-medium education appeared to be mainly offered at the Master level, with a share of almost 4/5 of all programmes. In some countries (like Sweden, Belgium, Switzerland and Germany), the postgraduate share exceeded 90 percent. Apparently, since 2002 (when the postgraduate share stood at 68%), the trend towards Master programmes has thus been further enforced.

The third and most recent study conducted by Maiworm and Wächter in 2014 aimed at mapping and analysing the latest trends in the provision of English-taught programmes (ETPs) in Europe. With a few exceptions, the design and methodology was kept similar to the two previous studies. This time their survey addressed a total of 2,637 HE institutions in 28 member states. Most importantly, they found that the number of identified ETPs increased from 725 programmes in 2001 to 2,389 in 2007 and to 8,089 in 2014. These numbers clearly illustrate the

exponential growth since the beginning of the 21st century. The authors therefore conclude that “there is now little doubt that a critical mass of ETPs is on offer across non-English-speaking Europe” (Maiworm & Wächter 2014: 16).

As far as the distribution of ETPs within Europe is concerned, the Nordic countries take the lead with Finland (83%) and Sweden (81%). Austria has a share of 46%, which means that from the 73 institutions of HE surveyed in Austria almost half of them provided an English-medium programme. When looking at the ranking of the 28 EU member states according to number of ETPs offered and the number of students enrolled in those programmes, Austria scores in the top third taking the 9th place. The Netherlands are still in the lead. The overall ranking presented in the study again confirms what the authors call the ‘north-south divide’ which was already observed in the earlier studies. Accordingly, the growth rates are highest in South West Europe whereas most Southern European countries lag behind and can still be found at the bottom of the list.

In addition, Maiworm and Wächter classified the subject areas in which ETPs were offered. In contrast to the findings seven years previously, the category ‘social sciences, business and law’ showed the highest proportion with 35% (particularly in undergraduate programmes), followed by sciences with 23% (more prominently in master programmes) and engineering with 18%.

A closer and more detailed look at the situation in Austria is granted by Barbara Unterberger (2014) who investigated the status quo at English-taught economics and business degree programmes offered by Austrian state universities in the academic year 2012/13. In her database search she identified 29 EM programmes (out of 95 in total). Given the result of the 2007 survey discussed above, which disclosed 23 EMPs across all disciplines this number seems to indicate a remarkable increase within the last few years. Compared with the overall number of programmes, English is hence the language of instruction for over 30% of all the Master’s programmes that were implemented in 2012 at Austrian business universities. Unterberger points out that this observation largely corresponds to a general trend that can be observed in many European countries, as the surveys conducted by Maiworm and Wächter also listed the discipline area of business and economics as number one in 2002 and then as number two (behind engineering)

in 2007. This focus seems to be particularly pronounced in Austria, as the 2008 survey detailed above also corroborates the notion that business studies are attributed the biggest share (Wächter & Maiworm 2008: 45–48). It has to be noted, however, that Unterberger's study centres on Master's programmes at Austrian state universities, and does not include universities of applied sciences and bachelor or PhD programmes.

Further information on English-medium programmes available in Austria can be obtained from the database of the Österreichischer Austauschdienst ÖAD, the Austrian agency for international mobility and cooperation in education, science and research. The latest list surveying international programmes offered by Austrian HE institutions includes universities as well as their more vocation-oriented counterparts, the universities of applied sciences, and all three tiers, bachelor, master and PhD programmes (<http://www.studienwahl.at/Content.Node/homepage.en.php?fl=en>). The following table is based on the ÖAD database and shows the status-quo in 2014:

Table 1: International programmes in Austrian HE in 2014

	Bilingual: English/German	English only
Bachelor	36	11
Master	53	104
PhD	15	26

Interestingly, at Bachelor level the number of bilingual programmes (English/German) is three times higher than the number of English-only programmes. In contrast, at Master level twice as many English-only programmes as bilingual ones are offered. The prevalence of bilingual tertiary education at undergraduate level appears to undermine the frequently expressed assumption

that the introduction of English-only courses is the key to solve multilingual matters (see Chapter 2.1.).

The University of Applied Sciences Vienna, where the present study is set, seems to have jumped on the bandwagon early on by introducing a bilingual (German/English) programme at BA level in 2003. Whereas there were initial intentions to offer an English-only bachelor degree programme, the organisers soon had to admit that although this concept seemed a promising method to attract more and better students, the actual realization of the programme (especially the provision of financial and human resources) turned out to be unfeasible. Most notably, it turned out to be difficult to hire lecturers with both the necessary content knowledge and language skills to guarantee high quality teaching. For this reason, the management decided that it was sufficient to offer up to 50% of the content courses in English, a decision that has not been revised so far.

To sum up, the figures presented in the studies discussed above have revealed that English-medium teaching is still gaining momentum in higher education and may not have reached its peak yet. Spreading fast across the vast majority of European countries, all academic levels as well as disciplines the emerging trend to “go English” (Maiworm & Wächter 2014: 26) is a reality that cannot be denied. Austria seems to be no exception in this respect.

3. Language learning in the English-medium classroom

While the previous section sought to outline the political and economic changes that have had a considerable impact on European higher education and led to the spread of English-medium instruction, this chapter focuses on the linguistic and pedagogical implications of this particular method. Here, the question of how a foreign language is learnt in the English-medium classroom is of central concern. The chapter begins by looking at terminological issues in the field and tries to establish a common understanding of the many acronyms that have come to be used to denote the different types of English-taught courses. It then proceeds to outline language learning theories that are frequently associated with EMI. More specifically, Krashen's Input Hypothesis, two theories based on the Input Theory, namely the Output and the Interaction Hypothesis, and Vygotsky's Socio-Cultural Theory will be discussed and related to the English-medium classroom. After having outlined the main tenets of each and their implications for English-medium teaching, the specifics of EMI in the university context will be given. There an overview of the most recent empirical studies into linguistic gains at tertiary level will be provided. Finally, the purported language benefits reported in a few studies investigating students' pronunciation skills in EMI classroom will be referred to.

3.1. Terminological considerations

The scientific discourse on the use of English in Higher Education has given rise to the creation of several terms and concepts to describe practices and approaches, very often synonymously and thus highly ambiguous for the inexperienced reader (cf. Gustaffson & Jacobs 2013, Unterberger 2014, Ament 2015). Hence, acronyms such as EMI (English Medium Instruction), CLIL (Content and Language Integrated Learning), ICLHE (Integrating Content and Language in Higher Education), CBL (Content-based Learning), ESP (English for Specific Purposes), EAP (English for Academic Purposes), ELF (English as a Lingua Franca) and many more have greatly shaped the educational landscape and left their marks in many foreign language classrooms. It has been argued that this lack of consensus as to what term is appropriate for what context and the many varied understandings should be seen

as a reflection of the wide range of contexts in which English-medium practice and research has evolved (e.g. Gustaffson & Jacobs 2013: v). For this reason, this chapter aims to elaborate on the most relevant concepts and the corresponding terminology. In addition, it will be clarified which label is the most appropriate for the context of the present study.

As has already been indicated in the previous chapter, the use of English to teach content courses (such as geography or biology) is becoming increasingly popular at many European educational institutions. In fact, the extent this phenomenon seems to reach in primary and secondary schools in Europe has already been described as “exponentially exploding” (Smit 2003: 3), the pace of which “has surprised even the most ardent advocates” (Maljers et al. 2007: 7). At this level, the acronym CLIL for Content and Language Integrated Learning, (Dalton-Puffer & Smit 2007: 7) has become the most popular label to be used. Indeed, it is this dual focus which CLIL teachers and researchers alike believe to be beneficial to learning (Mehisto et al. 2008: 30):

Content and Language Integrated Learning (CLIL) is a dual-focused educational approach in which an additional language is used for the learning and teaching of both content *and* language. That is, in the teaching and learning process, there is a focus not only on content, and not only on language. Each is interwoven, even if the emphasis is greater on one or the other at a given time. (Coyle et al. 2010:1)

However, the tertiary sector is different from its secondary counterpart in many respects (cf. Smit & Dafouz 2012) and the findings obtained from research into secondary CLIL cannot be directly transferred to the university context, as Unterberger and Wilhelmer point out: “Higher education is a completely different setting, especially regarding the role that the language of instruction occupies and the way language learning objectives are set” (Unterberger & Wilhelmer 2011: 94–95). In this respect, the most crucial difference between primary and secondary schools on the one hand and tertiary educational institutions on the other hand can be seen in the fact that English at university predominately takes on a “vehicular function” (Järvinen 2008: 78). In other words, English is regarded as the language of instruction, the tool with which content matters are communicated “rather than a subject in itself” (Järvinen 2008: 78). Clearly, the “[w]idely advertised dual focus” (Dalton-Puffer 2011: 183) of CLIL is only rarely realized in tertiary education. Instead, in English-taught degree programmes at the tertiary

level the focus is mainly on the acquisition of subject knowledge with the language being relegated to the sides. Unterberger and Wilhelmer (2011) have found that in tertiary education, EMI courses tend to have implicit language learning aims but explicitly formulated content learning objectives.

[The lack of explicitly formulated language learning aims] does not necessarily mean that universities do not strive to improve their students' English, but that they simply perceive it as an implicit aim because it is assumed that English skills will be honed incidentally and, at this educational stage, are often considered to be sufficient. (Unterberger & Wilhelmer 2011: 95)

Therefore it comes as little surprise that the labels CLIL or ICLHE (Integrating Content and Language in Higher Education) - its counterpart for tertiary education - are only rarely appropriate for university settings. According to Smit and Dafouz (2012: 4) "the specific conceptual take" of the individual researcher seems to determine whether English-medium education is viewed through an ICL or EMI lens.

Most recently, Unterberger (2014) has provided an updated paradigm which seeks to capture the diverse realities of English-medium education at the tertiary level. Inspired by Greere and Räsänen's CLIL continuum (2008: 6–8), she argues that English medium teaching in higher education can be divided into five distinct categories, namely Pre-sessional ESP/EAP, Embedded ESP/EAP, Adjunct ESP, EMI and ICLHE, as the following figure shows:

	Programme design	Learning objectives	Teaching staff
Pre-sessional ESP/EAP	Voluntary or obligatory course before the start of an EMI programme	to introduce students to discipline-specific language and genres	language specialists
Embedded ESP/EAP	ESP/EAP course included in the EMI programme	to develop discipline specific and general academic skills	language specialists
Adjunct ESP	Tailor-made ESP class for a specific content course	to aid students' understanding of language and genres for a specific course	language specialists
EMI	English used as medium of instruction for a specific content course or for a full programme	to acquire and master content and knowledge (mostly implicit language learning aims)	subject specialists
ICLHE	English used as medium of instruction for a specific content course or for a full programme	to acquire and master content and knowledge and language	subject and language specialists

Figure 1: Overview of English-taught courses in HE (adapted from Unterberger 2014: 46-47)

As can be seen in Figure 1, the types of courses are largely defined by three parameters; namely programme design, learning objectives, and teaching staff. Unterberger argues that the main difference between ICLHE and EMI lies in the focus. Whereas ICLHE propagates the highly acclaimed dual focus language and content (with explicit aims in both and teaching staff from both domains

cooperating), EMI merely uses the language to convey content knowledge (language learning aims are implicit and the teachers are subject experts rather than language experts). Wilkinson (2011: 115) points out that programme developers and teachers alike expect “incidental language improvement” to take place based on the assumption that the increased exposure to the foreign language leads to increased language competence (Järvinen 2008: 83; Rauto et al. 2008: 25).

A decisive feature of the ICLHE concept is the formulation of explicit language learning aims in the curriculum. Essentially, an ICLHE course aims at enhancing both the learners’ content knowledge as well as their foreign language skills. Subsequently, any university pursuing this approach needs to involve language experts not only when it comes to designing the curriculum but also in the teaching of the content courses. As Gustafsson and Jacobs (2013) point out integrating both content and language essentially means

[...] dovetailing the structure and sequence of subjects and curricula; joint lessons, team-teaching and shared classroom materials; the design and marking of joint assessment tasks; collaborative partnerships between language and content lecturers; as well as collaboration across disciplines and contexts (such as the academy and the workplace) (Gustafsson & Jacobs 2013: iv).

This shows that implementing a full ICLHE programme would present an enormous challenge for most institutions of higher education. Considerable effort and high commitment of everyone involved would be indispensable prerequisites as well as the necessary financial means to cover the extra costs for teaching staff and organizational matters.

Summing up the research outlined above, the following main types of English-medium courses at tertiary level can be distinguished:

Types of English-taught courses at tertiary level		
Focus on language	ESP	EAP
Focus on content	EMI	
Focus on language & content	ICLHE	

Figure 2: Most common types of English-taught courses at tertiary level

Accordingly, the distinguishing factor that defines these acronyms lies in the focus i.e. the lens through which a course is viewed. Whereas in **ESP** or **EAP** courses the acquisition of discipline-specific language is of central concern, in **EMI** the language element is relegated to the sides by taking on a vehicular role through which the mastering of content knowledge is facilitated. A dual focus on both language and content is then realized in the form of **ICLHE**. The successful implementation of such a course, however, calls for the collaborative effort of both language and content specialists in programme design, teaching, and assessment. For universities, this essential prerequisite often represents a laborious and costly endeavour that many programme designers find an enormous, if not impossible, challenge (Unterberger 2014: 52).

This thesis draws on the definitions detailed above. Accordingly, the bilingual programme at the UAS Vienna can be considered EMI by nature as the focus is clearly on the learners acquiring content knowledge through the medium of English. In this particular case, no explicit language learning goals are formulated in the curriculum, the teachers are subject specialists and it is assumed that the students improve their English language skills implicitly, which the management considers to be sufficient at this stage.

3.2. EMI and language learning theories

One of the core issues pertaining to EMI teaching and learning refers to the way language is learnt in an English-medium classroom although teaching/learning does not focus on language. In order to address this fundamental question in the context of pronunciation learning, this chapter is devoted to a number of language learning theories that are commonly associated with English-medium teaching.

In the English-medium classroom students use the target language more frequently and thus internalise it more quickly and more deeply. This is where second language acquisition (SLA) research comes in. In general, second language acquisition refers to the study of how people learn languages in addition to their native language/s (Gass & Selinker 2008). It should be noted here that the term second language is used to denote any language that is acquired after early childhood and thus it may also be the third or any subsequent language learned.

Within the scientific domain of SLA, a myriad of theories investigating the language learning process from various angles has evolved. Attempts at categorization (e.g. Spolsky 1989; Larsen-Freeman & Long 1991) have demonstrated how difficult it is to synthesize and group them. It appears that a great number of theories and hypotheses focus on one particular aspect without considering developments in other disciplines. Pincas (1996: 10) concludes that "the most recent analysis of research into language learning [...] shows very clearly how much is lacking. Most chapters end on a note of indecision, pointing out that research is still inconclusive". Nevertheless, the interpretations of those theories have been crucial in shaping the common understanding of what should be taught and how. They have also provided significant directions for conceiving language and language learning that occurs in English-medium classrooms. For language teachers this means that it is essential to gain an understanding of the role the L2 plays in shaping the students' thinking and their construction of academic knowledge, how the foreign language reflects identity, and how it works to establish relationships with the group(s) into which they are socialized.

In the following, some of the most significant SLA concepts that are frequently mentioned in rationales for CLIL will be sketched. These theories are either based on the notion that exposure to the target language is sufficient for acquisition to take place (e.g. Krashen's Input Hypothesis), or they rely on the assumption that

output, practice and the social context are equally important to promote learning. The focus here will be on three major trends: firstly, the Input Hypothesis, secondly, two conceptualisations based on it, namely the Output and the Interaction Hypothesis; and thirdly, Socio-Cultural Theory. For each framework a brief overview of the tenets will be given, the main points of criticism they have triggered will be outlined, and their implications for pronunciation learning in the English-medium classroom will be discussed.

3.2.1. *The Input Hypothesis*

Without doubt, one of the most pervasive theoretical concepts regarding second language acquisition is Stephen Krashen's Input Hypothesis (Krashen 1977, 1982, 1985), which he later re-named Comprehension Hypothesis. This model is often considered the theoretical foundation of the natural approach and is largely based on the notion that if the language learner is exposed to comprehensible input within a setting that focuses on meaning rather than form, acquisition will occur naturally. Since English-medium education provides exactly the proposed learning environment, it comes as little surprise that Krashen's model has extensively been drawn upon in rationales for CLIL.

In general, Krashen's model comprises five central hypotheses and a number of other variables that need considering in second language acquisition. The fundamental assumption upon which he bases his theories is that human beings have an innate ability that shapes and conditions the language learning process. As an example he refers to children who learn their mother tongue simply by listening attentively to spoken language and interacting with adults.

According to Krashen's Acquisition-Learning Hypothesis, it is essential to distinguish between two independent processes by which a language is learnt, namely acquisition and learning. These two concepts differ considerably in terms of their nature, quality, and function. He sees language acquisition as a subconscious process (like the way children learn their L1) resulting from informal, natural communication with the focus on constructing meaning rather than on the language form. For him, second language learning, on the other hand, is a conscious process with the learner focusing on the language form and thereby generating knowledge about the rules that govern the target language. In contrast

to acquisition, learning can only act as a monitor checking the accuracy of the acquired system.

Critics have argued that it is difficult or even impossible to test Krashen's hypothesis empirically. In addition, it seems difficult to draw a line between acquisition and learning (Mitchell & Myles 1998:2) as boundaries are blurred and acquired knowledge may also become learnt knowledge.

Following Krashen's view, the notion is enforced that language teaching needs to support acquisition and create an environment in which language is presented in authentic communicative situations. Hence, formal teaching of e.g. grammatical items or phonemes hinders acquisition and needs to be reduced. For pronunciation teaching, for example, this means that pronunciation is an acquired skill and there is no point in formal instruction.

In addition, Krashen's Monitor Hypothesis attempts to explain the process underlying acquisition and learning. Accordingly, the acquisition system triggers an utterance and then the learning system monitors this utterance in order to detect and if necessary also correct mistakes. Krashen sees this monitor of the knowledge about the rules of a language as an editing device that operates either before production (by consciously applying the rules) or after production (via a correcting device). However, according to the monitor hypothesis, explicit knowledge of the rules is not enough for the monitor to be utilized; the learner must also have sufficient time to consciously think about and practice the learned rules. Krashen himself is very critical of the use of this language editor and claims that a great number of learners tend to overuse the monitor, which consequently inhibits rather than facilitates communication. Therefore, the monitor should only be used to correct deviations from 'normal' speech.

The Monitor Hypothesis has mainly been criticized for the way it is constructed and for its lack of scientific evidence. McLaughlin (1987: 56) argues as follows: "Krashen has not defined his terms with enough precision, the empirical basis of the theory is weak, and the theory is not clear in its precision." Larson-Freeman (1983) notes that the Monitor Hypothesis does not provide an explanation for the cognitive processes that underlie acquisition and learning. No matter whether this hypothesis holds water or not, as a language teacher it will always be challenging

to strike a balance between the promotion of accuracy on the one hand and the achievement of fluency in students.

The third hypothesis Krashen has put forward, the Natural Order Hypothesis, is based on the assumption that language is acquired through an innate language acquisition device (LAD). He claims that there are predictable and fixed stages in the acquisition of a language which, however, can only be observed in a monitor-free context. As soon as a learner engages in natural communication, the standard order applies and does not depend on extra-linguistic factors such as age, L1 background, or exposure to the target language. This order, he emphasizes, does not depend on the order in which language rules are taught in the classroom.

Since Krashen ignores the influence of L1 on L2 as well as the role of positive and negative transferences, it comes as little surprise that this theory has also generated criticism. In contrast to the assumption that L1 acquisition and L2 acquisition follow similar paths, a number of studies on morphology have pointed out that not all learners show the predicted order of acquisition. Instead, it has been suggested that inter-learner variables (such as gender, intelligence, socio-cultural background or rate of learning) play a decisive role in the order of acquisition. In addition, McLaughlin (1987) claims that the learner's L1 also has an effect in as far as it can either slow down the development or modify it. He purports that a wide range of individual variation in how a learner acquires an L2 can obscure the order of acquisition. Hence, McLaughlin concludes that "Krashen's claim that an invariant natural order is always found is simply not true" (McLaughlin 1987: 33).

As has already been pointed out, Krashen considers acquisition in contrast to learning as the superior way of developing language competence. In his Input Hypothesis, he claims that acquisition is the result of comprehensible input rather than of language production. The basic idea is that if the student receives understandable input, language structures will be acquired naturally. This input can be comprehensible either because of the context in which it occurs or else through intentional simplification. He further stresses the fact that input needs to go beyond the learner's level of linguistic competence ("i") and thereby provides added value ("i+1") in the form of challenging linguistic forms and functions, that is "i+1". Based on this concept, Krashen argues that successful language teaching needs to provide the learners with extensive amounts of comprehensible input. In

addition, he recommends that teachers refrain from teaching speaking skills directly as they will emerge once the learner has built up enough knowledge. It is inferred that the learner experiences a 'silent phase' until a sufficient amount of comprehensible input has been provided.

This hypothesis has repeatedly been rejected by linguists mainly because it reduces the process of language learning to a merely receptive role. Bleyhl (2009: 146) argues that "language is learnt in social interaction and not when the learner is confronted with bits and pieces of input". Furthermore, the concept of 'i+1' has been criticized as too vague a construct that cannot be verified. McLaughlin (1987: 39), for example, asserts that Krashen's definition of comprehensible input as being both meaningful and understood by the learner is in fact a tautology. Chomsky (cf. Ellis 1994, McLaughlin 1991) argues along the same lines when he states that input as such is important but considered in isolation, it fails to explain first language acquisition as it also includes ungrammaticalities and disfluencies which turn it into an inadequate source of information. Based on such input, children would not be able to decide what is grammatical and what is not. He further maintains that input alone cannot be enough for the learner to discover the rules of the L1. Ellis (1990: 106) concludes: "The input hypothesis is a bucket full of holes".

Clearly, the input hypothesis focuses on the role of the L2 in the classroom. By providing a large amount of comprehensible input, the teacher can create effective opportunities to foster the language learning process. As far as pronunciation is concerned, this also implies that the quality of the teacher's own pronunciation skills are crucial to the successful acquisition of second language phonology.

As has already been mentioned, comprehensible input is of central importance in Krashen's theories. In addition, Krashen believes that the learning situation has to be characterized by positive emotions, as laid out in his Affective Filter Hypothesis. Negative emotions, such as anxiety, self-doubt, stress, or boredom interfere with the acquisition of L2 by building a mental block and impede efficient processing of the language input. The learner needs to be open to input. Thus, the more comprehensible input the learner receives in low-stress situations with the affective filter being low, the more successful the teaching will be. Input only reaches the language acquisition device (LAD), if the affective filter provides favourable conditions. This, according to Krashen, explains why adults and more

experienced learners frequently face severe difficulties to achieve a native speaker level of proficiency. As a consequence, teaching not only has to ensure that there is extensive comprehensible input but also has to create a positive learning environment which is meant to keep the affective barrier low. For Krashen this means that the teachers need to concentrate on meaning and not on form to reduce anxiety by refraining from overt corrections of language errors.

This theory has also been criticised by a number of researchers claiming that firstly, not all adolescents are struggling with the mastering of a foreign language due to a high affective filter and secondly, that a low affective filter is no single guarantee for a higher level of success in mastering the language. Thus, many aspects of the affective filter remain in the dark.

To sum up, the quantity and quality of the input of the target language is of central importance in Krashen's theory. No matter how disputed his theories are, they have undoubtedly inspired research and laid the foundations for further studies into second language acquisition. They have also directly made their way into the classroom and thereby greatly influenced teaching practice, teacher training and classroom strategies.

These ideas are undoubtedly crucial in the conceptualisation of language learning in an English-medium setting. Clearly, Krashen's theories according to which success in language acquisition depends on the focus on meaning rather than exclusively on form, on language input being just above the proficiency level of the learner, and on the learning environment providing ample opportunities for meaningful interaction, are all in line with the CLIL learning approach, which involves conditions similar to those in first-language acquisition (Crandall 1992). Indeed, as studies on the relation between CLIL students' motivation and language competence prove, CLIL pupils show better results than regular EFL learners. This will be further elaborated on in Chapter 3.3.1.

3.2.2. *The Output and the Interaction Hypothesis*

As mentioned above, Krashen's input hypothesis model has had a major impact on developments in second language acquisition research since the 1970s. Although it is now widely recognized that input is crucial for language acquisition,

it is also generally accepted that output and interaction are crucial determiners in the process of learning an L2. Complimentary to Krashen's Input Hypotheses, two further theories have evolved that can and should be related to the EMI classroom. Firstly, Swain's Output Hypothesis purports that the mere exposure to the L2 is not sufficient as learners need to use the foreign language actively to trigger the acquisition process. Secondly, Long's Interaction Hypothesis goes one step further by pointing out that verbal interaction, feedback, negotiation and comprehensible input are also essential prerequisites for successful L2 mastery.

3.2.2.1. The Output Hypothesis

A hypothesis that greatly challenges Krashen's Input Theory by questioning the role of input as the single most important factor in SLA, is the Comprehensible Output Theory. This theory is commonly attributed to Merrill Swain (1985) who explored the learning process of French immersion students in Canada.

Swain's hypothesis has to be seen in the context of the increasing popularity of French immersion programs in Canada in the 1980s, the evaluation of which yielded some surprising results (Swain 1985). Whereas the French immersion students scored similarly to their francophone learners of the same age in listening and reading, their speaking and writing competence clearly lacked behind. Swain attributed this to two major reasons, firstly insufficient input and secondly insufficient output. She claimed that restricted input (e.g. in terms of language features such as the conditional) entailed limited acquisition opportunities. The second problem she identified was that of limited output produced by the French immersion students. Additionally, she noted that only about 19% of the grammatical errors which occurred in the students' productions were corrected by the teacher (Swain 1996: 97). Thus, the learners were not pushed to more accurate language use as the teachers solely concentrated on meaning rather than form. Essentially, feedback and the negotiation of meaning which incorporate the idea of being pushed toward the delivery of a precise, coherent and appropriate message are of central concern. As Swain sees this as parallel to that of the "i+1" of comprehensible input, he call it the "comprehensible output hypothesis". (Swain 1985: 248-249). Interestingly, students' perception of being 'pushed' is, according to Swain, highest when the feedback comes from the teacher and lowest when it comes from a peer.

Swain elaborates on three distinct functions of output: Firstly, the noticing function which states that the learners notice gaps between what they intend to say and what they actually say and thus they realise what they do not know. Secondly, when learners speak, a hypothetical assumption tends to precondition the production (e.g. grammatical rules). By producing an utterance, this hypothesis is tested and ideally meets with feedback from an interlocutor. This feedback then allows them to change their hypothesis. Swain calls this the hypothesis-testing function. Thirdly, learners reflect about the language and thereby the output gives them an opportunity to check and internalize their knowledge of the L2 on a metalinguistic level.

Overall, a great number of scholars agree that opportunities for comprehensible input and output are also crucial for successful language learning (e.g. Swain 1985, 1995; Swain and Lapkin 1995; Shehadeh 1991). The implications generated by numerous studies on the negotiation of meaning overall tend to match paradigms such as the communicative language approach, which also puts learners and learner interactions into the fore (cf. Widdowson 1990).

It comes as little surprise that Stephen Krashen severely criticised Swain's approach in order to defend his own theory (Krashen 1998: 175-182) with his main argument being that output in general is scarce. This claim was further confirmed by Ellis et al. (1994), who investigated vocabulary acquisition and found that only a small minority of their learners engaged in the negotiating of meaning whereas the majority simply listened. Further, Krashen insists that high levels of proficiency can be obtained without any language output (Krashen 1994) and refers to studies conducted in the field of vocabulary growth (e.g. Pitts & al. 1989; Day et al. 1991) and spelling (Krashen 1989). Further, he claims that pushing students to speak is unpleasant and creates a learning atmosphere which is largely dominated by a high level of anxiety.

Bearing in mind that a traditional university course is often characterized by a teacher-fronted and monologue-based (Goffman 1981) classroom discourse, the linguistic output produced by the students by nature tends to be severely restrained. This might thus give rise to the assumption that chances to promote language learning in tertiary EMI courses are in fact slim. However, it seems that the importance of interaction in university lectures is gaining weight. Indeed, a number of studies have recently observed a gradual shift away from being "an

institutionalized extended holding of the floor” (Morell 2007: 223) to a more egalitarian and participatory approach where the role of the lecturer is also moving from the main provider of knowledge to that of a facilitator in the learning process (Dafouz & Sanchez 2013).

3.2.2.2. The Interaction Hypothesis (IH)

The line of research following Krashen’s Input Theory predominantly focused on Krashen’s claim that comprehensible input is sufficient to foster language learning and as a result, a number of new perspectives were brought to light, with Long’s pioneering work on the Interaction Hypothesis (1983, 1996) being among the first and most influential ones. The IH is based on the notion that conversation is not only a medium of practice but also the means by which learning takes place.

Closely related to Krashen's input hypothesis, the interaction hypothesis stresses the importance of comprehensible input for successful language learning. However, Long adds that the effectiveness of comprehensible input can be considerably enhanced when the learner needs to negotiate meaning. This happens when there is a breakdown in communication and when the speakers try to overcome this barrier. The participants will employ various communicative strategies to help the interaction continue. These strategies may encompass the slowing down of the speech rate, speaking in a more articulate way, asking for clarification or paraphrasing.

Long discovered that interaction may prompt language learning through what he coined ‘interactional modification’. This process has been defined by Pica (1994: 418), amongst others, as "the modification and restructuring of interaction that occurs when learners and their interlocutors anticipate, perceive, or experience difficulties in message comprehensibility". Likewise, Long (1996: 418) defines interaction as

[...] the process in which, in an effort to communicate, learners and competent speakers provide and interpret signals of their own and their interlocutor's perceived comprehension, thus provoking adjustments to linguistic form, conversational structure, message content, or all three, until an acceptable level of understanding is achieved.

Since Long’s study, a growing body of research has sought to elaborate on the role that interaction appears to play in second language acquisition. Generally

speaking, interaction is claimed to change input qualitatively by making it more comprehensible and therefore more beneficial for the development of the second language (Long 2003: 449). For Gass and Varonis (1994), for example, interaction is of paramount importance in language acquisition by providing learners with "a forum for testing out hypothesis about the target language" (Gass & Varoins 1994: 318). In a similar vein, Oliver (1998) argues that interaction is beneficial since it gives the learners the opportunity to receive comprehensible input that is adapted to suit the individual circumstances. In addition, interaction allows them to modify their own contributions in an attempt to make themselves understood. (Gass & Varonis: 373).

For the language classroom, this implies that apart from the availability of comprehensible input, emphasis should be on language forms, which clearly contradicts Krashen's demands. If communication breaks down, feedback should be given, for example in the form of recasts or explicit error correction, and this in turn makes learners recognize gaps in their linguistic competence and take in the correct language forms (Long 2003: 429). Thus through focused negotiations of meaning, the learner resources are steered towards potential discrepancy between language knowledge and language reality.

In his evaluation of the Interaction Hypothesis, Krashen rejects it as being too vague and not empirically proven. He claims that there is convincing data proving that reading can foster language learning and that acquisition can happen without interaction. Nevertheless, he concedes that interaction can be seen as a valuable source of comprehensible input (Krashen 1982).

As has been shown, Long's Interaction Hypothesis posits that language acquisition is facilitated by the use of the L2 in interaction. It follows that the language classroom needs to provide opportunities for interaction to support the cognitive process of successful language learning. Regarding its implementation in the EFL classroom, the IH suggests that teachers need to engage the learners in activities involving problem solving, decision making or giving opinions as these create an ideal atmosphere for negotiating meaning. By taking advantage of these opportunities, the learners make the input comprehensible through negotiation and at the same time they produce comprehensible output, which they then again make comprehensible to other learners through interaction and negotiation.

Interaction is therefore seen here as a social process which focuses on the construction of meaning by both interlocutors.

Overall, the importance of the three factors input, output and interaction has been generally accepted in second language learning. The findings of interactional studies clearly highlight the role of interaction and the negotiation of meaning in developing language competence and thereby assert the importance of interaction in the production of comprehensible output, which is at the same time one of the core principles of the communicative language approach.

3.2.3. *Socio-cultural theory (SCT)*

Having its roots in the ideas of the Russian psychologist Lev Vygotsky (1896 - 1934), socio-cultural theory is probably the most influential of several psychological theories attempting to explain mental development in a socio-cultural context. Drawing on ideas from constructivism, this theory offers a novel view of the language learning process by taking the broader view on the phenomenon of learning and development. Vygotsky claims that to understand a learner's development it is too narrow a view to solely focus on the individual. What is more, the external social world in which that individual lives has to be taken into consideration. By taking part in activities that require cognitive and communicative functions, "children are drawn into the use of these functions in ways that nurture and 'scaffold' them" (Vygotsky 1978: 6-7). In other words, mental progress happens as the learner interacts with the environment and thereby actively constructs reality.

This approach to learning and teaching clearly underlines the importance of the social context and the role of discourse in enabling the construction of knowledge. In Gibbons' (2002) words "the kinds of talk that occur in the classroom are critical in the development of how students learn to learn through language and ultimately how they learn to think" (Gibbons 2002: 25). Thus it is crucial for students to engage in social classroom events that trigger the thinking process and develop students' conceptual knowledge.

Vygotsky claims that learning starts at birth and continues throughout one's life. One of the most important ways in which progress is made is through the zone of

proximal development (ZPD) which Vygotsky explains as "the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky 1978: 86). He purported that two developmental levels need to be distinguished to grasp the relationship between development and learning: the actual and the potential levels of development. The actual level denotes those accomplishments a child can perform without help; whereas potential levels of development refer to what children are capable of doing with assistance. It follows that productive and useful interactions are in fact those which steer instruction toward the ZPD. If that is not the case, instruction will lag behind the development of the child. "The only good learning is that which is in advance of development." (Vygotsky 1978: 89). Development therefore occurs as children learn general concepts and principles that can subsequently be applied to new tasks and problems.

Scholars have wondered whether the ZPD is in fact the same as Krashen's 'i+1'. In their review article, Dunn and Lantolf (1998) answer this question by claiming that these two concepts cannot be compared since they are built on different ideas as to how development can be induced. According to them, the ZPD is a metaphorical place where learners co-construct knowledge together with an interlocutor. In Krashen's 'i+1', however, the input comes from outside the learner and the focus is on the comprehensibility of the input that is just beyond the learner's current developmental state.

Vygotsky's theory of constructivism is centred on three main tenets: scaffolding (Bruner 1978), Zone of Proximal Development (Vygotsky 1978) and approximation (Holdaway 1979). Firstly, scaffolding means that a teacher detects a child's ZPD and engages the learner or group of learners in a task while providing temporary support that is gradually removed as the learners make progress in language development. Broadly speaking, scaffolding requires an instructor to demonstrate how to solve a problem, while being in control of the learning environment so that the learners can proceed step by step, expanding their base of knowledge without being overwhelmingly frustrated. The second one, Zone of Proximal Development involves reciprocal teaching which provides a learning environment of open dialogue between student and teacher by going beyond a simple question and answer session. Taking their turns to lead discussions, students soon find out that

they are in fact capable of assuming a leadership and instructional position. The third key element of socio-cultural theory is approximation, a process in which learners imitate the language behaviours of their models. By testing their hypothesis about the new language, they increase their proficiency. Approximation largely depends on language opportunities within the context of wholes. In other words, the learners rely on listening, speaking, reading, and writing as a whole, rather than as a separate entity. Consequently it is assumed that skilful teachers engage their students in integrated language tasks in which they are expected to listen, speak, read, and write in a safe environment.

Lantolf and Thorne conclude that "SCT is a theory of mediated mental development" (Lantolf & Thorne 2006: 4), which assumes that mediatory tools become internalised by means of social interaction and that language is an immensely powerful socio-cultural tool. The authors (2007) argue that the principles of the SCT can also apply to SLA. They explain that "SCT is grounded in a perspective that does not separate the individual from the social and in fact argues that the individual emerges from social interaction and as such is always fundamentally a social being" (Lantolf & Thorne 2006: 217-218). It is in the social world that the language learner observes others using language and imitates them.

From Vygotsky's point of view, second language acquisition is mediated by the learner's L1. For him, there is a clear distinction between learning a foreign language at school and developing one's L1. Learning a new language means using the native language as a mediator between the world of objects and the new language.

Besides describing the opposing features of the L1 and L2 acquisition processes, Vygotsky (1987a) also holds the view that the conscious and intentional learning of an L2 rests on a certain level of development in the L1. Hence, learning a foreign language means that the child understands the native language as a single realization of a linguistic system and as a result develops a certain potential to generalize the parameters of the native language and to gain conscious awareness of how speech in general operates.

Interestingly, socio-cultural theory has also been linked to the interaction hypothesis in as far as the role of the interlocutor is concerned. Lightbown and Spada (2006) point out that the difference between these two views lies above all

in the role cognitive processes play. Whereas the interaction hypothesis highlights the cognitive process in the mind of the learner, Vygotskian theory focuses more on the conversations themselves with learning being a by-product of the social interaction (Lightbown & Spada 2006: 47). Thus the crucial difference between the socio-cultural perspective and that of other scholars who also consider interaction as important in second language acquisition is that socio-cultural theorists assert that "the cognitive processes begin as external socially mediated activity and eventually become internalised" (Lightbown & Spada 2006: 48).

The sociocultural approach has suggested implications for pedagogical practice in the foreign language classroom. For students, learning a language is not just an individual mental process to acquire communicative competence, to a certain extent it also entails socialization in the L2 culture. Depending on a number of variables, this can result in conflicts or mismatches with the student's L1 culture, which in turn could affect the learner's assimilation, accommodation or manifest itself as resistance to instruction (McClintock 2014). Research has proliferated in identifying the mismatches and conflicts faced by learners in order to help teachers provide more culturally responsive instruction to diverse students.

As Dalton-Puffer (2007) points out, in the English-medium classroom it is crucial to abandon the position that input alone triggers the acquisition process. In fact, this process is bound to be shaped by the context in which it occurs. Conceivably, a sociocultural perspective allows us to analyse the characteristics of this particular classroom within the context of the system 'school' (Dalton-Puffer 2007: 11). Therefore to learn at an educational institution means to learn within a particular system which inherently conditions learning opportunities (Dalton-Puffer 2007: 293). Just like regular language classes, CLIL courses take place in the institution school and so the conditions there are likely to be similar in both instances. She therefore concludes that simply by changing the language of instruction the educational context as such is not altered. After all, the facilities, the stakeholders (teachers and learners) and also the discourse patterns are largely the same (Dalton-Puffer 2007: 279).

Indeed, a number of studies conducted from a socio-cultural perspective have unveiled that English-medium classrooms – much like traditional classrooms – show certain limitations for learning which are typically related to the institutional context. Although English-medium teaching is generally considered to be ideal for

language acquisition as it allows for extensive natural and authentic comprehensible input (Dalton-Puffer & Smit 2007: 8), studies have shown that opportunities for language acquisition are necessarily limited by reduced input and output. These problems have been related to the discourse structures in CLIL classrooms which are after all not very different from those in traditional EFL classes. Dalton-Puffer (2007) compares Canadian French immersion teachers with Austrian CLIL teachers and point out that the former appear to rely on lecturing techniques whereas the latter tend to resort to the IRF structure of discourse (Dalton-Puffer 2007: 54). This goes to show that in Canada as well as in Austria, CLIL programmes mirror the predominant discourse patterns of the local educational culture. Adhering to these traditionally evolved structures may lead to limitations in terms of input and output. It is important to note that not only the discourse patterns but also the discourse functions are in fact more traditional in CLIL classrooms than might be assumed. Without doubt, the CLIL approach provides pupils with the opportunity to experience the L2 as a means with which content information can be conveyed. Nevertheless CLIL classes often fail to provide opportunities to realise the social functions which language also fulfils (Dalton-Puffer 2007: 286). For example, pupils usually do not use the L2 among peers to criticise, to joke or to negotiate their social position in the classroom. In this respect, Tarone and Swain (1995: 166 - 172) detect a form of diglossia, where the pupils use the target language to discuss academic issues but then switch to their L1 to talk about private matters. Clearly, the notion that English-medium teaching provides authentic, natural and also meaningful exposure to the L2 in the classroom needs to be qualified as communication can only be natural and authentic in as far as the limitations of the contextual setting go.

3.2.4. Conclusion

The discussion of the relevant theories that are frequently associated with English-medium teaching has shown that language learning is a highly complex process in which cognitive considerations are inseparable from socio-cultural practices.

Whereas Krashen identifies comprehensible input in the form of high quantity and quality of language input together with a clear focus on meaning rather than form as decisive factors in successful language learning, it has been suggested that this

input alone is not sufficient. Therefore, output produced by the learners and the negotiation of meaning in the form of interaction are also crucial determiners that need to be taken into consideration. In addition to that, the socio-cultural perspective has put forth that learning is not only an individual mental process but also involves a number of socio-cultural variables, which are closely linked to the fact that language learning takes place in a particular classroom and a particular institution.

While these theories have enriched the common understanding of how languages are learned, they seem to fall short of the specifics required to take account of the contextual factors of the EMI classroom. It appears that the more cognitive-oriented approaches (emphasising input, output and interaction) combined with the socio-cultural stance (focusing on the context as a source and resource) provide a more comprehensive and multi-faceted view than a single theory can capture. For an English-medium teacher and researcher, a fundamental awareness of the implications of those theories may give rise to a wider, deeper and more accurate understanding of the language learning process. Hence, viewing these approaches as complementary pieces of a broader picture may reveal a more active, more dynamic and less linear option to learning both language and content in EMI classrooms.

Without doubt, these ideas lend themselves well to most secondary school EMI settings with input, output, interaction and context-related aspects being driving forces. In a traditional university context, however, these forces are often restricted by organisational, practical and technical constraints. Very often, overcrowded lecture halls filled with hundreds of students leave little room for output let alone interaction among the learners. At the UAS Vienna, however, this is not the case. In fact, one of the proclaimed advantages of an Austrian UAS as opposed to a state university is that these institutions guarantee small groups with approachable lecturers in active learning environments (www.fh-wien.ac.at). This also means that the given setting more closely resembles that of a secondary school than a university and thereby allows us to draw on a large pool of empirical studies stemming from that level of education.

3.3. Language learning in the tertiary EMI classroom

A distinctive feature of a traditional EMI classroom at university is the absence of attention to language. English is essentially seen as a vehicle through which content is transferred (e.g. Coyle 2010: 15). In this respect it is often assumed that language learning happens incidentally. This means that in the case of EMI, the mere exposure to comprehensible English will trigger the language learning process. Järvinen (2008), for instance, purports that “the affordances view of input – what the context can ‘afford’ in terms of learning language” (Järvinen 2008: 83) also fosters the general understanding that in EMPs students are given a myriad of possibilities to acquire the respective language. At the same time it may be claimed that the students need to actively take advantage of these opportunities to ensure that learning does take place. In the case of a great number of institutions of higher education, this is restricted owing to large student numbers and a general lack of interaction between teacher and student. Exceptions in this respect are many private universities or universities of applied sciences (cf. www.fh-wien.ac.at).

3.3.1. *Linguistic gains of English-medium teaching*

As discussed in Chapter 2, the current trend towards teaching content courses in English as a means to facilitate the European notion of integration and multilingualism has been gaining momentum in the last decade. However, as this is still a fairly new approach to language learning and teaching, studies into the linguistic gains of English-medium instruction in tertiary education seem scarce (c.f. Ament & Perez-Vidal 2015). Researchers are only now beginning to explore this emerging field which means that research to date appears to be predominately descriptive and exploratory in its nature (cf. Ament & Perez-Vidal 2015:). Hence it makes sense to draw upon the CLIL experience in primary and secondary school settings for further insight into what can be expected at tertiary level.

Generally speaking, CLIL is believed to be an effective way of improving students’ foreign language skills (Dalton-Puffer & Nikula 2006, Ruiz de Zarobe 2008, Zydatið 2007). One of the most common arguments in favor of CLIL is the assumption that

increased exposure to and use of L2 in the classroom lead to increased language proficiency.

The website of the European Commission lists the following advantages of CLIL:

- Builds intercultural **knowledge and understanding**;
- Develops intercultural **communication skills**;
- Improves **language competence** and oral **communication skills**;
- Develops **multilingual interest and attitudes**;
- Provides **opportunities to study** content through different perspectives;
- Allows learners **more contact with the target language**;
- **Does not require extra teaching hours**;
- **Complements other subjects** rather than competing with them;
- **Increases learners' motivation and confidence** in both the language and the subject being taught.

From: http://ec.europa.eu/languages/policy/language-policy/bilingual_education_en.htm)

However, under CLIL conditions certain competences are said to be enhanced more than others. According to Dalton-Puffer (2008), receptive skills, vocabulary, morphology, creativity, risk-taking, fluency, quantity, and affective outcomes benefit most, whereas syntax, writing, informal language, pronunciation and pragmatics seem to remain unaffected. Interestingly, pronunciation appears to be the least affected of the speaking dimensions (Dalton-Puffer 2008):

Favourably affected language skills	Unaffected/indefinite language skills
• Receptive skills • Vocabulary • Morphology • Creativity, risk-taking, fluency, quantity • Emotive/affective outcomes	• Syntax • Writing • Informal/non-technical language • Pragmatics • Pronunciation

Figure 3: Language competences affected by CLIL (Dalton-Puffer 2008:5)

Taking into account that CLIL students usually continue with their regular EFL classes alongside their CLIL content courses, it comes as little surprise that they tend to outperform their non-CLIL learners (Dalton-Puffer 2011). This expectation is clearly corroborated in a number of studies (e.g. Lasagabaster 2008; Ruiz de Zarobe 2008, 2010; Zydati, 2007). However, these studies vary considerably in their design and methodology and therefore general conclusions can hardly be drawn. The question of how much and in what respect CLIL students are in fact better remains in the dark, as does the question of why (Dalton-Puffer 2011).

Although the findings reported from secondary school scenarios are insightful and valuable, simply transferring them to the tertiary level of education would essentially mean ignoring the peculiarities of learning and teaching at universities regarding language and education policy, institutional interests as well as learners and instructors involved (cf. Smit 2011). Despite the fact that in tertiary education a vibrant research scene has established itself, it seems that studies into the linguistic gains of EMI are scarce. Airey (2004), for example, pointed out that the number of studies assessing language competence through EMI programs at university level is rather limited. Actually he could not find any into the effects of EMI on students' linguistic competences. Clearly, this is an area that has received only minor attention among researchers and thus calls for further exploration. In the Austrian context, it is interesting to note that students who choose an EMI course expect their English language competence to increase and report this to be one of the prime factors for choosing the respective programme (Tatzl 2011). To date, however, there seems to be little empirical evidence to support this claim.

Among the very few empirical studies into linguistic gains of EMI is a study conducted by Loranż-Paszyk (2009) in the academic year 2006/07 at the Academy of Technology and Humanities in Bielsko-Biala, Poland. The results of her investigation into reading and writing skills lead her to conclude that systematic text-responsible writing increases the undergraduate students' linguistic gains as far as reading skills are concerned. Therefore she concludes that in an EMI classroom a particular linguistic skill (i.e. writing) in an EMI classroom may in fact be transferable to another skill (i.e. reading).

Rogier (2012) in her longitudinal study into the linguistic gains of EMI of students enrolled in higher education in the United Arab Emirates, explored score gains on the IELTS exam after four years of undergraduate study. Her findings clearly

indicate that the students achieved significantly higher scores in all four of the English-language skill areas tested by the IELTS exam. The most noticeable gains were reported in the area of speaking, followed by reading, writing and then listening.

Very recently, a longitudinal study conducted at a Catalan university has caught the attention of researchers as it has – for the first time – tried to measure long-term linguistic gains in four skills: namely listening, writing, grammar, and speaking. For their project, Ament and Perez-Vidal (2015) chose a pre-test post-test design over a period of 1 year to capture the language development. They compared two groups, a focus group with 100% exposure to English through EMI and control group with 18 – 41% of their courses taught in English. They discovered a trend towards improvement in both groups. Interestingly, they report significant gains in grammar in the control group but not in the focus group. Regarding the lack of improvement in terms of listening skills, the authors note that the lecturers were non-native speakers of English. Accordingly, they attribute the lack of gains in the students' listening skills to the lack of native accent input. To date, the results of the oral test have not been published.

3.3.2. English-medium teaching and pronunciation

As Figure 3 has shown, the area where a clear superiority of the CLIL students is detectable is spontaneous oral production. A number of quantitative surveys (e.g. by Lasagabaster 2008; Ruiz de Zarobe 2008; ZydatiB 2007) purported that CLIL students are generally ahead in this respect. This result is based on self-reports obtained in student interviews where learners frequently displayed increased fluency and speaking confidence (Dalton-Puffer et al. 2008). A number of studies (e.g. Hüttner & Rieder-Bünemann 2010; Maillat 2010; Moore 2009) have also found that CLIL students show greater flexibility and listener-orientedness together with more self-assuredness in getting the message across even if they may momentarily lack the necessary linguistic resources (cf. Nikula 2008).

As far as pronunciation is concerned, however, the impact of CLIL instruction seems to be more moderate (e.g. Gallardo del Puerto et al. 2009). Indeed, reviewing the latest and most relevant studies related to the effects of English-medium teaching on language competence, one finds that spoken production in

general and pronunciation in particular have only received minor attention, especially as far as the tertiary level of education is concerned. Nevertheless, a number of researchers – mostly from Spain - have looked at pronunciation and foreign accent in secondary school settings.

In her longitudinal case study Ruiz de Zarobe (2008) compared the oral language competence of secondary CLIL students with EFL students in terms of pronunciation, vocabulary, grammar, fluency, and content. She concludes that in every category the CLIL group outperforms the non-CLIL group. Interestingly, she observes that there appears to be no significant increase in proficiency over a longer period of time.

In their research, Gallardo del Puerto, Lacabex and Lecumberri (2009) contrasted the degree of foreign accent of learners in the CLIL classroom with those in the traditional FL classroom. They argue along the same lines and maintain that no statistically significant difference in the degree of foreign accent can be detected and claim that this, again, can be attributed to a lack of native-speaker input. Much to their surprise, the evaluation of the communicative effects of the foreign accent in a narration task shows that the learners in the CLIL group were judged to be more intelligible.

A study conducted by Rallo Fabra and Juan Garau in 2010 explored the effects of CLIL instruction on Spanish-Catalan learners' perceived comprehensibility and accentedness in a reading aloud task. The authors claim that CLIL has a modestly positive effect on the learners' overall intelligibility but does not seem to contribute to ameliorating the degree of foreign accent in the short and mid term (after 1 year), speculating that the main reason for this lies in the fact that most of the language input comes from non-native speakers of English. Also, it has to be noted that in their sample the students only had one or two subjects taught in the foreign language.

A fourth project from Spain that needs to be mentioned was carried out by Gallardo del Puerto and Lacabex (2013) who sought to measure the influence of additional (i.e. +30%) CLIL exposure on secondary school learners' oral production in a story-telling task. Their findings go along with earlier research showing that the learners' productions were perceived to be more fluent and more accurate in terms of vocabulary and grammar. Yet no differences were found for pronunciation.

In the German-speaking context, the only study that attempted to shed light on the impact of CLIL on the learners' pronunciation was conducted by Varchmin (2009), who investigated the effects of CLIL at the segmental level, focusing on final devoicing and the pronunciation of dental fricatives. She compared a group of CLIL and a group of non-CLIL students in Germany and concludes that for her study no connection between the teaching method and the students' pronunciation skills can be made out.

To the best of my knowledge, empirical studies into the effects of tertiary EMI on the students' pronunciation skills are practically non-existent. In this respect, the two studies that could be identified appear to be only partly relevant for the present project in that they are either set in an English-speaking country (i.e. New Zealand) or rely on self-reported linguistic gains that are not validated by listeners.

Firstly, a small-scale longitudinal study on the effects of EAL (English as an additional language) on pronunciation at university level comes from New Zealand. Examining the changes in pronunciation that occur within three years of studying of four Asian immigrants in New Zealand, Romova, Smith and Neville-Barton (2008) claim that a number of changes in the learners' pronunciation can be observed both in terms of foreign accent as well as fluency. It has to be noted, however, that the findings of this study can only be loosely linked to the project at issue since English is an official language in New Zealand and therefore provides considerably more exposure to the English language than Austria. What is even more, their subjects received explicit formal pronunciation training.

Secondly, Maiz-Arevalo and Dominguez-Romero (2013) report on the self-perceived linguistic gains of business students at Madrid University in speaking, reading, writing and listening. As far as pronunciation is concerned, about half of the sample believed that the EMI classes had caused a significant improvement of their pronunciation. About one fourth, however, stated that their pronunciation had not changed much. The authors see the reason in the fact that the emphasis in these courses is on the content and not so much on the language.

In summary it can be said that findings from *secondary school contexts* suggest that pronunciation is one of the skills that seem to remain largely unaffected by EMI. The main reasons why EMI does not impact on the students' pronunciation skills are threefold: quantity of input (only a few courses are taught in English),

quality of input (referring to the teachers' own pronunciation skills) and a lack of long-term observation. Clearly, this scarcity of empirical data on the effects of tertiary English-medium instruction on the learners' pronunciation skills calls for further investigations into an area that has been conspicuously neglected in the literature so far. This oversight is particularly striking when taking into consideration that one of the overall aims of English-medium teaching as such is communicative competence of which pronunciation is undoubtedly a key component. This is exactly where the present study seeks to make a significant contribution. By examining the development of the students' pronunciation skills in an EMI programme where up to 50% of the content courses (quantity) are held in English by native speakers of the language (quality) over the duration of roughly three years (longitudinal design) this project provides the ideal avenue to effectively address a vital question that undoubtedly deserves to be explored.

4. Language learning and L2 phonology

Without doubt, a clear sign that someone is a second-language learner is a certain tendency to produce speech with a foreign accent (FA). Even a one-word utterance like “hello” can be enough to identify him or her as a learner. More than any other language skill, pronunciation has an undeniable impact on how a speaker is perceived in terms of language competence, socio-cultural background, credibility, or confidence (Gilakjani et al. 2011) and yet pronunciation is said to be one of the most challenging skills in English (Derwing & Munro 2005). As casual observers and scholars alike will confirm some English language learners may have lived in an English-speaking country for a long time but still have weak pronunciation skills. Other speakers seem to pick up pronunciation with very little effort, and some may even do so without ever having set foot in an English-speaking environment. This variation seems to have little to do with the level of education, or even the knowledge of grammar or vocabulary.

In language learning research, FA plays an important role not only because it is often used as an indicator of the fluency and intelligibility of the learners, but also because of its close relation to other extra-linguistic factors, such as the age of learning (e.g. Flege et al. 2006; Gallardo del Puerto & Garcia Lecumberri 2006), experience with the L2 (e.g. Flege et al. 1997; McAllister 2001), socio-cultural variables (e.g. Major 2001; Al-Issa 2003), or speaking rate (e.g. Munro 1998; Hirata 2005). In addition to that, a number of other learner-dependent factors are said to be crucial to foreign accent such as gender, motivation, attitude, length of residence, type of formal instruction, amount of L1/L2 daily use/exposure, language learning aptitude, etc. (Piske, MacKay & Flege 2001)

This chapter aims at discussing the most significant theoretical concepts and empirical research findings in the fields of SLA and L2 phonology. First, the notion of foreign accent will be discussed and put into context. Then three significant SLA theories will be presented: the Critical Period Hypothesis, the Interlanguage Hypothesis, and the Contrastive Analysis Hypothesis. These three have been instrumental in explaining how foreign languages are learnt. Within the realm of the CPH, three theoretical models focusing on L2 phonological acquisition will be sketched. Although different in their view of the perceptual representation of L1 and L2 sound patterns, Flege’s Speech Learning Model (SLM), Best’s Perceptual

Assimilation Model (PAM) and Kuhl's Native Language Magnet Model (NLM) share the notion that the ability to distinguish new L2 sounds diminishes with age.

4.1. Defining foreign accent

In the SLA literature, the term foreign accent has been defined in different, yet to a large extent overlapping, ways. For instance, Flege et al. (1995) observe that the accented speech of an L2 learner sets itself apart from first language norms in systematic ways that are not pathological and entail consequences in terms of perception for the listener. A more production-related definition comes from McAllister who asserts that foreign accent "refers consistently to the inability of non-native language users to produce the target language with the phonetic accuracy required by native listeners for acceptance as native speech" (McAllister 2000: 50). According to Derwing and Munro (2005: 385), foreign accent is a "listener's perception of how different a speaker's accent is from that of the L1 community" (Derwing & Munro 2005: 385). Scovel (1969) speaks of "phonological cues [...] which identify the speaker as a non-native user of the language" (Scovel 1969: 38). Along the same lines, Jenner (1976: 167) sees FA as the "complex of interlingual or idiosyncratic phonological, prosodic and paralinguistic systems which characterize a speaker of a foreign language as non-native." This study is based on the concept that an instance of foreign accent involves a deviation from the generally accepted norms of pronunciation of a particular L2, in this case English, that is reminiscent of the speaker's L1, i.e. Austrian German.

Research has shown that segmental (i.e. individual sounds) as well as supra-segmental factors such as pitch, stress and intonation are crucial for effective and efficient communication. Empirical investigations exploring the concept of foreign accent have focused on a number of aspects of L2 phonology on both the segmental and the supra-segmental level: consonants (e.g. Flege & Hillenbrand 1987), vowels (e.g. Mack 1982; Munro 1993), syllables (e.g. Broselow 1984; Altenberg 2005), or intonation and prosody (Jilka 2000; Munro 2006). This strand of research has often focused on mature L2 learners, with the overall observation those learners who come from the same L1 background seem to have a tendency to make similar deviations from native norms and that their foreign accents therefore preserve certain parameters of their L1. These manifestations of a

foreign accent can impede communication and greatly influence the listener's perception (e.g. Cutler & Butterfield 1992; Smith 2005; Munro & Derwing 2008).

4.2. Theoretical considerations related to foreign accent

Although the field of second language acquisition has largely progressed over the last few decades, the area of L2 phonology has often been marginalized (Derwing & Munro 2005: 375). In the late 20th century, Major noted that "of the nearly 200 articles published in *Studies in SLA*, only about a dozen focused on phonetics and phonology" (Major 1998: 131). However, in the last decade pronunciation has regained some importance with university centres and the British Council actively promoting the attention to pronunciation in teaching and research (e.g. Bamkin 2010).

In this chapter three of the most influential theories of L2 phonological acquisition accounting for foreign accent will be discussed, namely the Critical Period Hypothesis (CPH), the Interlanguage Hypothesis, and the Comparative Analysis Hypothesis. As shall be seen, these theories partly compete with or even contradict each other. However, as Flege suggests, "the diversity of these hypotheses attests to the complexity of the phenomenon." (Flege 1995: 234). Beyond doubt, the most relevant for the present study is the Critical Period Hypothesis (CPH) as it seeks to explore the relationship between age and second language proficiency. This question is of crucial importance within the framework of the present thesis as all the subjects are university students for whom the maturationally constrained period of time during which complete acquisition is possible (as proposed by the CPH) has already been closed. Against this backdrop the CPH will be treated extensively in the following subchapter.

4.2.1. *The Critical Period Hypothesis (CPH)*

There has been a long-standing debate in second language acquisition regarding the extent to which the ability to acquire a language can and should be linked to age.

Schouten (2009) observes that in most areas of learning adults outperform children. Yet when it comes to language learning, children seem to achieve considerably better results. In fact, the vast majority of young learners who are exposed to the L2 at an early age can achieve native-like competence (Schouten 2009: 1). Among adult learners, however, proficient mastery of the target language is far less common (e.g. Stern 1975; Virgil and Oller 1976; Selinker & Lakshamanan 1992; Nakuma 1998; Scovel 2000; Han 2004). This phenomenon has triggered the question as to whether or not some kind of critical period for language learning exists.

The Critical Period Hypothesis - a core theory in SLA research - tries to explain if and why age affects language learning. According to the CPH there is a certain window in the human developmental process when the ability to learn a new language reaches its peak. Thus, if the learner is exposed to new input during this window, theorists believe that it is certain that he or she can become proficient, but once this window closes, the chances for mastery fade.

The neurologist Walter Penfield is often named as being the first to recognize the existence of a critical period in language learning. He claims that "the human brain becomes progressively stiff and rigid after the age of nine" (Penfield & Roberts 1959: 236). This idea was then taken up again and elaborated on by Eric Lenneberg (1967) in *Biological Foundations of Language*. He associated the declining ability to acquire a foreign language after puberty with the loss of neural plasticity and the ensuing completion of hemispheric lateralization of the brain. According to Lenneberg, learners who embark on a second language before the end of the critical period are able to reach native-like attainment, provided they are exposed to "sufficient input from native speakers" (quoted in Bongaerts et al. 1997: 448).

A much debated question regarding the CPH is whether the time frame is in fact a critical or rather a sensitive one. Mack (2003) distinguishes between the two terms by claiming that the critical period applies to the period when complete acquisition of a particular property of language is possible, while the sensitive period refers to the time frame during which only partial acquisition can be achieved. This way of defining the terms is not satisfactory since it implies that the critical period lasts throughout one's whole life span. In fact, exceptions show that even in a mature stage of learning high achievement is possible (Moyer 2013: 26). In the literature,

however, most researchers use the term critical period synonymously for all such periods, as will be done in this paper.

Originally, the CPH was introduced in the context of first language acquisition. Its subsequent application in the field of L2 acquisition has triggered a controversial debate with a myriad of diverse and partly contradictory views. Basically two main perspectives can be observed. Some researchers argue that from a neurological perspective, once the mother tongue has been acquired, the cognitive mechanisms that foster language acquisition remain intact and L2 acquisition is just as possible (e.g. Singleton & Ryan 2004). Others argue that by the close of the critical period neuro-cognitive mechanisms of language acquisition become defective so that native-like attainment is bound to fail (e.g. Thompson 1991).

Lenneberg's view, which has been rejected fervently by some researchers like Singleton, who claims that the CPH is "based partly on folk wisdom" (Singleton 2001: 77) or Marinova-Todd, Marshall and Snow (2000) who conclude that "[t]he misconception that adults cannot master foreign languages is as widespread as it is erroneous" (p. 27) has more recently been brought back into the limelight by Hyltenstam and Abrahamson (2003) who purport that "[...] given that maturation has the strong influence on second language outcomes that our review has indicated, it should come as no surprise that native-like proficiency is unattainable for adults" (Hyltenstam & Abrahamson 2003: 578).

Among those who find a strong relationship between the age of exposure and the ultimate proficiency achieved are for instance Krashen et al. (1982), Johnson and Newport (1989), Newport (1990) or Patkowski (1994). In their literature reviews, Long (1990) and Patkowski (1994) both maintain that the achievement of a native-like accent in an L2 is not possible unless the learner is exposed to the language at an early age. Scovel (1988) goes one step further by postulating that a critical period exists only in the realm of pronunciation. He asserts that - in contrast to other language skills - "phonological production is the only aspect of language performance that has a neuromuscular basis" (Scovel 1988: 101).

Despite the general consensus regarding the existence of a critical period for accent, some of these scholars differ in their views concerning the offset of the critical period. In general, critical periods have an onset, a peak of heightened sensitivity, and an offset followed by a period of flattening as shown in Figure 4.

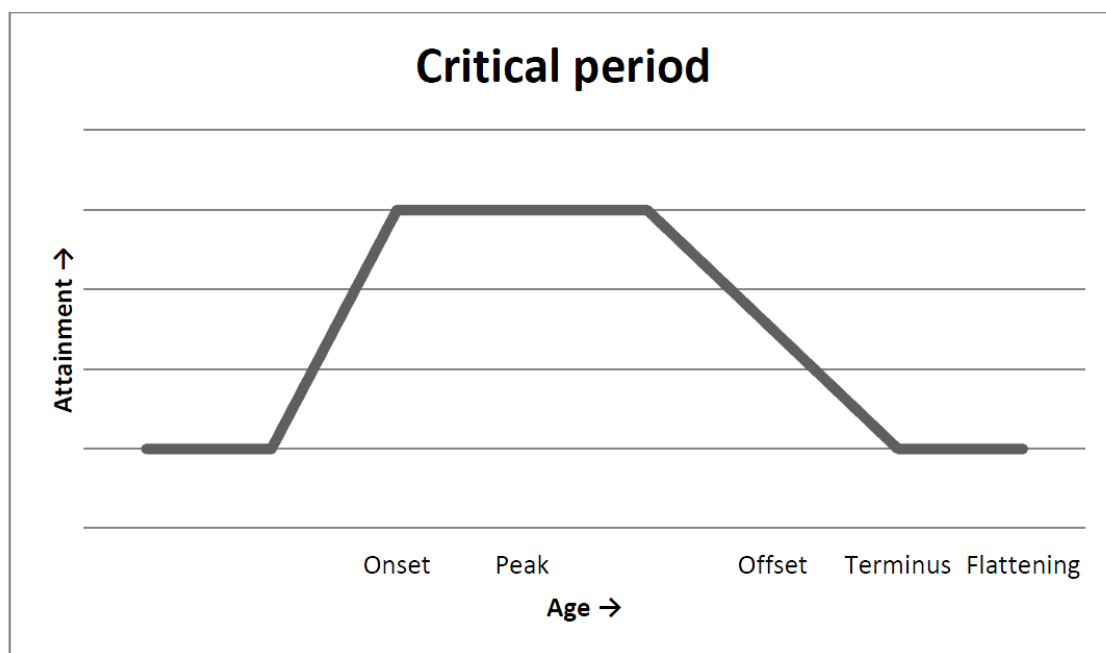


Figure 4: The geometric features of a critical period (Birdsong 2005: 112)

During the onset, a gradual rise regarding sensitivity to the stimuli can be observed. Once the peak is reached, exposure to the stimulus is said to be most effective. However, beyond this point the development no longer correlates with age. This means that in contrast to children, adult learners who are exposed to the same quantity and quality of input are bound to behave significantly differently. However, Long (1990) and Patkowski (1994) disagree on the time when the critical period finishes. Long states that a native-like accent is not possible unless first exposure happens before the age of 6 (Long) or between the ages of 12 and 15 (Patkowski).

Additional debate has centered around the question whether there is more than one critical period for language learning. Seliger (1978), Scovel (1969) or Long (1990) suggest that there are in fact many critical periods for the different language skills, e.g. phonology and morpho-syntax, and that some sub-skills, like vocabulary acquisition do not have a critical period at all (Singleton 1992, 1993). Already in 1969, Scovel surmised that there was only a critical age for accent claiming that mature language learners are likely to keep a typical accent which bears clear reminiscences of their L1. He named this the "Joseph Conrad Phenomenon" (Scovel 1969) after the well-known writer who managed to reach

native-like fluency in English syntax and vocabulary (his L2) while at the same time retaining a fairly heavy Polish accent (his L1).

Indeed, adults seem to vary greatly in their L2 pronunciation aptitude - both with regard to segmental as well as suprasegmental parameters of spoken language (e.g. Golestani & Zatorre 2009; Jilka 2009). As a matter of fact, only between 5 and 15% of late L2 learners seem to achieve native-like speech (Selinker 1972; Birdsong 2005; Novoa et al. 1988; Seliger et al. 1975). However, a number of studies have shown that as far as foreign language skills other than pronunciation are concerned older learners are more efficient for instance in terms of L2 morphology and syntax (Fathman 1975) or listening comprehension skills (Asher & Price 1967).

Singleton and Ryan (2005) also fuel the notion of 'younger = better in some respects' by distinguishing between those aspects of L2 proficiency which are seen as biological endowment and those aspects that are outside the ambit of the innate mechanisms. They assert that syntax and morphology remain unaffected by a critical period (Singleton & Ryan 2005: 135). Although they acknowledge the ambiguity of neurological evidence for a critical period for accent, they refer to empirical studies that seem to prove "that general phonological abilities are maintained in adulthood and remain available to mature L2 learners" (Singleton & Ryan 2005: 145). In addition, they advocate that "a loss or change in the abilities to produce and perceive new sound contrasts" (Singleton & Ryan 2005: 149) does not exist. To them, the innate ability to master the syntax and phonology of a foreign language does stay intact for mature L2 learners. Nevertheless, the authors concede that non-innate aspects of L2 proficiency (such as vocabulary) may very well experience age-related deterioration. The evidence they provide to support their view comes from grown-up learners who seem to have kept access to their original sensory abilities and are therefore capable of perceiving and producing new sounds (Singleton & Ryan 2005: 148). In their concluding remarks, the authors admit that despite a well-founded knowledge of principles and parameters in the retention of phonemic capabilities, mature L2 learners are still bound to fail, as "a sweeping biological explanation, [...] fails to answer the more subtle and ultimately more interesting question of what particular aspects of linguistic behaviour are affected by age" (Singleton & Ryan 2005: 151).

Abrahamson and Hyltenstam (2009) also investigated various levels of language proficiency (morpho-syntax, vocabulary, pronunciation etc.) of a group of late learners who had the potential to reject the CPH. In agreement with other scholars mentioned above, they found that only a very low number of adult learners were perceived as mother-tongue speakers. Interestingly, in their study the adult learner with the highest score exhibited results within the native-speaker range of L2 proficiency with deviance only in certain aspects of speech production and perception.

Focusing on the notion of a *critical period for accent*, early studies dating back to the 1970s produced conflicting results. Ekstrand (1976), for instance, detected better pronunciation in older subjects, whereas Fathman (1975) and Seliger, Krashen and Ladefoged (1975) argued that in fact the opposite was true. Scovel points out that the ability to master a native accent is in fact the first to be lost around the onset of puberty because pronunciation is "the only aspect of language performance that has a neuromuscular basis" (Scovel 1988: 101) with a physical reality. However, Seliger et al. (1975) report on a few exceptional cases of grown-up learners who achieved non-foreign-accented pronunciation in their L2, as well as cases of adult learners who did not. What seems striking in this respect is that there is no agreement among scholars whether the exceptional behaviour of very few experienced learners confirms or rejects the CPH.

In a series of publications, Flege (1987, 1992, 1995) shed new light on the issue by drawing attention to the distinction between perception and production. He argues that foreign accented speech is largely perception-based and not related to the end of neural plasticity. At the age of 5 or 6 the phonetic prototype categories are refined and stabilized owing to an increasing awareness in the child concerning segmental features of the first language. As a consequence, new sounds of a foreign language are identified and integrated into the categories of the native language. By the age of 7, the L1 categories are firmly established. In his review of the literature, Flege notes that the results of most studies are "inconsistent with the expectations generated by the critical period hypothesis" (Flege 1987: 174). He claims that the hypothesis is on the one hand difficult to test empirically and on the other hand it is very difficult to isolate speech learning from other factors that are closely linked to age.

A number of researchers have argued that there are other factors at work that override any binding effects of age. Schumann (1975) for example, associated the success of younger learners with socio-psychological factors, according to which younger learners are in general exposed to more varied input from native speakers and are consequently more motivated to reach native-speaker level. Klein (1995) rejects this view by claiming that adults neither receive less adequate input nor are they less motivated. In striking contrast to Schumann, Klein insists that there is no evidence of drastic biological changes in the brain and arrives at the conclusion that no absolute barriers to the perception and production of a new sound system exist. Instead, he believes that massive and continuous exposure to the target language together with "the different motivations that push a learner forward" (Klein 1995: 261) are crucial prerequisites for attaining a native-like accent and thus more important than biological age.

Moyer (1999) argues along the same lines and challenges traditional views of the CPH. For her, using age effects is too simplistic and insufficient. Instead, she links age and maturation with socio-psychological factors such as learner motivation, cultural empathy, the desire to sound like a native speaker, and quantity and quality of input as essential for successful language learning. She tested her hypothesis on a group of late learners of German. And indeed, none of the subjects scored within the native speaker range on the pronunciation tasks. But those who used German in their workplace scored higher than those who did not. In addition, those who attended German pronunciation classes also achieved better results. Age of exposure was clearly an important factor, but apparently not the only one.

As already mentioned, there is scientific evidence that a low number of exceptional learners are not bound by maturational constraints. Bongaerts (1999) for example reports on the pronunciation of highly proficient post-puberty Dutch learners of English and French. They were asked to read out a series of sentences with supposedly difficult words to pronounce. It turned out that the majority of them scored in the upper range of the native control group. Similarly, in their investigation of the pronunciation of 30 highly advanced learners of English, Bongaerts, Mennen and van der Slik (2000) found that 2 participants (out of 30) who were 21 and 14 years old passed as native speakers.

Lee et al. (2006) carried out a study on the production of unstressed English vowels, comparing early and late Korean and Japanese bilinguals. They found that

both groups (early and late learners) were affected in the production of L2 by their L1. However, this was felt stronger in late learners.

Comparing the studies that report on the language proficiency of late L2 and early L2 learners, it appears that it is difficult if not impossible to find learners who achieve overall native-like proficiency (Hyltenstam & Abrahamsson 2003; Moyer 1999). The reasons for the success of the low number of exceptional learners are attributed to increased motivation (e.g. Moyer 1999), a high language learning aptitude (DeKeyser 2000; Ioup et al. 1994) or intensive formal L2 instruction (Bongaerts 1999; Moyer 1999).

In their review article on the issue of neural plasticity, Zhang and Wang (2007) also looked at the question whether learners lose the ability to learn with age. They purport that the loss of brain plasticity at a critical age is not complete and as a consequence, post-critical age L2 learners can still reach native-likeness in their pronunciation. Interestingly, they identify two key factors here that are considerably more important than brain plasticity, namely quantity and quality of L2 input.

In recent years, there has been a shift in research in second language phonology from production to perception. Empirical studies have shown that difficulties in L2 production are in fact rooted in perception (Derwing & Munro; 2005: 388). Further support comes from brain studies, such as Golestani and Pallier's "Anatomical Correlates of Foreign Speech Sound Production" (2007). They surmise that "it is not necessary to be able to articulate sounds in order to be able to perceive them, but that it is necessary to be able to accurately perceive speech sounds in order to be able to articulate them correctly" (2007: 933).

To sum up, the Critical Period Hypothesis for SLA has neither been conclusively proven nor has it been completely dispelled. In their review of the literature Singleton and Ryan (2004) conclude that neither the claim that younger language learners are in every respect and in every learning phase superior to adult learners, nor the view that mature learners are in all respects and in every learning phase ahead of younger learners holds water. Nevertheless, evidence from research suggests that a critical period for the acquisition of second language phonology is likely. The fact that some late learners perform exceptionally well seems to refute the idea that ultimate attainment is primarily a consequence of biological

maturation. Research has shown that a number of other factors such as motivation, exposure to L2, language learning aptitude, intensive formal L2 instruction, or quantity and quality of input all play a decisive role when it comes to pronunciation mastery.

4.2.1.1. Theoretical models accounting for foreign accent and age

In relation to the CPH, a number of theoretical models have been developed to explain adults' general difficulty in L2 phonological acquisition by focusing on the perceptual interference between the L1 and the L2. The most popular and most frequently mentioned models in this regard are Flege's Speech Learning Model SLM (e.g. Flege 1986, 1995), Best's Perceptual Assimilation Model PAM (Best 1994, 1995), and Kuhl's Native Language Magnet model NLM (Kuhl 1991; Iverson & Kuhl 1996). Although they differ in their views of the perceptual representation of the L1 and L2 sound patterns, they share the notion that the ability to distinguish new L2 sounds diminishes with age and that adults' discrimination of non-native speech contrasts is systematically related to the L1 sound system. However, they differ in how they see the L1 perceptual framework. Flege's Speech Learning Model primarily focuses on the notions of phonetic similarity and the construction of new perceptual categories with a clear focus on experienced L2 speakers. Best's Perceptual Assimilation Model describes the variation of discrimination between L2 phonemes, depending on their phonetic ability to fit L1 categories. Kuhl's Native Language Magnet is also based on segmental linguistic units. Generally speaking, these three models posit that success in pronunciation depends on the relationship between phonetic elements found in the L1 and the L2 systems. Predictions about performance in L2 segmental production are thus based on the perceived phonetic proximity between L1 and L2 sounds. Some of the main tenets of the three models will be outlined in the following.

The Speech Learning Model (SLM)

The Speech Learning Model was formulated and devised by Flege in 1995. In this model, he combines several hypotheses about second-language speech acquisition. Generally speaking, the SLM seeks to predict that if an L2 sound is clearly different from an L1 sound, it will be less difficult to acquire than an L2 sound that is fairly similar to an existing L1 sound.

The SLM is based on two major assumptions. Firstly, Flege (1995) posits that the accuracy of speech production of the L2 learner is limited by the accuracy related to his or her perception. That is to say, accurate perception is just as good as or better than accurate production of the sound. In an experiment, Flege et al. (1999) examined the production and perception of English vowels by highly experienced native Italian speakers of English. They found that the perception and production of English vowels significantly correlated. Flege cautions though that this does not necessarily mean that all instances of foreign accent are perceptually motivated. For example, a Spanish speaker's pronunciation of the word "school" as /eskul/ is not perceptually motivated. Rather, it is rooted in the phonotactics of the Spanish language.

Secondly, the Speech Learning Model is also concerned with the ultimate attainment of L2 pronunciation. Assuming that age is the defining criterion in the distinction between L1 and L2 acquisition, the SLM particularly aims at examining the role this factor plays. According to Flege, if L2 learning begins early on in life, L2 learners are more likely to establish new phonetic categories (Flege 1995, 1999, 2002). This assumption is based on the notion that as phonetic L1 units develop, they attract L2 sounds and thereby hinder the development of new phonetic categories. Furthermore, with increasing age, learners lose the ability to detect such phonetic differences.

Generally speaking, the language learner can classify and process a new L2 sound in two different ways. Firstly, if the sound is very similar or even identical to an L1 sound, it will most likely be incorporated into the established L1 category (Flege 1995: 239). Secondly, if an L2 sound is clearly different from any sound in the L1, a new category will be established which will not be tainted with a foreign accent. Therefore, the SLM assumes that although mature L2 learners may not be able to perceive new L2 sounds accurately at first, they "will ultimately be more successful in [perceiving them] if they differ substantially from L1 sounds than if they differ just a little" (Flege 1992a: 187). However, it could also be the case that the new category generated by the learner is different from the corresponding L1 category simply because it has been influenced by a nearby L1 category or because the learner employs different features to discriminate categories. As an example, Flege refers to Munro (1993) who investigated Arab learners of English realizing the short/long contrast in the English vowel system and found that they tend to

exaggerate duration differences between the two classes of vowels. Consequently, the category representations that fail to correspond to category representations of a native speaker are inevitably realized as instances of foreign accent.

Empirical support for the SLM is provided by Flege (1987) who purported that L1 speakers of English produced the L2 French phone /y/ accurately but not the more 'similar' phones /u/ and /t/. Additional evidence comes from experienced learners of an L2 who demonstrated more native-like perceptual patterns of L2 vowels than less experienced learners (cf. Bohn and Flege 1990, 1992).

Nevertheless, a number of potential problems have been associated with the Speech Learning Model. The earlier version was criticized for its lack of explicit criteria for the distinction between "similar" and "new" phones, particularly vowels (e.g. Blankenship 1991). Another problem is that the SLM does not account for a number of results of empirical studies in the area of speech learning. For example, an investigation into native Italian speakers' productions of English vowels, (Munro et al. 1996) did not confirm the hypothesis that English vowels which are acoustically "close" to Italian vowels are less well produced.

A recent study by McAllister (2007) lends support to the SLM, in particular as far as mastering the /s/-/z/ distinction by Swedish learners of English is concerned. In this investigation the Swedish students were rated by native speaker listeners regarding their pronunciation of /s/ and /z/. Altogether 68 attempts were recorded to pronounce /z/ correctly, yet merely 15 of them were rated as successful. The author attributes this finding to the lack of the contrast between /s/ and /z/ in Swedish. Hence, the apparent closeness of /s/ and /z/ prompted the Swedish students to put these two phonemes in the same phonetic category thereby hindering the creation of a new sound category for /z/ (McAlister 2007: 164).

To sum up, the Speech Learning Model developed by Flege and colleagues attempts to describe the process of second language acquisition and thereby takes into consideration the role of age-related factors in the occurrence of foreign-accented speech. Accordingly, accurate L2 production cannot take place unless there is accurate perception. Also, both L1 and L2 are not fully separate systems and L1 phonological acquisition capacities stay intact throughout the whole life span, which means that there is no critical period that significantly hinders the successful acquisition of a second language sound system.

The Perceptual Assimilation Model (PAM)

Another prominent theoretical cross-linguistic speech perception concept is the Perceptual Assimilation Model which was originally developed to account for the finding that native speakers of English are able to discriminate Zulu click consonants surprisingly well (Best et al. 2001). Best argued that the reason for this was to be related to the fact that the listeners had perceived the clicks as non-speech sounds.

Broadly speaking, PAM posits that adult L2 learners assimilate L2 phones into their L1 phonemic inventory. In other words, L2 phones are perceived in terms of their similarity to L1 phones (Best & Strange 1992: 306). The differences between the L1 and L2 sounds are based on the properties of the articulatory organs (e.g. the lips, the tongue, or the glottis).

Best's model has to be seen within the direct realist view of cross-language speech perception. She maintains that the central idea behind direct realism is that "the perceiver directly apprehends the perceptual object and does not merely apprehend a representative or 'deputy' from which the object must be inferred" (Best 1995: 173).

In contrast to the SLM, PAM goes beyond a mere one-to-one segment comparison between the L1 and L2 sound systems and posits that two members of a non-native contrast can be assimilated to native phones in three different ways. Firstly, if two members of an L2 contrast are perceived as equally good instances of a single L1 category, their discrimination will be difficult. Secondly, if one of the two members is perceived as a better instance of an L1 category than the other (category goodness or CG), their discrimination will be easy. Thirdly, if the L2 categories are mapped onto two different L1 categories (two category assimilation or TC), they will be discriminated with ease. Thus, L2 contrasts that are assimilated to L1 phonemes can be divided into three main categories: Two Category (TC), Category Goodness (CG) or Single Category (SC) contrast depending on the degree of proximity between the L2 contrasts on the one hand and between the L2 and the L1 sounds on the other hand. The PAM predicts that the TC type will be the least difficult, the SC the most difficult and the CG in the middle range, depending on the degree of "goodness" between the two phones perceived. Thus, according to PAM discrimination will be excellent if the L2 contrast is similar to L1

contrast and least successful if two L2 segments are the same with respect to a L1 category. Like the SLM, PAM allows for later acquisition noting that “even limited exposure [...] in adulthood can improve performance to some extent” (Best, McRoberts & Goodell 2001: 776).

As its name already indicates the Perceptual Assimilation Model highlights the perception of L2 speech and is not specifically concerned with production, i.e. foreign accent. However, Jilka (2000:33) speculates that PAM implies the notion of foreign accent in as far as L2 constellations which are assimilated to a L1 category show traces of foreign accent, particularly when they are classified as non-ideal. Regarding the new categories in the L1 phonological sphere, it is assumed that corresponding phonemes are correctly inferred from perception and that for this reason no foreign-accented speech is produced.

To give support to their claims, Best and Strange (1992) examined Japanese students’ perception of the American English sounds /w/ and /j/. They found that these sounds were indeed assimilated to the corresponding Japanese /w/ and /j/, a typical case of two-category assimilation. Similarly, the English /r/ and /l/ sounds were assimilated to a single Japanese /l/, an example of the single-category type of assimilation.

Polka and Werker (1994) embarked on a study to test the perception of German vowels by native English adult speakers and English born infants. Indeed, their results showed that the German front and back rounded vowels were assimilated to the English back rounded vowels but the ratings also revealed that the front vowels were assimilated less well to the English vowels. The authors pointed out that the listeners perceived clear differences in category goodness for the German vowels within each contrast. The high level of accurate performance on non-native vowels was taken as confirmation of the Category Goodness assimilation pattern of the PAM model.

In 2001 Harnsberger carried out a study which involved the testing of native speakers of Malayalam, Marathi, Punjabi, Tamil, Oriya, Bengali and American English on their ability to identify nasal consonants. Again, the results showed that the discrimination scores corresponded to the claims lodged by the PAM. Similarly, Nagao et al. (2003) examined Japanese listeners from three different age groups and levels of experience with the English language on the identification and

discrimination of non-native syllable structures and voicing in non-native syllables. They discovered that the Japanese listeners accurately identified non-native syllable structures and that the performance of the Japanese listeners was correctly predicted by the PAM.

As has been shown, both Best's PAM and Flege's Speech Learning Model try to anticipate the difficulty with which a listener is able to distinguish between non-native phonemes, which seems to be directly related to the extent to which these sounds assimilate to different L1 phonemes. The predictions generated by Flege's Speech Learning Model for inexperienced learners are much the same as those generated by PAM, in that they are also based on perceived phonetic similarities. However, SLM differs from PAM in two important ways: Firstly, the SLM focuses on individual phonetic categories whereas PAM focuses on pairwise phonological contrasts and secondly, SLM primarily looks at L2 production with perception merely guiding it, whereas PAM clearly focuses on perception.

Native Language Magnet Model (NLM)

In the literature, the Native Language Magnet Theory (Kuhl 1991; Kuhl & Iverson 1995) is often seen as an elaborate model of speech perception and language acquisition which details the structure and representation of phonetic and phonological categories. To explain this phenomenon, Kuhl introduces a perceptual magnet, also referred to as the Native Language Magnet (NLM), which is based on the premise that prototypes act as powerful anchors for phonemic categories. As can be seen in Figure 5, stimuli around a phonetic prototype (A) are somewhat drawn in the direction of prototype (B), thereby the space between the prototype and other members of the same category is reduced (Kuhl & Iverson 1995: 124).

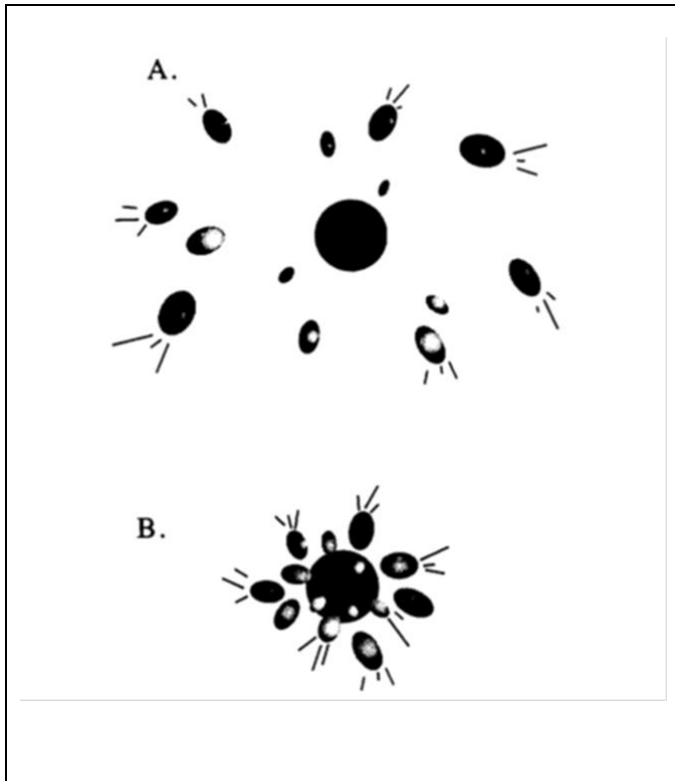


Figure 5: The perceptual magnet effect (Kuhl & Iverson 1995:124)

Kuhl points out that humans tend to exploit certain auditory features and so perception is changed to serve language. The perceptual magnet effect manifests itself already at the age of 6 months. Kuhl et al. (1992) discovered that 6-month-old infants clearly recognize native prototypes. She provides the example of Swedish infants recognizing /y/ as a prototype, whereas American babies identify the /i/ prototype and therefore treat the non-native sound as a non-prototype. The NLM holds that the speech representations which are developed in the first year of an infant's life are influenced by the surrounding language and play a crucial role in the acquisition process (Kuhl & Iverson 1995:139).

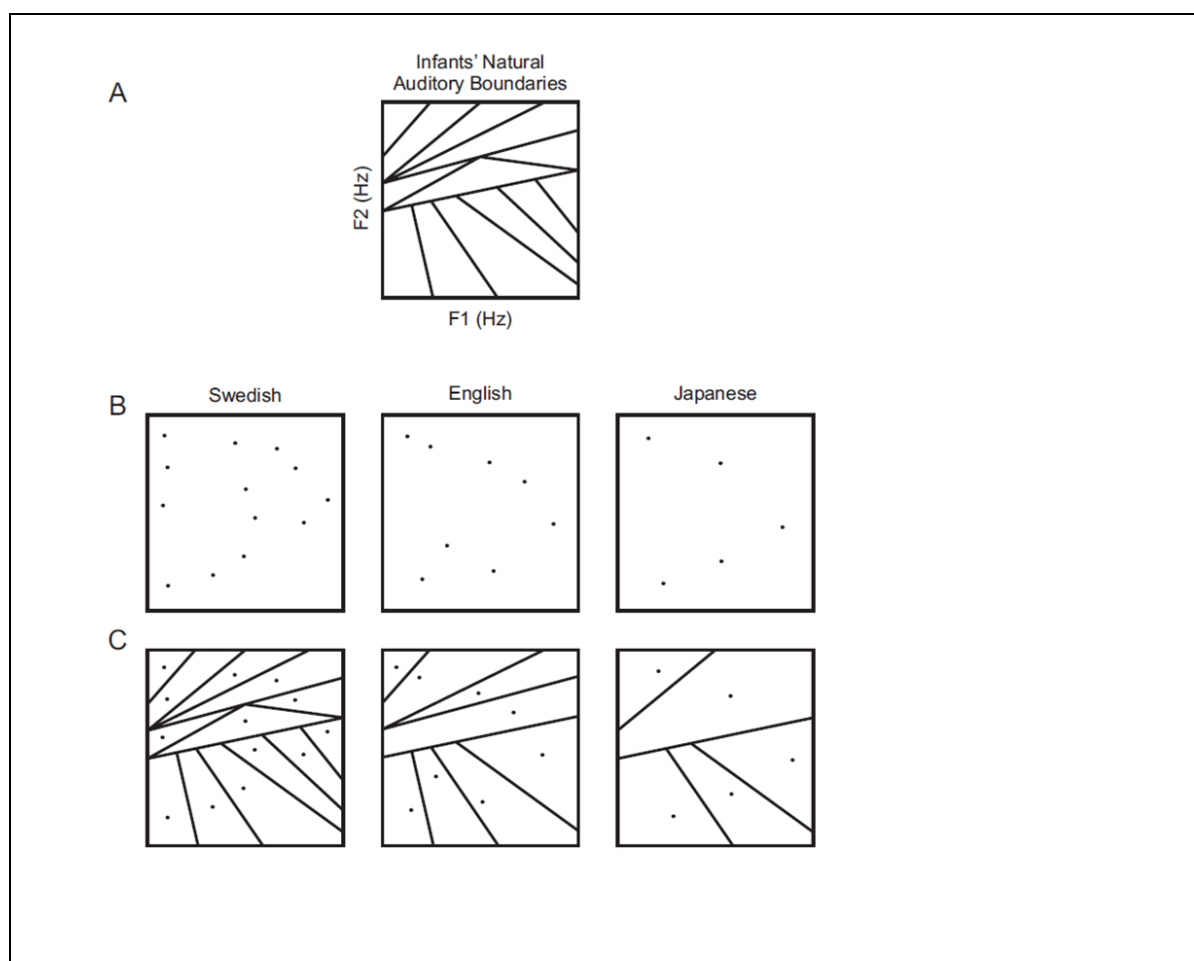


Figure 6: NLM Theory (Kuhl & Iverson 1995:140)

Figure 6 explains NLM theory by illustrating the language-dependence of perception with for instance Japanese speakers showing considerably less discriminatory sensitivity for vowels than Swedish speakers owing to the fact that Swedish has more vowel categories and clearer boundaries. Accordingly, in phase 1 children perceptually divide the acoustic space that is available to them in a more general way (A). Then in phase B, when the learners are about 6 months old, they show language-specific magnet effects that are closely related to their language experience. Finally, in phase C specific phonetic boundaries seem to disappear and magnet effects alter the perceived distance between stimuli.

The NLM can also be extended to L2 phonological acquisition as it takes account of typical instances of foreign-accented speech such as the frequently reported problem Japanese L1 speakers experience regarding the distinction between /r/ and /l/. For them, these two speech sounds are drawn perceptually towards one

L1 phonological category only which renders them difficult to distinguish. Hence, the speakers are not capable of generating perceptual representations for both sounds and subsequently they fail to produce them accurately. This recognizable link between perception on the one hand and production on the other hand is further reinforced by the fact that the perceptual representations for any given language are essentially seen as aims to acquire accurate articulatory gestures which are essential prerequisites for accurate production. It follows that if the representations of some L2 sounds do not correspond to those sounds' actual phonetic features, they will essentially give rise to the production of foreign-accented speech.

In their study, Iverson et al. (2003) examined the perception of English /l/ and /r/ by a group of German ESL learners (who also distinguish between the two phonemes in their L1), a group of Japanese ESL learners (whose difficulties with the two sounds are well known), and a control group of native speakers of American English. Results showed that whereas English and German speakers managed to differentiate between the two English liquids, the Japanese subjects were comparatively insensitive to differences at the /r/-/l/ boundaries. L1 speakers of English were in fact found to display the sharpest between-category distinctions and the poorest within-category discrimination. Overall, the German ESL learners seemed to follow the English pattern, however with considerably less between-category discrimination. Although Japanese ESL learners had significantly poorer between-category discrimination, they showed higher accuracy in terms of within-category distinctions than both the German and the native English speakers. Apparently, Japanese adult learners are most sensitive to an acoustic cue which appears to be irrelevant regarding the English /r/-/l/ categorization. Conversely, German adults showed a fairly high sensitivity to more critical acoustic cues.

Obviously, one of the most crucial problems for second language learners has to do with the fact that speech sounds in the L2 are confronted with perceptual magnets and perceptual boundaries that are inherently associated with their L1. Those L2 speech sounds that are similar to existing L1 categories are bound to be influenced by the magnet and so they may either not be perceived independently at all or their perception is significantly shaped by the distorted perceptual space. NLM therefore provides support (Kuhl & Iverson 1995: 143) to the SLM hypothesis that "the greater the perceived phonetic dissimilarity between an L2 and the

closest L1 sound, the more likely it is that phonetic differences between the sounds will be discerned" (Flege 1995: 239)

To sum up, the SLM, the PAM and the NLM hypothesize that adult L2 speech production problems are due to the perception and assimilation of L2 segments to L1 categories and that achievement in SLA pronunciation diminishes with age.

4.2.2. The Contrastive Analysis Hypothesis (CAH) & Markedness

Apart from the Critical Period Hypothesis, a second theoretical conceptualization that is frequently associated with attainment in L2 phonology is the Contrastive Analysis Hypothesis (CAH) as developed by Lado (1957). The CAH claims that the challenges an L2 learner faces essentially result from the direct transfer from the learner's L1 to the target language. These difficulties may arise when "[w]e tend to transfer to [the foreign] language our phonemes and their variants, our stress and rhythm patterns, our transitions, our intonation patterns and their interaction with other phonemes" (Lado 1957: 11).

According to Lado, the adult speaker of an L2 cannot easily hear language sounds other than those of his or her L1. Consequently, L2 phonemes are often perceived incorrectly.

We assume that the student who comes in contact with a foreign language will find some features of it quite easy and others extremely difficult. Those elements that are similar to his native language will be simple for him, and those elements that are different will be difficult. (Lado 1957: 2)

CAH theorists claim that mistakes in the language acquisition process result from the negative transfer between the L1 and the L2 (Brown 2000: 208). Here, two main reasons are given. First, this can happen when the L1 phonological system lacks sounds that exist in the target language. For a Spanish learner of English this would mean that as the sound /dʒ/ in words such as *jail* does not exist in Spanish, it is often replaced with the sounds /tʃ/ (as in *chica*) or /j/ (as in *yuyo*) (Kenworthy 1987: 153). For German learners of English the pronunciation of the English /ð/ in words such as *this* or *that* is often difficult because this sound does not exist in German and is therefore often confused with /d/. Second, the sounds exist in L1 and in L2 but they are used differently (Brown 1992:10). Hence, a Spanish learner

of English might encounter problems distinguishing the phonemes /d/ and /ð/. In this case, in English the spelling helps to differentiate between these sounds (in words, like *those* vs. *dose*). In Spanish, however, it is the position within a word which provides the cue for the accurate production of 'd'. As a consequence, "the letter 'd' can be pronounced as /d/ at the beginning of a word like *díme* or as a fricative /ð/ in the middle as in *cada*" (Lado 1957: 14).

A considerable amount of research in this field focuses on the segmental level due to the fact that "prosodic errors in stress placement or rhythm, may contribute less to FA than do segmental errors." (Flege 1992: 589). Nevertheless proponents of the CAH have also pointed to the relevance of contrastive analysis at the suprasegmental level (e.g. Tarone 1984: 63; Young-Scholten 1995:115).

In *The role of the syllable in interlanguage phonology* Tarone (1984) argues for the importance of investigating syllable structures by referring to a study conducted by Brière in 1966. This study examined the English phonemes /ʒ/ and /ŋ/. In the English language, both phonemes exist but neither of them is found in word initial position. The American subjects in the study experienced great difficulty with the accurate pronunciation of the sound /ŋ/ in word initial position. The possible explanation is that as opposed to /ʒ/, which occurs syllable initially in English (as in *pleasure*), /ŋ/ does not. Therefore the American subjects had problems trying to pronounce the Vietnamese *ngao*. Hence, this study clearly identified the position of a sound within a syllable as a crucial aspect to be considered when discussing language transfer (Tarone 1984: 64). In addition, Tarone sought to provide an answer to the question of whether syllable structures are directly transferred from the learners' L1 or whether there are in fact universal syllable structures that lay at the core of the transfer. In her analysis of data collected from Korean, Portuguese and Chinese learners, she concludes that

[...] there is observational and experimental evidence in second-language acquisition research to suggest that the universal intrinsic structure of the syllable has some influence on the shape of IL phonology. Further, there is evidence that transfer of NL syllable structure rules into TL sequences does occur, and is also influential in shaping the IL phonology. (Tarone 1984: 71)

Regarding the contrastive analysis of stress patterns, an empirical investigation conducted by Mairs (1989) deserves to be mentioned. Seeking to shed light on the notion of word stress, she analysed interviews with Spanish L1 learners of English

In accordance with Tarone, Mairs also detects a clear effect of L1 tendencies to influence L2 syllable structures (Mairs 1989: 282). However, her findings on stress patterns appear to diverge:

The results of this analysis further suggest that while transfer of constraints on native language syllable structure may be important in developing interlanguage grammars and influencing a number of different levels of grammatical structure, the tendency to transfer stress rules from the learners' native language may be less pervasive. (Mairs 1989: 282)

In contrast to the CPH, the CAH does not focus on the ultimate attainment in L2 learners. Although there are some examples of adult L2 learners who are compared with children (e.g. Gussmann 1984: 33; Beebe 1984: 57), CAH theorists neither managed to provide a clear definition of an adult L2 learner, nor did they speak in favour of children's exceptional ability and advantages regarding language learning. However, what needs to be discussed is the process of interlanguage production since it is closely linked to the notion of foreign accent. Whereas Selinker considers interlanguage a sum of "learner's attempts to produce a target language", later advocates of the CAH tend to see IL "more as a creation of an active and resourceful constructor, an L2 learner" (Gussmann 1984: 33). From this constructivist view the explanation related to learners' negative transfer may be either that "they constructed the correct representations but failed to implement them in the native-like manner or they constructed a representation close to the correct one but not close enough" (Ard 1990: 254). This view is largely based on data collected by Beebe (1984). Her study, which relies on sound files of native Asian learners of English, rejects some of the claims made by the CAH. Beebe points out that the L2 learners' phonological repertoire is largely conditioned by the level of acquisition:

With training, they [L2 learners] may add to their phonetic repertoire, and a large number of approximations may occur as they advance to the intermediate level. Finally, however, as they progress to an advanced level of proficiency, they will realize TL norms more frequently and eliminate some of the approximations they formerly relied on." (Beebe 1984: 57-58)

In addition, Beebe claims that the concept of sociolinguistic variation is of central concern when discussing IL. For instance, her data shows that the production of Thai learners' of the English of the sounds /l/ and /r/ strongly depend on the social context rather than their ability to pronounce these sounds accurately (Beebe

1984: 59). Beebe concludes that "a contrastive analysis can never be detailed enough to be able to account for all of the existing variations in pronunciation" (Beebe 1984: 60).

Although the Critical Analysis Hypothesis was a major breakthrough at the time, it cannot be used to explain all pronunciation errors made by L2 learners (Eckman 1987). However, in defence of the CAH, Eckman states that "the CAH should be revised to incorporate a notion of degree of difficulty which corresponds to the notion of typological markedness" (Eckman 1987: 68).

Typological markedness has its origins in the Prague School of Linguistics and in the theories of Nikolai Trubetzkoy (1939) and Roman Jakobson (1969). Eckman explains the notion of markedness as follows: "phenomenon A in some language is more marked than B if the presence of A in a language implies the presence of B; but the presence of B does not imply the presence of A" (Eckman 1977: 320).

Accordingly, the basic idea underlying the concept of markedness is that two polar opposites of certain phonemic properties (e.g. voiced and voiceless obstruents) are in fact not considered to be binary contrasts. Instead, one of the two opposing members is regarded as privileged in as far as it has a wider distribution. The other - less frequent one - is labelled marked, indicating that it more difficult and less natural. In the example given above, voiceless obstruents would be considered unmarked and voiced obstruents would be seen as marked.

Trying to predict potential problems learners of any L2 may have, a number of advocates of the Markedness Differential Hypothesis (MDH) basically compare L1 and L2 systematically and add the notion of markedness. According to the MDH, those areas of the L2 which are different from the L1 are marked and thus prone to cause difficulties. The more marked a certain feature of the L2 is, the more difficult it is to acquire. As a consequence, it is easier to learn unmarked elements than marked ones (Eckman 1977:321). To give an example, Eckman's MDH postulates that native speakers of German learning English will experience problems learning the difference between final voiced and unvoiced consonants since in German obstruents are always voiceless in word final position (Reis vs. rice-rise).

4.2.3. *The Interlanguage Hypothesis & Fossilisation*

A third hypothesis that deserves due attention in the discussion of L2 phonological acquisition concerns the concept of interlanguage, which is based on the notion that an L2 learner employs a language system which neither corresponds to the L1 nor the L2. It is in fact a third language which has an intermediate status between the L1 and the L2. This interlanguage shows the learner's attempt to approximate the target language.

The term 'interlanguage' was coined by Selinker in 1969 and then elaborated by Selinker (1972). A number of other alternative terms have also been used by other researchers to refer to the same phenomenon: 'in-between' language or grammar, 'transitional competence' (Corder 1971) or 'approximative system' (Nemser 1971).

Based on his observation that 95% of L2 learners never reach native speaker competence, Selinker (1972) attributed this to the phenomenon of fossilization. He saw fossilization as a process whereby the interlanguage ceases to develop. "The argument is that no adult can hope to ever speak a second language in such a way that s/he is indistinguishable from native speakers of that language". (Selinker 1969:5). Similarly, Nakuma defines fossilisation as "a state of permanent failure on the part of an L2 learner to acquire a given feature of the target language." (Nakuma 1998: 247)

In the literature, the labels which have been given to this phenomenon are numerous and thus a myriad of terms referring to the same or a similar concept have been suggested: e.g. backsliding, stabilized errors, learning plateau, typical error, persistent non-target-like performance, de-acceleration of the learning process, ingrained errors, systematic use of erroneous forms, cessation of learning, structural persistence, ultimate attainment, long-lasting free variation, persistent difficulty, and inability to fully master target language features (cf. Wei 2008: 1).

A great number of researchers have attempted to investigate this phenomenon (e.g. Adjemian 1976; Nakuma 1998; Selinker 1972; Nemser 1971; Schumann 1990). The questions they sought to answer were mainly related to reasons (Adjemian 1976, Schumann 1976, 1978a, 1978b, 1990; Seliger 1978; Stern 1975) precipitating conditions (Schuman 1990), the kind of linguistic material that tends

to be fossilised (Selinker & Lakshamanan 1992; Todeva 1992) or the relation between type of learner and fossilisation (Adjemian 1976; Scovel 2000; Selinker, Swain & Dumas 1975; Virgil & Oller 1976).

Investigating the causes of fossilization, scholars have concentrated on four main aspects that seem to play a decisive role, namely biological, motivational, psychological, and affective factors. One possible biological explanation is assigned to the CPH, as discussed in detail in Chapter 4.2.1. of this thesis.

A second factor of obvious relevance in determining the causes of fossilisation is motivation (e.g. Gardner 1988; Gardner & Smythe 1975) to meet the learner's communicative needs (Corder 1978; Nickel 1998; Ushioda 1993). In this respect, concerns have been expressed regarding adult learners' lack of empathy with L2 native speakers and their culture. According to researchers such as Guiora et al. (1972), adult learners often lack the motivation to change their accent and to strive for native-like pronunciation. In contrast to children, adults tend to be more open to L2 cultures and they therefore have more "rigid language ego boundaries" (Guiora et al. 1972: 421). Thus, mature learners tend to establish and reinforce their cultural and ethnic identity, and this they do by keeping their stereotypical accent. Interestingly, in this study the researchers sought to mitigate the empathy level of their informants by administering increasing amounts of alcohol. They found that the learners' L2 pronunciation improved to a certain degree and then declined again with the consumption of increasing amounts of alcohol. However, another reason could be that alcohol relaxed the learners' muscles which in turn may have had a positive effect on the articulation of the L2 sounds.

Acton (1984) expressed the view that as soon as a learner reaches puberty, his/her "ability to learn a second language, including the possibility of acquiring a native-like accent, begins to deteriorate" (Acton 1984: 71). He argued that the learners' pronunciation becomes fossilized as soon as they become functionally bilingual.

At this point there seems to be little consensus of what triggers phonological fossilization. Apparently, none of the above discussed theories provides deep insights into a highly debated phenomenon. There is substantial evidence that argues in favour of the existence of different constraints that shape the process. However, it is far from clear, whether FA is determined by insufficient phonetic

input, by gradual deterioration of speech learning mechanisms or simply by the inability to keep the L1 and L2 phonological systems apart.

4.2.4. Conclusion

The theoretical considerations and empirical investigations outlined in this section discussed the concept of foreign accent. As has been shown, various researchers have looked into the question of how and why adult foreign language learners struggle with this seemingly unavoidable challenge.

The review of those theories that are frequently mentioned in the context of foreign-accented speech has revealed that each hypothesis approaches the phenomenon from a different angle and thereby treats accent as a perplexing theoretical puzzle whose pieces still need to be identified and assembled. Whereas the Critical Period Hypothesis identifies biological constraints as the main reason for the failure of adult learners to acquire native-like pronunciation, the Contrastive Analysis Hypothesis focuses on the direct transfer of L1 phonology into the learners' L2 phonological inventory in order to predict potential problem areas. The third theoretical concept, the Interlanguage Hypothesis describes the learner system as a separate entity which neither corresponds to the learners' L1 nor their L2. What these theories seem to suggest is that age and L1 matter, the extent of which, however, remains uncertain.

Although the current study is not designed to test the models and hypotheses discussed, the results of the empirical investigation will have to be seen in relation to these theoretical assumptions. As the students in this project are all adult learners of English whose L1 is Austrian German, it is interesting to see in how far these two factors play a role in determining the development of the degree of foreign accent.

5. Individual factors influencing L2 pronunciation mastery

One of the main tasks that has been lying at the heart of SLA research is to unravel the puzzle of why some learners seem to be more successful than others. The most frequently given explanation for this much debated phenomenon is age and the impact of a critical period for language learning in general and for pronunciation in particular (see Chapter 4.2.1.). Whereas there seems to be little doubt about the potential correlation between the age of the learner and the ultimate level of his/her pronunciation mastery, there is more scholarly dispute regarding the question of whether age is the single most important reason for incomplete acquisition. In fact, the amount of variation in pronunciation attainment that can be observed among mature L2 learners suggests that age can hardly be the only factor that plays a role. Instead, other non-linguistic individual factors have been named to be crucial to ultimate attainment. Thus, a considerable body of linguistic research has focused on an investigation of these factors and their relative importance in inhibiting or fostering a learner's phonological competence in the L2. Sociolinguistic research in second language acquisition, for example, has shown that a number of social, cultural and psychological variables play a decisive role. Indeed, there is a steadily growing interest of scholars in how these aspects impact on the learner's degree of foreign accent. As Moyer (2013: 49) points out language learning is now seen as "chaotic, messy, and far less predictable than previously assumed". In response to changing environments, a constant interplay of psychological, cognitive and social mechanisms render foreign accent a dynamic construct that is largely characterised by its complexity and fluidity (Moyer 2013: 49).

This chapter highlights the most significant ID (individual difference) factors that are claimed to account for phonological variance in foreign language learning. In particular, the focus will be on affective variables such as (1) attitude and identity, (2) motivation, and (3) anxiety; educational aspects like (4) formal pronunciation instruction, as well as other individual factors like (5) gender, (6) musicality, and (7) exposure to the TL which all dominate the scientific discussion in this field and which are put to the test in the present study. It should be noted, however, that there are a number of other variables (e.g. neuro-linguistic predisposition, working

memory, L1 aptitude, IQ, learning styles) that have also been considered by researchers (e.g. Dörnyei 2005; Dogil & Reiterer 2009) but will not be included here since this would call for a different project.

Before embarking on a detailed literature review of the relevant learner variables, a crucial aspect concerning their nature deserves due notice. A closer look at these individual factors gives rise to the assumption that there is a high degree of ambiguity and complexity involved in discussing them in isolation. Rather, there appears to be a constant interplay of a number of these learner propensities contributing to the development of an individual's L2 pronunciation. Some indicators clearly interrelate and function as preconditions or effects of other factors but it remains unknown as to what degree and how this happens. As a consequence, research has recently shifted away from a linear view of these factors to a more overarching theoretical perspective of the issues at stake. According to Ellis (2004), for example, future research needs to focus on how these skills and traits condition the learners' perceptions about language and language learning, and how these, in turn, influence other aspects such as learning strategies.

The theory will need to grapple with what is perhaps the overriding issue in SLA today – the role of consciousness. It will need to specify for example, whether the influence of individual difference factors such as motivation and language aptitude is mediated by learner cognitions and learning strategies, which by definition are conscious actions performed by the learner, or whether they have a more direct effect on opportunities to learn and acquisitional processes that arise without awareness on the part of the learner (Ellis 2004: 547).

What seems to be evident here is that Ellis strikes a new note by postulating an inter-related approach which puts the issue of consciousness at the centre of SLA. In a similar vein, Dörnyei also argues in favour of a new, more "concerted approach" that does justice to the fact that ID variables interact and that "combinations of traits have more predictive power than traits in isolation" (Dörnyei 2006: 62). For this reason, the following sub-sections will highlight the most important research findings for each variable but where appropriate links with other factors also will be drawn.

Furthermore, it should be noted that the empirical studies discussed here vary greatly in terms of their design and methodology (subjects studied, elicitation and

rating techniques used, stimuli chosen etc.). These methodological differences, as Piske, MacKay and Flege (2001) in their review point out, can – to a certain extent – be held responsible for the often conflicting results that have been yielded. Therefore the comparability and validity of these studies outside the given context need to be treated with due caution as generalizations are bound to be hazardous and speculative.

5.1. Attitude and identity

One of the most frequently mentioned predictors of the acquisition of L2 pronunciation is the learner's attitude towards the target language and culture. Indeed, research has found that pronunciation mastery needs to be examined within the context of the learner's values, attitudes and socio-schemata (e.g. Pennington 1994). Hence, a particular attitude towards the L2 can either support or hinder the development of L2 pronunciation. Stern (1983), for example, purports that "the affective component contributes at least as much and often more to language learning than the cognitive skills" (Stern 1983: 386), and this is evidenced in studies postulating that affective variables indeed exert a remarkable influence on language success (e.g. Eveyik 1999; Saracaloğlu 2000).

As a matter of fact, the - conscious or unconscious - decision whether or not to adopt or imitate a particular accent can often be traced back to the speaker's relation to the target language and community. In this respect, Kenworthy (1987) notes that

[s]ome individuals seem to be impervious and even after a long time will absorb only some turns of phrase and the pronunciation of a few individual words. Others seem very receptive and begin to change their accent almost as soon as they step off the plane! (Kenworthy 1987: 7)

Clearly, there are large differences between those who seem to be able to switch to a particular accent in no time and those who retain a certain kind of reluctance towards the foreign accent.

In his work on acculturation and language learning, Schumann (1986) points out that learners will acquire the L2 to the extent that they acculturate. Accordingly, the learner's openness to the target culture paired with the desire to be socially

integrated in the L2 culture can predict the amount of L2 they acquire. In other words, the learners' views of and attitude towards the culture of the target language will impact on the sounds of that language. Along similar lines, Brown (1992) notes that students with a positive attitude towards speakers of the target language are likely to master pronunciation skills more successfully as they are more willing to accept a second identity that may emerge within them. Much in the same vein, Ellis (2000) notes that affective factors influence the level of L2 attainment by individual learners who are in turn themselves affected by this success. This means that those learners who hold positive attitudes and who are successful, will experience a reinforcement of these attitudes, whereas learners with negative views may be strengthened by the lack of success (Ellis 2002).

Already in the 1970s, Guiora et al. (1972) suggested that pronunciation mastery should be linked with psychological factors. They claimed that learners who wish to change their pronunciation need to develop what they called an "English language ego" by addressing fundamental issues about their personality. In their study, 87 students from the University of Michigan were given moderate amounts of alcohol and after ten minutes their ability to imitate the pronunciation of an unfamiliar foreign language was tested. They found an increased ability to authentically pronounce the second language. It appears that alcohol produces a temporary change in ego boundaries. This language ego permeability i.e. the reluctance to give up control is then held responsible for the fact that adults experience difficulties learning foreign languages. The authors conclude that giving up this control is a fundamental pre-requisite for learning a new language. They see the process of learning a second language as an act of extending the self so as to take on a new identity. What is even more, they identify pronunciation as the most outstanding expression of the language ego, the most challenging skill to acquire in a new language, and also the most difficult to abandon in the native language.

Given that identity and the concept of self are driving forces for the successful acquisition of L2 phonology, concretizing this accent-identity link has proven to be a challenging endeavour. Norton Peirce (1995), for instance, sees identity as a "multiple and shifting" concept pointing out that the conscious control and manipulation of accent is a phenomenon that needs to be considered in research. In this respect, Moyer (2004), found that some advanced learners enjoyed taking

on a particular accent when traveling abroad in order to be passed for a native speaker of the L2. On the other hand, some learners may hold on to their foreign accent to ascertain the link to their linguistic origin (Moyer 2004). Clearly, identity plays a major role in shaping a learner's attitude towards the target language.

By and large, empirical research seems to suggest a firm connection between learner attitude and pronunciation learning. In their study, Suter and Purcell (1980) devised a list of twenty variables, which were believed to have an influence on pronunciation. They investigated the English speaking skills of 61 non-native speakers which were rated by a panel of 14 native English-speaking judges. Among the variables which turned out to be the most strongly related to pronunciation accuracy was the learner's attitude and the strength of his/her concern about his/her pronunciation.

In his research on the pronunciation accuracy of tertiary-level students studying Spanish as a foreign language, Elliot (1995) set out to measure students' attitudes toward the importance of pronunciation teaching in the classroom on the one hand and their own assessment of their pronunciation skills on the other hand. The participants' responses were then correlated with their abilities as measured by a test of their pronunciation. Elliot asserted that the learners' attitudes towards acquiring a native-like pronunciation was the most important variable. This means that those students who cared more about their own accent had in fact better pronunciation than those who cared less.

In 2007 Moyer focused on the relationship between learner attitudes and foreign accented speech. She measured the significance of learner attitudes against two other aspects, namely age of onset of learning (AOL) and length of residence (LOR) in the country where the target language was spoken. The participants in her study were 42 non-native and 8 native US university students who were asked to complete a questionnaire on their language learning background as well as their attitude towards the English language and American culture. They were also given a series of tasks including a read-aloud text and free speech with prompts to measure the degree of their foreign accent. Moyer found that the L2 users clearly differed from their native speaker controls in terms of accent rating but she also considered length of residence and age of onset of learning to be significant factors. However, language-directed attitudes seemed to be more closely linked to achievement than culture-directed attitudes, although both were considered to be

significant. She postulates that a combination of experience together with a positive orientation appears to be particularly important for L2 pronunciation mastery.

The research outlined above seems to support the notion that there is indeed a positive correlation between the learners' attitudes towards the foreign language and the respective cultural environment on the one hand and their ultimate attainment in L2 pronunciation on the other hand.

5.2. Motivation

A second crucial ID variable which calls for closer examination is motivation. According to Moyer (2004) the learner's motivation is "a construct that uniquely represents many orientations simultaneously: conscious effort, intentionality, and planning towards a specific goal" (Moyer 2004: 39). Accordingly, it is based on "interest or curiosity to know more, along with perceived likelihood of success and reward" (Moyer 2004: 39) and has been named the strongest and most influential factor determining the success or failure of learning a second language (Dörnyei 2001). Thus, if the learners are motivated to improve their L2, they will put more time and effort into it and therefore they are likely to achieve better results. On the other hand, if they do not see the value of it, they will be less motivated and less successful.

The importance of motivation in learning a second language has been investigated by a great number of researchers. (e.g. Gardner & Lambert 1972; Deci & Ryan 1985; Dörnyei 1994, 2001; Gardner & Tremblay 1994; Smit & Dalton 2000; Smit 2002). In their work, they address the various aspects of language learning, however, there seems to be a paucity of research into students' motivation to improve their speaking skills. Specifically, research on pronunciation issues is still very rare.

In an attempt to conceptualize the dynamics of motivation in SLA research, various viewpoints have been brought to bear. Despite clear differences in terms of approach, scholars mostly agree that motivation is indeed a key player in SLA as it directly impacts on how often students use L2 learning strategies, how much they interact with L1 speakers of the language, how much input they receive in

the L1, how successful they are on achievement tests, how high their general language proficiency level becomes, and how long they preserve and maintain L2 skills once their language studies are over (Oxford & Shearin 1994: 12).

In the late 20th century, the scientific debate mainly concerned the question as to whether motivation triggers achievement or vice versa. Whereas Gardner (1985) argues that motivation triggers achievement, Ellis (1996) indicates that this is far from clear. In this context, the Resultative Hypothesis, as coined by Hermann (1980), postulates that learners who are successful in learning a foreign language are therefore likely to be more motivated to learn the language. A motivated pupil mostly achieves good results in the L2, which confirms and sometimes even intensifies the existing motivation. This also explains the beliefs of less motivated language learners. Pupils who are less motivated to learn an L2 will probably achieve lower results, and consequently their enthusiasm to acquire the L2 will decrease even more. In brief, Ellis notes that there is a constant interaction between motivation and achievement.

Dörnyei suggests a broader view by claiming that to a certain extent all factors involved in SLA presuppose motivation, as "it provides the primary impetus to initiate L2 learning and later the driving force to sustain the long and often tedious learning process" (Dörnyei 2005: 65). Other scholars, too, have recently seen motivation at the core of all affective variables describing it as a kind of "super construct" that incorporates many other factors (Moyer 2013: 68).

As far as different types of motivation are concerned, it appears that various taxonomies are used in the literature. One very common categorization juxtaposes instrumental and integrative motivation. While instrumental motivation denotes a situation where the purpose of language learning is to obtain a benefit (e.g. getting a job), integrative motivation refers to language learning prompted by the desire to affiliate with the particular language and its culture. Another scale which tends to be used to measure motivation contrasts intrinsic and extrinsic motivation depending on whether the stimulus for the behaviour comes from outside or inside the individual (e.g. Deci & Ryan 1992).

Theoretical approaches to L2 motivation have also undergone various paradigm shifts over the years, starting with Gardner's social-psychological approach in the 1950s to the more cognitive approach in the 1990s and the latest neurobiological

research (Dörnyei 2003) suggesting that the topic of L2 motivation has not lost its appeal.

In this regard, the key framework that has driven much of the research was introduced by Gardner (1985). With his model, he aims to show that motivation directly influences L2 achievement and is itself affected by certain social and psychological factors. One of these variables that has been discussed extensively in the literature is the learner's orientation i.e. the learners' long-range goals for learning the target language (Gardner 1985, 1988). According to Gardner and Tremblay (1994) the main difference to be made out between orientation and motivation is that a student might display a particular orientation, without actually being motivated to achieve that particular goal. For instance, a learner might see that proficient English language skills are crucial in finding a desirable job but at the same time he/she feels a lack of motivation in terms of studying the relevant business terminology.

By and large, Gardner's social-educational model builds on integrative and instrumental orientation (Gardner & Lambert 1972). While the authors see integrative orientation as genuine and personal interest in the L2 culture, for them instrumental orientation focusses on the pragmatic value of learning a new language, i.e. a higher salary or a job promotion (Gardner and MacIntyre 1991). Gardner purports that integrative orientation is the most crucial determinant of motivation as the learner's ultimate goal is not just to reach a certain level of language competence but to be integrated in the L2 community. Thus, in his studies on Canadian students learning French, Gardner linked the students' success in learning the foreign language with their desire to become part of the French culture. He concludes that students with integrative orientation tend to show greater motivational effort in learning the target language than those with instrumental orientation, and consequently, master higher levels of L2 competence.

On the other hand, recent research has shown that motivation is more complex and dynamic and needs to go beyond a mere distinction between integrative and instrumental motivation (e.g. Dörnyei 1994). For example, as Major (2001: 66) points out, "motivation and success are mutually reinforcing: motivation can lead to success, but success can also lead to motivation". In striking contrast to Gardner, Dörnyei (1990) argues that integrative orientation only plays a secondary

role for foreign language learners since in an EFL context, students hardly get in touch with the people and the culture of the L2. In his study of motivational components of Hungarian English learners, Dörnyei (1990) concludes that instrumental goals – rather than integrative goals – contribute significantly to motivation for foreign language learners. He goes even further and proposes an L2 Motivational Self System model (Dörnyei 2005), which incorporates the notions of identity and identification in the form of the Ideal and Ought-To L2 Selves – the linguistic facets of the type of person a learner would like to be, and feels obliged to be.

Findings from a number of recent studies conducted in Asia reveal that students' aspirations are also more instrumental than integrative owing to the fact that English has become a global or international language. For example, Lamb's (2004) empirical research of Indonesian EFL students indicates that English may have lost its association with particular Anglophone cultures. Lamb points out that it may no longer be relevant to consider whether the learners have a favourable attitude towards the culture where English is spoken as a first language. His study shows that these learners attach great importance to the status and prestige of the English language. In addition, he argues that sometimes it is difficult to separate the concepts of integrative motivation and instrumental motivation since aspirations, such as meeting people from the West, understanding music, studying abroad, travelling to a foreign country, or pursuing a desirable career, are all associated with English as an integral part of the globalization processes. As Lamb puts it, "the English language is so important to this 'world citizen' identity because it is both a means and an end" (Lamb 2004: 16). Therefore, the learners' role models may no longer be English speakers, but rather other global citizens.

Humphreys and Spratt (2008) report similar findings in their study involving 526 Hong Kong tertiary students. Their research reveals distinct patterns of motivation towards various languages where English was perceived as having greater value and in affective terms was regarded more positively.

Along the same lines, a recent study from Shanghai has found that career aspects ranked highest in high school students' reasons for learning English while integrative motivation came second (Kyriacou & Zhu 2008). These findings indicate that, due to the role of English as a global language, Chinese pupils' motivation to

learn English is dominated by instrumental reasons related to career enhancement and getting access to a good university.

Another study by Wu (2008) involving 243 Chinese ESL learners at a vocational school in Business Administration confirms that instrumental motivation is more prevalent than integrative motivation. The majority of the students surveyed regarded English as paramount in order to find a suitable job. Without doubt, the two instrumental motivators that stand out above all others concern education and employment opportunities.

Noels et al. (2003) introduced the application of intrinsic and extrinsic motivation in the context of language learning. Accordingly, in SLA intrinsic motivation rooted in the learner's internal desire to achieve a particular goal positively correlates with achievement (e.g. Pae 2008).

To date, there is very limited research examining the effects of motivation on language learning across national borders. An interesting example, however, is provided by Kouritzin, Piquemal and Renaud's (2009) study of English language learners in Japan, France, and Canada. Their findings reveal that the French view language study as a way to increase their value in the job market, and the Canadians consider foreign language learning valuable because jobs in the civil service and government favour English-French bilinguals. However, the undergraduate learners of English in Japan attach a high social value to the learning of English.

Turning to the interrelation between motivation and pronunciation achievement, research yields a fairly consistent and clear picture. It has been suggested that a personal or professional goal for learning the English language can positively affect the need and desire for native-like pronunciation (e.g. Bongaerts et al. 1997; Moyer 1999; Bernaus et al. 2004; Gatbonton et al. 2005). In the concluding remarks of their review of research on adult acquisition of English, Marinova-Todd et al. (2000) assert that adults can become highly proficient - even native-like - speakers of second languages, if motivated to do so.

Cenoz and Lecumberri (1999) in their analysis of the attitudes of Basque and Spanish learners of English used motivation as one of the four predominant factors to explain the perceived difficulty and importance of segmental and supra-segmental features of the English language (the other three factors are contact

with native speakers, proficiency and ear training). It turned out that the learners themselves considered motivation as a prominent aspect in order to improve their English pronunciation.

In two studies examining the pronunciation of EFL learners in Austria, Smit and Dalton (2000) and Smit (2002) propose a three-part model as regards motivation in pronunciation. This model incorporates firstly, learner-related factors (e.g. language use anxiety and self-perception of L2 accent); secondly, classroom-related factors (e.g. learning strategies and teaching styles) and thirdly, subject-related factors (e.g. integrativeness and intrinsic/extrinsic motives). In their study of 132 advanced pronunciation learners in Austria, the authors found the majority of them to be highly motivated to improve their English pronunciation with a goal of near-nativeness. In the final stage of their study, Smit (2002), however, did not find a strong link between motivation and achievement, revealing instead that the perceived relevance of the pronunciation course in which the students were enrolled seemed to be the most decisive factor.

It has also been proposed that integrative motivation affects two related outcomes: the development of native-like pronunciation on the one hand and the development of *anomie* (a concern for the loss of identity) on the other hand (Lambert et al. 1963, cited in Spolsky 2000). In order to learn a language and overcome this *anomie*, there has to be a strong wish to integrate into the L2 community. Findings from Moyer's (2007) study of 50 immigrant English language learners in the U.S. indicates that the learners who reported comfort with cultural assimilation significantly correlated with accent ratings. The study also shows that the learners who seemed more likely to be concerned with their accent were those who intended to stay in an English-speaking country for a longer period of time. However, that is not the case for all learners. In fact, some learners prefer not to sound native-like in order to preserve their cultural identity. For example, a study by Ladeaard and Sachdev (2006) examined the motivations of 96 Danish EFL learners and found that it is feasible "to prefer (certain aspects of) the American culture, and at the same time, not wanting to speak with, or even dislike, an American accent" (Ladeaard & Sachdev 2006: 105).

Research shows that tensions between language identities and group affiliations may influence a language learner's motivation to adapt a particular accent (Gatbonton et al. 2005; Piller 2002). As speech is an essential marker of social

belonging, the way one speaks depends on the impression that one hopes to leave in a particular context (Jones 1997; Levis 2005). Learners who identify with native speakers in a second language community are therefore more likely to sound like native speakers, while others who wish to emphasise their identification with their own culture often consciously or unconsciously retain a foreign accent as a social marker (Levis 2005). Hence, learners may regard accurate pronunciation in the foreign language as disloyal to their L1 ethnic group and may prompt a fear of assimilation rather than integrative motivation.

Gatbonton et al. (2005) conducted two studies to investigate the relationship between learners' L2 accent and ethnic group affiliation. The studies were carried out 30 years apart and involved learners from two different socio-political Canadian contexts: Francophone and Chinese. The researchers claim that language learners are subject to social forces that arise from both the L1 and the L2 communities, which prompt them to constantly reflect, re-negotiate and re-construct their identities as members of both groups. Both studies present the finding that the more learners sound like the speakers of the L2 community, the more they are labelled as disloyal to their L1 community by fellow learners. As a consequence, this connection between accent and affiliation might influence the English learners' wish to acquire a particular L2 accent. When learners are subject to increasing pressure from their L1 community, they may lose their motivation to improve their pronunciation.

A number of studies have looked at motivation in combination with gender differences. Several of these, for example, suggest that women generally show a higher degree of motivation than men in acquiring an L2 (Baker & MacIntyre 2000). For example, Irish girls were found to be more motivated to learn French (Wright, 1999); British women were significantly more motivated to learn French and German (Williams, Burden & Lanvers 2002) and Canadian girls consistently exerted more effort than boys in learning French (Kissau 2006).

In the Turkish context, Polat and Mahalingappa (2010) also embarked on uncovering gender differences in motivation and L2 pronunciation mastery among young Kurdish learners of Turkish. Their findings revealed that overall, girls obtained much higher native-like accent ratings than boys. Integrative orientation was identified as a significant predictor of accent native-likeness for both male and female learners, but the relationship was considered to be stronger for boys. The

authors relate this to the socio-cultural context in which this study was conducted. It appears that in Turkey, women's access to an L2 is somewhat limited because traditionally for men the learning of an L2 is an essential prerequisite for finding a desirable job, whereas the designated workplace for women is still the home (Norton & Toohey 2004; Rockhill 1993). This restriction may prompt women to believe that learning an L2 is simply irrelevant. Interestingly, Polat (2011) cautions that the female superiority in SLA in one setting may not apply to others. Clearly, motivation is not a fixed factor for L2 learners. Rather, it is essentially located in socio-cultural contexts in which gender roles and identities play a crucial role in shaping the learner's motivation.

To conclude, it appears that research has moved away from the dichotomies of instrumental/integrative or extrinsic/intrinsic motivation in SLA to a broader approach that regards motivation as a multifaceted and dynamic construct that is closely linked to other variables. What the studies reviewed here all have in common is a fairly unanimous suggestion that learners with a high degree of motivation as regards the foreign language in general and pronunciation mastery in particular are likely to achieve better academic results than those whose motivation is low.

5.3. Anxiety

A further factor that merits examination and is in fact closely linked to motivation is the notion of foreign language anxiety. Scholars have claimed that the foreign language learning process is particularly prone to arousing anxiety (e.g. Horwitz & al. 1986; MacIntyre & Gardner 1989; Campbell & Ortiz 1991; Reid 1999). It has been claimed that even in ideal conditions "students can experience destructive forms of anxiety" (Reid 1999: 297). More specifically, Campbell & Ortiz (1991: 159) estimate that almost half of all language students at some point experience debilitating levels of language anxiety (LA). Recently, Liu and Huang (2011) or Olivares-Cuhat (2010) go as far as to claim that LA should in fact be considered the strongest and most powerful (affective) predictor of success in FL learning.

As the first theory that pays tribute to the specific nature of LA, Horwitz et al.'s (1986) theoretical conceptualization of foreign language anxiety has been used in quite a number of studies in the field. In their view, foreign language anxiety is "a

distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process.” (Horwitz et al. 1986: 128).

To measure the extent of anxiety a learner experiences in the classroom, they developed the so-called “Foreign Language Classroom Anxiety Scale” (FLCAS). This theoretical framework involves three components: communication apprehension, test anxiety, and fear of negative evaluation. Taking these components into account, pronunciation can be expected to play a major role regarding LA. Without doubt, the FL learner’s level of pronunciation mastery has a direct impact on how he/she is understood by others, which, in turn, determines the level of communication apprehension. Weaknesses in pronunciation affect the impression made on classmates and the teacher’s assessment, which, when consistently negative, can enhance both test anxiety and the fear of negative evaluation. In this context, Shams (2006) points out that the students’ pronunciation skills contribute “to fear of negative evaluation when the speaker fears what others may think of the way he/she sounds” (Shams 2006: 55).

The different types of anxiety that impact on L2 learning and achievement have been greatly discussed amongst scholars. In this respect, two main categories of anxiety, namely state and trait anxiety, are often named. On the one hand, state anxiety denotes the type of anxiety that is triggered in response to a specific situation and on the other hand trait anxiety is more generally applicable across a number of situations and contexts (cf. Horwitz 2010: 154). MacIntyre and Gardner (1991) argue that as far as the language learning process is concerned, the notion of state anxiety rather than trait anxiety seems to apply (MacIntyre & Gardner 1989). In addition, two further types of anxiety, namely facilitating (i.e. fostering language acquisition) and debilitating (i.e. hindering language acquisition) have been mentioned. Facilitating anxiety appears to keep students alert, and thus can lead to increased language proficiency, debilitating anxiety, on the other hand, is often negatively correlated with L2 success resulting in poor performance in achievement tests (Oxford 1998).

These differences in the types of anxiety may also be held responsible for the fact that especially early studies investigating LA and achievement have yielded conflicting results. Whereas some studies carried out in the 1970s found a negative relationship between anxiety and second language achievement, others found no

or even a positive relationship between anxiety and second language proficiency (e.g. Kleinmann 1977). Scovel (1978) offered a rational solution to this enigma by pointing out that the various studies used different anxiety measures and concluded that language researchers need to be more explicit about the type of anxiety they are trying to measure. However, since the introduction of the FLCAS and other specific measures of second language anxiety, studies have discovered a fairly consistent negative correlation between learner anxiety and L2 achievement, typically regarding final course grades.

It has been suggested that the connection between FL pronunciation and LA might be both physiologically as well as affectively motivated. The former dimension sees language anxiety as a set of “emotional reactions and motivations of the learner; they signal the arousal of the limbic system and its direct intervention in the task of learning” (Scovel 1978: 131). Consequently, a high level of anxiety may lead to neuromuscular problems by physically impeding the FL learner’s speech. The affective connection between pronunciation and LA, on the other hand, has been addressed in very few studies only. Derwing and Rossiter (2002), for example, found that 60 out of 100 respondents reported a significant shift in their pronunciation skills when experiencing anxiety and nervousness. In an experiment conducted by Horwitz and Young (1991), one learner was quoted saying: “I hate it when the teacher calls on me to speak. I freeze up and can’t think of what to say or how to say it. And my pronunciation is terrible” (Horwitz & Young 1991: xiii).

A plethora of studies have emerged investigating the connection between the extent of anxiety felt by a learner and its impact on the various FL skills such as reading and writing (e.g. Saito, Garza & Horwitz 1999), listening (e.g. Elkhafaifi 2005) or grammar (e.g. VanPatten & Glass 1999) but it is spoken production that has received the most attention in this context (e.g. Price 1991; Phillips 1992).

In line with the observations discussed above according to which language anxiety seems to have a negative influence on foreign language mastery in general, studies investigating oral production/pronunciation and learner apprehension have found negative correlations (e.g. Liu 2006; Stephenson Wilson 2006; Woodrow 2006). For instance, learners are sometimes reported to experience anxiety when giving presentations in class, interacting with a native speaker, or being corrected while speaking (Mak 2011). Anxious foreign language learners also mention challenges

that are directly linked to pronunciation. For example, they complain about difficulties discriminating the sounds and feel embarrassed because of their pronunciation errors (Price 1991). Ohata (2005) points out that unrealistic beliefs can cause greater anxiety and frustration, particularly when beliefs and reality do not match. He asserts that if the learners believe that pronunciation is the single most important aspect of language learning, it comes as little surprise that they will be frustrated to find the reality of their poor speech pronunciation even after learning and practicing for a long time.

The reciprocal relationship between anxiety and pronunciation has been discussed by a number of scholars (e.g. Horwitz et al. 1986; Price 1991) who claim that pronunciation can be considered a significant cause of language anxiety. An issue that remains unsolved is the question of causality; i.e., does anxiety interfere with foreign language ability and impair FL performance, or does poor FL performance lead to anxiety as a consequence? (MacIntyre & Gardner 1989). Price (1991), who also touches upon this topic, established a direct link between pronunciation problems as perceived by the learner and classroom-related anxiety. In this study, the author compared the anxious learners' articulation to that of native speakers. He found that the learners felt greatly embarrassed by their inability to pronounce FL words correctly. In interviews, Price asked students what aspects of foreign language classes troubled them the most. Again, the answer was "the greatest source of anxiety was having to speak the target language in front of peers" (Price 1992: 105). Similarly, Young (1991) also stressed the fact that LA is derived from the fear of mispronouncing words. Insufficient knowledge of how to pronounce certain sounds or words can generate concern about not being intelligible or being ridiculed by peers. The author points out that the difference between self-perceived language competence and reality can be the reason for high levels of anxiety in particular if a student regards pronunciation as the most important skill to be learnt in a foreign language. Yet in reality the majority of the students, "unless they are highly motivated, will not sound like a native speaker" (Young 1991: 428).

Interesting data come from a study carried out by Shams (2005), who compared the effectiveness of two different approaches to pronunciation teaching (i.e. in a listening laboratory and in a computer laboratory), in reducing LA. Among other things, the study proved that a 7-week pronunciation course resulted not only in the improvement of this particular skill but also in a significant decrease of LA,

irrespective of the pronunciation teaching approach. It has to be taken into consideration, however, that the lower level of LA upon completion of the pronunciation course may have resulted not only from the actual improvement of pronunciation but also from the subjects' belief in their improved pronunciation skills and their increased self-confidence after intensive practice.

These self-perceived pronunciation problems as indicated by anxious learners have been investigated by a few researchers. For instance, Feigenbaum's (2007) results revealed that there is no notable difference regarding pronunciation accuracy when comparing two different types of learning environments, namely group work and teacher fronted-activities. However, she finds a significant negative correlation between language anxiety and pronunciation accuracy in the teacher-fronted environment prompting her to conclude that language anxiety only impacts negatively on pronunciation during teacher-fronted activities.

A similar study was conducted at Granada University by Stephenson Wilson (2006). The students' performance was assessed in an oral test consisting of two parts; the first was a free discussion on a given topic and the second consisted of a role-play. The results, once again, confirmed a statistically significant negative correlation.

In the Australian context, Woodrow (2006) also detected a negative, interactional relationship between spoken language competence and speaking anxiety. In this case, quantitative data were collected from more than 200 participants studying EAP in Australia. Interestingly, the author distinguished between two different concepts, namely in-class FL anxiety and out-of-class FL anxiety. Her findings clearly supported this distinction by showing that both types of anxiety can in fact be related to the learners' speaking performance.

Recently, a study conducted by Szyszka (2011) in Poland investigated the connection between LA and the pronunciation competence of 48 teacher training students. In her study, the results of the pronunciation self-perception questionnaire indicated a significant negative relationship between foreign language anxiety and self-perceived competence of pronunciation thus confirming that those students who claimed to be affected by higher levels of foreign language anxiety also declared lower pronunciation competence. Szuyska concludes that

apart from intonation, segmental as well as super-segmental aspects of L2 pronunciation significantly and adversely correlated with foreign language anxiety.

The interrelation between foreign language anxiety and achievement has spawned a plethora of work in the Chinese environment. Cheng (2005), for instance, pondered over the question as to how foreign language anxiety affects spoken English language competence. Again, significant negative correlation was discovered between foreign language anxiety and the final scores of the Chinese subjects' spoken English language competence. This was further confirmed by Zheng (2010) who also found that language anxiety had a negative impact on achievement. Similarly, in their study, Lu and Liu (2011) tested a number of students who attended obligatory English language classes. Again, a significant, albeit moderate, negative relationship between foreign language anxiety (as measured by FLCAS) and the learners' English language competence (as measured by exam scores) was observed. The authors arrive at the conclusion that low language anxiety is an essential element for enhancing students' learning outcomes.

As has been shown, the fairly complex notion of foreign language anxiety has given rise to a myriad of studies that by and large provide evidence that language anxiety has a negative impact on foreign language achievement in general and pronunciation proficiency in particular.

5.4. Formal pronunciation instruction

The role of pronunciation teaching in the classroom has been subject to various changes in paradigms as far as approaches to teaching foreign languages is concerned. The question which has been fervently debated in this context is whether pronunciation should be taught explicitly or not. Can pronunciation instruction contribute to enhancing learners' pronunciation skills or is it forlorn hope, a waste of time and effort on the part of both the teacher and the students?

It appears that only very few studies so far have looked into the effectiveness of pronunciation instruction (e.g. Derwing & Munro 2005) despite its prominent role in successful communication. The question whether increased quantity of L2 input in the form of formal instruction impacts on both child and adult L2 acquisition are

also dealt with in studies by e.g. Bongaerts et al. (1997), and Moyer (1999) and others. These studies have yielded inconsistent results suggesting that the link between formal pronunciation instruction and the students' pronunciation is not statistically significant (Elliot 1995). At this point it should be noted, however, that although quite a contradiction in the range of results presented is apparent, the diversity of those results might again be due to differing designs and methodologies applied in the particular experiments.

Suter (1976) was among the first to report an insignificant relationship between formal pronunciation and students' pronunciation of English as a foreign language. In contrast, Neufield and Scheiderman (1980) and later Murakawa (1981) found that adult learners did manage to master near native fluency which they claimed can be achieved in a relatively short time when adequate pronunciation training is provided. Although Macdonald et al. (1994) tried to grasp the short-term effects of different types of instruction, they failed to draw clear conclusions.

Some classroom-based studies have focussed specifically on the teaching of suprasegmentals. Derwing, Munro and Wiebe (1997), for example, reported a positive effect for formal instruction which focused on general speaking habits rather than individual sounds. The authors concluded that attending courses dealing with segmental and suprasegmental accuracy can give rise to improved pronunciation competence. Along similar lines, Couper (2003) also considered pronunciation courses to be beneficial. Yet he failed to provide evidence as to the reasons for this. Clear positive short-term effects of pronunciation instruction have been seen in a number of studies involving the production of individual phonemes, prosody or overall fluency (e.g. Murakawa 1981; de Bot & Mailfert 1982; de Bot 1983).

Flege and Liu (2001) in their study found a close relation between formal pronunciation teaching and the length of residence in the country where the target language is spoken. Their study further suggests a positive effect of formal instruction on adult learners' performance.

Olson and Samuels (1973/1982) provided phonetic training in German over a period of 3 weeks to 20 native speakers of English. Their results showed that older subjects obtained significantly higher accent ratings than younger students. This prompted the authors to conclude that older learners would benefit more from pronunciation training than younger learners.

By the same token, Elliott (1995) tested the effect of pronunciation instruction on 43 adult native speakers of English learning Spanish in the US over a period of one semester. Interestingly, the learners appeared to significantly differ in their pronunciation scores between the pre-test and post-test. In other words, their pronunciation of Spanish improved as a result of the phonetic treatment they had received.

Recently, a number of studies on successful ultimate attainment of L2 phonology by late learners have been published in which formal instruction - to a certain degree - does account for the subjects' mastery of L2 phonology. One of these studies was conducted by Bongaerts et al. (1997) and aimed to examine the degree of foreign accent of late Dutch learners of English. Their subjects had not started to learn English before the age of 12 but received intensive training on RP pronunciation at university. Native speaker judges rated a sentence production task on a 5-point scale. The results showed that the mature learners were assigned scores in the native speaker range. These findings clearly reject two assumptions in SLA; firstly, that late learners cannot achieve L2 pronunciation proficiency and secondly, that formal explicit pronunciation instruction is in vain. On the contrary, the authors suggest that the amount of formal instruction - in this case, "intensive training both in the perception and in the production of the speech sounds of British English" (Bongaerts et al. 1997: 463) - may very well contribute to the late learners' successful pronunciation mastery.

A further study investigating the influence of formal instruction on late learners' L2 pronunciation skills comes from Moyer (1999). The author looked into the spoken performance of 24 native speakers of English learning German in the US. All the subjects were highly motivated late learners, who had been first exposed to the TL in a formal setting at the age of 11 and who had spent on average 2.7 years in Germany. The learners' mean accent ratings given by German NS judges were found to be more foreign-accented than those of the German controls, except for one NNS subject. A favourable effect of input was observed in that some subjects who had received explicit feedback on their pronunciation received a more favourable foreign accent rating than those who had not. Thus, although most late learners did not perform at a native-like level on any of the tasks, the phonological input the subjects had received seemed to have played a decisive role in achieving native-like pronunciation in some cases.

Couper (2006), in his classroom-based study, shows that pronunciation teaching can indeed help students improve. He set out to determine the immediate effect of formal instruction on specific forms in second language pronunciation. His subjects were immigrants (mostly of Asian origin) living in New Zealand. The pronunciation training explicitly focussed on epenthesis (adding an extra sound) and the inappropriate dropping of a consonant over a period of two weeks. He claimed that the error rate in this group had in fact dropped dramatically, whereas the control group (without any pronunciation instruction) did not make progress at all. This leads the author to conclude that appropriately focused instruction can lead to changes in learners' pronunciation mastery.

A longitudinal study from New Zealand by Romova, Smith and Neville-Barton (2008) investigated the changes that occurred in the pronunciation and fluency of four advanced, adult EAL learners (mostly immigrants from Asia) over three years of tertiary education. They were provided with explicit instruction in pronunciation, including a variety of models they could choose from. Their data was obtained from two pre-study and post-study parallel tests and post-study individual interviews. The findings for pronunciation were presented as four case studies, meaning that the pronunciation of each subject was compared between the pre-study test and the post-study test. They found that all four students seemed to have enhanced both their fluency and pronunciation, although to varying degrees. Their answer to the often posed question: "Can I change the way I speak?" is a resounding yes. And they add that the extent to which this happens depends more than anything on motivation - conscious or unconscious.

To sum up, divergent results have been reported as to the effects of formal instruction on L2 pronunciation mastery. It seems that quality of input (e.g. specific phonetic training) is of greater importance than quantity (i.e. time spent studying the pronunciation of the TL). Taken all together, the studies on the amount and type of input have not provided enough convincing evidence upon which variance in L2 phonological acquisition might be solely based. In spite of the finding that late L2 learners can benefit from formal phonological instruction, the input they receive should not be looked at in isolation. Rather, other factors such as attitude, motivation, age of learning, length of residence, etc. are likely to play a role, too.

5.5. Gender differences

Intuitively, gender seems to be a very appealing variable in SLA. After all, the commonly-held folk wisdom that girls are better language learners than boys still exists. However, research findings are not conclusive regarding female advantage in foreign language learning in general (e.g. Brantmeir et. al. 2007) and pronunciation learning in particular (e.g. Elliot 1995, Purcell & Suter 1980).

As far as second language acquisition in general is concerned, Gardner (1985) relates gender differences to motivational issues assuming that women are more motivated to learn languages than men. Furthermore, according to Gardner and Lambert (1959) women show more positive attitudes towards the native speakers of the foreign language. Ludwig (1982; in Ellis 1996) points out that male learners hold more instrumental motivations, which means that they are more likely to learn an L2 for a particular reason.

Apart from the above mentioned difference, there are also socio-cultural implications which need to be taken into account: without doubt, the role of men and women in society, class, or ethnicity also leave an imprint on language learning. Ellis (1996), for example, sees the generally observed enthusiastic attitude of females towards language learning from a cultural perspective (Ellis 1996): Particularly in Europe, females - more than males - consider foreign languages as an essential prerequisite for acquiring a desirable position in a company. In Asia, however, men generally have better English language skills owing to the fact that their jobs provide them with opportunities to communicate with native speakers of English. Many Asian women, on the other hand, are housewives and therefore neither have the opportunity nor the desire to learn a foreign language, let alone develop any attitude towards foreign language learning.

Research into variance in L2 pronunciation skills between men and women has yielded interesting results which are also relevant for SLA. For example, L1 studies examining the relationship between pronunciation accuracy and gender have put forward that women in Western societies have a certain tendency to use more formal and prestigious phonological patterns when speaking their native language (e.g. Trudgill 1974; Silva Corvalan 2001). For example, Byrd (1992) in her experiments shows that men speak faster and tend to reduce their vowels to schwa more often than women. Similarly, Henton (1995) purports that women are likely

to produce more open vowels than men, which means that female speech shows a tendency to be more phonetically explicit. She claims that this has socio-phonetic reasons related to the conceptualizations of male and female roles in society. Along the same lines, the experiments by Whiteside (1995, 1996) show lower rates of syllables per second for women who seem to realize consonant clusters more fully. Simpson and Ericsson (2003) and Simpson (2003) also found that men tend to elide or reduce vowels and consonants, which results in shorter sentence durations.

In addition, a number of studies have reported differences in male and female vowel duration patterns. Various studies investigating American English (Hillenbrand et al. 1995), German (Simpson 1998), or Swedish (Ericsson & Ericsson 2001) revealed that overall, females outperformed males in most vowel durations. Producing longer vowel lengths can be seen as one of the effects of speaking more clearly, an attribute which – as has been mentioned above – is frequently assigned to female speech (Elyan 1978). Similar findings have been suggested by Gussenhoven (1979), Broeders (1983) and Hwang and Gupta (1992) who reported that females were more likely to use prestige forms in comparison to their male counterparts and that female learners in general had better pronunciation than males.

There are in fact very few studies that solely focus on gender and pronunciation. Instead, gender is often combined with other variables such as attitude, motivation, AOL or LOR. In this vein, Asher and Garcia (1969) link gender with age of onset of learning (AOL) on the one hand and length of residence in the target culture (LOR) on the other hand. They reported that girls under the age of six had an initial advantage over boys when acquiring L2 pronunciation. This was later confirmed by Flege et al. (1995). With increasing LOR, however, Asher and Garcia argue that gender differences appear to diminish.

Similarly, Tahta, Wood and Loewenthal (1981), who looked primarily at the transfer of accent from L1 to L2, identified gender as the most significant predictor of degree of foreign accent in L2 with women receiving higher scores than men. This finding was also confirmed 10 years later by Thompson (1991), who investigated the English pronunciation of Russian learners.

In contrast to that, a great number of the studies in this field (e.g. Suter 1976, Snow & Hoefnagel-Höhle 1977; Purcell & Suter, 1980; Elliot, 1995) have not identified gender as a significant predictor of degree of L2 foreign accent.

More recent research findings from Asia, however, suggest that female learners slightly outperform their male counterparts. In his attempt to determine Thai students' pronunciation competence, Khamkhien (2010) identified gender as the most significant factor contributing to the participants' test scores. This confirms earlier findings by Flege, Yeni-Komshian and Liu (2000) who were investigating the pronunciation proficiency in first and second languages of Korean-English adult immigrants in the USA. Although their general focus was on age effects, they found that females had higher scores than males.

Conversely, a study from Iran by Jahandar et al (2012) involving 53 undergraduate university students studying English arrived at a slightly different conclusion. They caution that, although female students outperformed their male colleagues in producing accurate consonants (but not vowels), this does not give rise to assume complete superiority of female over male subjects.

In the Arabic context, Badran (2001) examined the relationship between both extraversion/introversion and gender and the pronunciation accuracy of Arabic speaking Egyptian college students learning English as a foreign language. He claimed that extroversion/introversion correlated positively with English pronunciation accuracy i.e. extroverted students scored higher than introverted ones and that male students outperformed their female counterparts.

In an altogether very different experiment carried out in Germany on L2 pronunciation talent, Dogil et al. (2009) noticed a significant gender difference in one of their tasks, namely the imitation of Hindi sounds, where the scores for the male imitators were higher. For them, this result was unexpected. They speculate that the reason for this may lie in the task type which required a speech imitation skill, which was devoid of syntactic and semantic operations. Apparently, when it comes to motor skill learning, recent evidence (Dorfberger et al. 2009) showed that male learners have a significant advantage over their female counterparts. Interestingly, giftedness research in general shows that gender differences are considered to be greater in gifted than in average ability individuals (Preckel et al. 2008). They attribute this to the fact that evolutionary theories predominately

consider males as more located in the extremes of the normal distribution curve, whereas females tend to be more represented towards the mean (with respect to any kind of ability). Accordingly, male predominance is more frequently found at the upper end of the ability scale in gifted populations and at the lower end of the scale, a wide range of developmental problems such as disorders of the voice and tone-deafness seem to be more prevalent in males than in females (Howard & Angus 1998).

In total, the literature shows that gender does not seem to significantly influence pronunciation accuracy of learners. Although, there is a slight tendency of females to outperform males in terms of vowel articulation and vowel duration, this does not seem to result in complete superiority of female over male students. Finally, many SLA researchers concede that investigating the connection between L2 achievement and gender from a merely biological point of view may be limited as gender categories and roles are formed within the learners' socio-cultural and situational context (Ehrlich 1997).

5.6. Musicality

It is commonly believed that people who are skilled at music have a sensitive ear and can discriminate between sounds more accurately and consequently imitate sounds better. This means that musically trained individuals have an advantage over non-musicians in as far as they pick up various aspects of an L2, in particular the pronunciation of L2 sounds, more easily. Hence the question which scholars from across academic fields have tried to answer is whether there is a link between musical ability and language proficiency. Does musicality constitute an advantage for phonological learning?

Research findings are – again - not entirely conclusive. Those who argue in favour of the music-language link mostly base their assumptions on three tenets. Firstly, both language and music are considered human universals which show structural parallels (e.g. Patel and Daniele, 2003). Secondly, neuro-psychological studies indicate that certain regions in the brain that are often assumed to be language-specific are also involved in musical processing (Levitin & Menon 2003; Tillmann, Janata, & Bharucha 2003). And thirdly, musical ability, like language ability, appears to be prone to affective impacts (Richard-Amato 2003).

On the other hand, several studies failed to establish a clear link between self-ratings of musical aptitude and L2 performance (Flege, Munro & MacKay 1995; Flege, Yeni-Komshian & Liu 1999; Tahta, Wood & Loewenthal 1981; Thompson, 1991). Stokes (2001) also saw no correlation between musicality and L2 acquisition in adult learners. Thus, it remains unclear as to whether or not musicality improves human potential in language acquisition.

Given this lack of conclusive evidence, it is tempting to conclude that the popular conjecture that musical ability matters for L2 learning is a myth. However, more specific research into musical aptitude and its influence on L2 pronunciation mastery shows a fairly clear picture.

In her study involving French beginner and intermediate learners, Morgan (2003) sought to explore the relationship between music perception and speech perception on the one hand and music production and speech production on the other hand. The findings of her study revealed a positive correlation of all those aspects investigated.

Pastuszek-Lipinska (2004) conducted a study involving the shadowing of speech (i.e. stimuli repeated just after listening). Among other tasks, she recorded 106 musicians and non-musicians (native speakers of Polish) repeating the question "May I help you?" after they had heard it three times. These productions were subsequently rated by seven native speakers of English. The data showed that the musicians received higher scores and that their productions were rated as being closer to that of native speakers. Pastuszek-Lipińska interpreted the result as evidence that musicians are indeed superior to non-musicians in terms of perceiving and producing foreign language sounds.

In their study, Slevc and Mijake (2006) investigated the link between musical aptitude and L2 proficiency in adult learners in four domains: namely receptive phonology, productive phonology, syntax, and lexical knowledge. One of the tasks involved the participants (50 native speakers of Japanese) reading aloud a short English text passage. Two native speakers were asked to rate overall pronunciation, intelligibility, and prosody on a 9-point scale, ranging from very strong foreign accent to no foreign accent. They observed that musical ability predicted L2 phonological ability (both receptive and productive) but not L2 syntax or vocabulary. The authors conclude that musical skills seem to foster the

acquisition of L2 sounds and see this as evidence for the link between phonology and music.

Also, it has been demonstrated that musicians tend to detect L2 sentence-final words faster and more accurately than non-musicians (e.g. Marques et al. 2007). Marques et al. (2007) investigated musical aptitude and its influence on the detection of pitch variations in a foreign language they did not speak. Adult French musicians and non-musicians were confronted with sentences in Portuguese. The final words of these sentences were prosodically congruous (i.e. spoken at normal pitch height) or incongruous (pitch was experimentally increased). Results showed that musicians outperformed non-musicians when the pitch deviations were small and difficult to detect.

Two further studies conducted in 2008 yielded inconclusive results. Gottfried (2008) found that musicians were more successful in perceiving and producing a particular set of tones in Mandarin, however, both musicians and non-musicians struggled with other tones. Overall, Gottfried concludes that musical talent may be more related to experience rather than cognitive abilities. On the other hand, Milovanov et al. (2008) confirmed that the learners with more advanced English pronunciation skills also had better musical skills.

Nardo and Reiterer (2009) consider language and music as interrelated phenomena, perhaps even two sides of one coin. In their research, they found a strong connection between rhythm and singing abilities on the one hand and pronunciation proficiency on the other. Production scores evidenced that musicians performed better than non-musicians in their experiment.

Milovanov et al. (2010) examined the pronunciation of Finnish young adults with higher education. They concentrated on words containing potentially problematic English phonemes. And once again, the results showed a strong correlation between musical aptitude and English pronunciation achievement. They point out that the greater the general musical aptitude the participant reported in the musicality test, the higher the scores received in the English pronunciation test.

Although the studies discussed above differed in their design and aim, most recent findings cautiously seem to support the assumption that musicality may affect second language acquisition in a positive way.

5.7. Exposure to the target language

The last variable to be discussed here is also the most important for the present project as increased exposure to the target language is a core concern that is being investigated in the context of English-medium instruction at the UAS Vienna. It is often taken for granted that exposure to the L2 has a positive effect on the learner's pronunciation skills. Research, however, seems to indicate that increased exposure to English in itself does not necessarily speed up the acquisition of English (Snow, 1992). Quite rightly, Kenworthy (1987) notes that exposure can be a contributory factor but it cannot be the one and only factor in the development of L2 pronunciation.

As discussed in Chapter 3, some SLA theories suggest that learners' exposure to large amounts of comprehensible input paired with opportunities for interaction fosters the acquisition of the L2 in general and the features of L2 pronunciation in particular. However, there are also non-linguistic aspects of a language that carry meaning and yet are usually not learned through explicit instruction, but rather through experience with the target language and culture. As Shumin (1997) notes, a lack of exposure to the L2 and the lack of contact with native speakers of that language, may be a reason why mature English language learners often fail to acquire a native-like production, not only as far as linguistic skills are concerned but also in terms of cultural pragmatics, such as gestures, body language and facial expressions.

Generally speaking, exposure to the target language can have a variety of meanings depending on the degree of intensity in terms of quality and quantity. This may range from living and working in the country where the language is spoken to simply listening to native-speakers on the radio. It should be noted, however, that living in the country of the target language does not always mean that the L2 is actually used. For example, some people may live in an English-speaking environment but still predominantly use their L1 with their families and friends. Conversely, learners who live and work in a non-English speaking country may still use a considerable amount of English in many everyday situations. Thus it comes as little surprise that Flege, Frida and Nozawa (1997) found that learners who live in an L2 environment but interact primarily with speakers of their L1 generally retain more salient accents than those who use the L2 more often.

In the field of SLA the factor exposure to the target language appears to be researched as two different variables: firstly, the length of residence (LOR) in the respective L2 environment and secondly, the amount of L2 input the learner receives in his/her everyday life, mostly in the form of media exposure. While LOR is commonly related to immersion settings, that is L2 learning in an L2 environment, the second variable predominantly focuses on exposure to the L2 in an L1 context.

As far as immersion settings are concerned, previous research has produced conflicting evidence concerning the importance of length of residence for L2 pronunciation accuracy and therefore its significance for accent seems to be rather unreliable. For instance, Flege and Fletcher (1992) or Riney and Flege (1998) observed positive effects (although not necessarily significant) whereas others have not observed an influence of LOR (e.g. McAllister 2001; Meador et al. 2000; Piske et al. 2001; Flege et al. 1995).

Two studies which identified LOR effects need to be mentioned here. In their study, Flege and Fletcher (1992) examined English sentences produced by two groups of late Spanish-English bilinguals with differing LOR in the US. They reported that the experienced subjects obtained considerably higher ratings than those with less experience. Yet LOR was not found to be a significant predictor of degree of L2 foreign accent, which identified age of onset of learning (AOL) as the most reliable predictor of degree of L2 foreign accent. A further study by Riney and Flege (1998) relates exposure to age. They proved that living in surroundings where the L2 is spoken has a positive effect on mature L2 learners' overall pronunciation. In this regard, Flege (1987) surmises that after a speedy initial phase of learning, LOR does not seem to influence the degree of L2 foreign accent in grown-ups. Therefore, the assumption that the longer the learners stay in an L2 environment the better their pronunciation skills does not hold water.

By contrast, a number of studies failed to find LOR effects on L2 phonological competence. McAllister et al. (2000), for instance, investigated the acquisition of the Swedish quantity contrast in subject groups with three different first languages. Their findings suggest that LOR may not be a reliable predictor of L2 performance. Similarly, Meador et al. (2000) arrived at the same conclusion, asserting that those subjects who were highly experienced in their use of the L2 did not manage to change their degree of foreign accent. Therefore, Piske et al.

(2001) conclude that experience with the L2 may lead to less foreign-accented speech only in the early phases of L2 learning thereby confirming results obtained by Flege et al. (1995), Riney & Flege (1998) or Meador et al. (2000).

The assumption that input from native speakers does play a crucial role in L2 pronunciation is supported by the findings of a study conducted by Flege and Liu (2001) who investigated the influence of LOR in an L2 speaking environment. The authors claim that additional years of living in a pre-dominantly L2-speaking environment does not, in itself, lead to progress in learning an L2 and that LOR only provides a good predictor of L2 competence when learners come into regular contact with native speakers of the L2. Along the same lines, Moyer (2013) purports that "extended in-country residence confers real advantages for phonological attainment if it signifies rich target-language experience" (Moyer 2013: 75)

Within the field of LOR research, one strand, namely the study abroad (SA) context, seems to have attracted considerable attention recently. In the context of the current social, cultural and educational changes owing to globalisation and internationalisation endeavours (see Chapter 2.1.), these programmes have come to play an important role in L2 learning policies particularly as a means to promote multilingualism (cf. Kinginger 2009). Hence, SA programmes have become very popular in Europe and students are increasingly encouraged by language teachers, programme administrators and researchers alike to seize this opportunity. In this vein, Smit and Dalton (2000) point out that teachers need to continue advising their students to spend some time abroad, although they caution that this might not necessarily have the desired effect.

A widely held assumption in this respect is that students who study abroad return home with substantially increased foreign language competences, particularly in areas such as fluency, pronunciation, or vocabulary. In fact, Freed (1995) describes the profile of the language skills of students who had spent time abroad as follows:

[They] appear to speak with greater ease and confidence, expressed in part by a greater abundance of speech, spoken at a faster rate and characterized by fewer dysfluent-sounding pauses. As a group, they tend to reformulate their speech to express more complicated and abstract thoughts, display a wider range of communicative strategies and a broader repertoire of styles. (Freed 1998: 50)

In addition, stays in a foreign country are also frequently considered to foster students' motivation to learn and improve the L2 (Serrano Lopez 2009).

Research has mostly concurred that study abroad can indeed be a beneficial way of acquiring a foreign language (e.g. Lafford, 2006; Lafford & Collentine 2006). While a great number of studies on the effect of SA on L2 acquisition have been carried out in the field of selected morpho-syntactic areas (e.g. Isabelli & Nishida 2005; Howard 2005), less work is available discussing the specific effects of SA on L2 pronunciation.

As mentioned above, the literature is overwhelmingly consistent regarding students' development of oral fluency, as a great number of scholars, even those who initially did not concentrate on this particular aspect, claim that SA students appear to be more fluent than their AH (At Home) counterparts (e.g. Collentine 2004; Segalowitz & Freed 2004). Freed (1995), for example, reported that students who had spent a semester in a foreign country spoke more and faster. In addition, their speech tended to contain longer stretches of continuous speech. In their study, Segalowitz and Freed (2004) point out that SA students – in contrast to the AH group - were in fact the only ones who experienced gains in fluency. This was further confirmed by Freed, Segalowitz and Dewey's (2004) or Segalowitz and Freed (2004).

With a focus on the pronunciation of SA vis-à-vis AH learners, Diaz-Campos (2004, 2006) looked at the production of a small number of Spanish sounds that are commonly considered problematic for L2 learners. Diaz-Campos found that although both groups made progress, there was no consistent advantage for the SA group. Concerning the oral production of native-like variants, however, this study revealed that SA students appeared to generate more target-like variants than AH students in informal (i.e. conversational) settings (Díaz Campos 2006: 37), whereas no significant differences between groups could be observed in more formal (i.e. reading aloud) settings.

Lord (2006) examined students' pronunciation and mimicry abilities in Spanish before and after SA. Again, she argued that the learners' overall pronunciation skills did not improve significantly. However, there was some improvement in terms of their capacity to repeat sounds. She attributed these results to the phenomenon of phonological memory.

Recently, Avella, Mora and Perez-Vidal (2012) explored the perception of foreign accent in a SA context by assessing the effect of a three-month SA programme on the pronunciation of a group of 23 Spanish learners of English. The participants in their study were recorded reading a text before and immediately after their stay abroad. These recordings were then rated by 37 proficient non-native listeners, trained in English phonetics. Although they discovered a slight yet non-significant improvement in perceived foreign accent, a significant decrease was detected in pronunciation accuracy scores after SA.

Apart from LOR, media exposure to English in the form of cable TV, the internet, computer games, music or radio has also been researched in connection with L2 attainment, although on a much smaller scale. As Uskoski (2011: 16) points out, increased access to the internet and the growing influence of the global community have strongly influenced language learning since the 1990s. Owing to technological advances, access to the English language outside the classroom is rapidly spreading all over Europe. According to Livingstone (2002) "the media today operate as pervasive, yet often imperceptible, elements in the everyday cultures of children and young people" (Livingstone 2002: 286). She purports that the media can and do have a favourable effect on students learning English as an L2, due to the fact that a great number of media genres in Europe are now available in English. In the context of SLA research, it comes as little surprise that media exposure studies have discovered that receptive skills (i.e. listening and reading) benefit most, whereas productive skills (i.e. speaking and writing) are less affected (e.g. Pickard 1996).

Rubio and Lirola (2010) in their article on English as a foreign language in the European Union claim that TV broadcasting of films in the original version is a major facilitator for FL learning. According to them, those European countries where English-speaking programmes are shown captioned or subtitled have a higher number of L2 speakers of English (p.32). As an example, they compare Greece, which uses subtitles in television broadcasting, and Spain, which does not. In spite of sharing similarities with the Spanish culture and education system, Greece is said to have twice as many L2 speakers of English who are able to hold a conversation (48%). Similarly, Germany (56 %) has a much lower number of English speakers than Sweden (89%) (Rubio & Lirola 2010: 33).

As Sweden is in fact often named as an example of good practice regarding the use of English outside the classroom, a doctoral project carried out by Sundqvist in 2009 deserves due notice. She examined possible effects outside of school English (which she termed Extramural English or EE), has on oral proficiency and vocabulary. The study was based on data collected from Swedish learners of English aged 15-16 over a period of one year. Her results show that there is a clear correlation between high exposure to English outside of school and good oral proficiency (Sundqvist 2009: 193).

In the Finnish context, Uskoski (2011) confirms the claim that extramural English activities, in his case video games, can be beneficial for the students' English language skills. Accordingly, students who played video games on a regular basis had significantly higher English grades than those who did not (Uskoski 2011: 56).

To the best of my knowledge, there is no study focusing on the phonological gains related to out-of-class English in Europe to date. Without doubt, this field of research, still in its infancy today, will have to be seen as an increasingly important factor in SLA studies and therefore calls for closer attention.

To sum up, the review of the literature focusing on the ID variable "exposure to the target language" has revealed divergent results. Not every study has shown a significant effect of exposure to the target language on the degree of L2 foreign accent. Those studies which found a measurable LOR effect also indicated that the variable LOR was a less reliable predictor of the degree of foreign-accented speech than for example age. Moreover, for adults additional years of experience in the L2 do not seem to lead to a significant increase in pronunciation mastery. In the early phases of L2 learning, on the other hand, increased exposure may very well lead to a decline in foreign-accented L2 speech. The SA context seems to exert a beneficial influence on oral L2 acquisition (in particular fluency) but it remains unclear what specific areas of SLA benefit from this experience to what degree. Regarding media exposure to the L2, it can be concluded that there seems to be a general consensus among researchers that increased exposure in the form of TV, movies, or social media may have a positive effect on the language learning process. Yet, its influence on pronunciation mastery has not been examined. On the whole, research seems to suggest that exposure to the target language does matter and may lead to increased L2 proficiency provided that the input is of high-quality, preferably from native speakers.

5.8. Conclusion

All in all, it can be stated that to date we are faced with an abundance of views on ID variables that impact on L2 pronunciation proficiency and their relevance to L2 acquisition. Although some of the driving forces linked to phonological development seem likely to affect L2 pronunciation achievement, it is not an easy endeavour to demonstrate their relative effects in empirical investigations. This is not only rooted in the notable absence of concise definitions and established methods to be used in experiments assessing individual variation, but it is also blurred by the notion that those individual factors appear in a number of combinations that are after all unique compounds in each individual learner. In other words, a learner seems to be the product of his or her genetically determined qualities which are exposed to highly volatile environmental influences in the course of the learning process. The outcome therefore is always unique and in terms of empirical research difficult to capture.

Despite the fact that in the last decade considerable importance has been attached to the examination of the complex interactions of ID variables, it has proven challenging to predict how a certain learner's characteristic features will affect the learning outcomes. This is precisely the question which the present study intends to shed light on. Drawing on the literature as reviewed above, let us speculate at this point on the profile that emerges of an L2 English language learner who has the potential to achieve complete L2 pronunciation mastery: The individual who (1) started to learn English before puberty, (2) holds a favourable attitude towards the English language and culture and is ready to integrate into the L2 community, (3) is highly motivated and also concerned about his/her pronunciation, (4) is not afraid to speak the foreign language, (5) has received explicit pronunciation instruction, (6) has spent a semester abroad, (7) is probably female, (8) has been exposed to a large amount of native speaker English outside the classroom and (8) plays a musical instrument or sings. In this study, a closer look at the learner with the most favourable L2 pronunciation development in Chapter 8.4.1. and the student with the least favourable development in Chapter 8.4.2. will show whether these assumptions hold water and can be empirically validated in the given context.

6. Austrian English phonology

The preceding chapters have sought to contextualize the question as to how L2 pronunciation is learnt and which ID variables might influence the learning process. This chapter now sets out to describe the more specific features of the pronunciation of English in Austria in order to deal with the third research question which addresses those aspects of Austrian-accented speech that are least likely to change over time.

As already discussed in Chapter 4.2., researchers commonly agree that the learner's first language exerts a considerable influence on the pronunciation of the target language and is thus a significant factor in accounting for foreign accent. Accordingly, an Austrian learner's English is bound to carry – to some degree – the signature of his/her L1, which means that sounds, features and rules of the L1 are internalized to such an extent that in many cases a clear tendency to transfer those sounds, features and rules to the L2 can be observed. In this context, Trubetzkoy (1969) claims that the phonological system of a learner's L1 is "like a sieve through which everything that is said passes" (Trubetzkoy 1969: 51). Accordingly, learners first acquire the system of their L1 and later when they are exposed to another language being spoken they intuitively apply this phonological sieve of their L1 to analyse what they have heard. However, as this sieve is not always appropriate for the L2, the sounds receive an incorrect phonological interpretation (as discussed in Chapter 4.2.1.). For the present study, this means that the sounds of the English language are strained through the phonological sieve of Austrian German, the learners' L1.

This chapter first looks at the phonological inventory of both English and German from a contrastive perspective and thereby seeks to identify the most crucial differences and similarities of the two systems that are frequently assumed to be challenging for German learners of English. As most of the literature on those differences is based on Standard German, it will then also be necessary to outline a number of features that distinguish Standard (German) German from Standard Austrian German, the accent this study seeks to explore in more detail. Next, an overview of empirical studies into the pronunciation of English in Austria will be given. Here the large-scale study carried out by Wieden and Nemser in the early 1990s in the primary and secondary school context is still the largest and most

influential to date. Grosser (1989) focused on suprasegmental features of learner utterances in terms of stress and accentuation and thereby attempted to classify accentual preferences of young learners. In contrast to Wieden/Nemser and Grosser, Hrubes (2008) and Mende (2009) were the first to look at adult English pronunciation. By and large, their explorative studies confirm the findings of the earlier studies. Finally, Tatzl (2011) evaluated the pronunciation problems of Austrian students at a university of applied sciences in Graz. He mainly focused on segmental aspects in the learners' final presentations. Drawing on these studies, the chapter closes by presenting a list of potential problems of Austrian learners of English. This list then serves as the basis for the qualitative part of this project that seeks to identify those features of Austrian English that are least susceptible to change over time. The features listed are then empirically validated using the data collected here to determine if and to what degree learning takes place.

6.1. Contrasting German and English phonology

Both German and English have their roots in the Germanic language group, which means that they share a number of features, whether it be in syntax, vocabulary or phonology. For this reason, German speakers generally find it easy to learn English and they tend to make rapid progress (Swan & Smith 1987: 73).

In the following, significant segmental features (i.e. the vowels and the consonants) of the two languages as well as supra-segmental aspects (i.e. features that transcend the sound level) most notably word stress, intonation, linking, and weak forms of English and German will be compared. It should be noted here that most of the research that has been carried out in this particular field of contrastive phonology uses British Received Pronunciation (RP) as its frame of reference. This view, however, seems to be too narrow a focus for the present project as it can be assumed that the speakers will not only be influenced by British English but also by American English. For this reason it was considered useful to include the most distinctive aspects of General American pronunciation in the following discussion to account for a broader perspective regarding the varieties of English the respondents may have encountered in their EMI classes.

6.1.1. Segmentals in RP

Without doubt, a crucial feature in describing the sound system of any language is its repertoire of sounds (i.e. consonants and vowels). In their comprehensive account of learner English, Swan and Smith (1987) attempted to provide a practical reference guide for teachers of (British) English as a foreign language. Above all, their main intention was to assist instructors anticipate typical problems of learners of English who speak a particular L1. Broadly speaking, their research is based on the assumption that those phonemes that have equivalents or near-equivalents in German should be articulated without great difficulty, conceding though that some confusion might still arise. In contrast, those phonemes that are different are likely to cause problems (as discussed in detail in Chapter 4.2.2.).

As far as vowels are concerned, Swan and Smith point out that the RP vowels which are potentially difficult for German learners are /æ/, /ɔ:/, /ʌ/ and the diphthongs /ei/, /əu/, as highlighted in the following table:

i:	ɪ	e	æ	eɪ	aɪ	ɔɪ
ɑ:	ɒ	ɔ:	ʊ	aʊ	əʊ	ɪə
u:	ʌ	ɜ:	ə	eə	ʊə	aiə auə

Figure 7: Difficult vowels for German learners (Swan & Smith 1987:38)

They claim that /æ/ and /e/ are often confused, therefore *sat* and *set* would be pronounced the same. Further, central /ʌ/ tends to be realized as /a/. Regarding diphthongs, they find that both /əu/ and /ei/ tend to be monophthongized as /ɔ:/ and /e:/ respectively.

What is – rather surprisingly - missing here is the long central vowel /ɜ:/ which also needs to be mentioned in this context as the vowel diagram of German (Kohler 1977) shows:

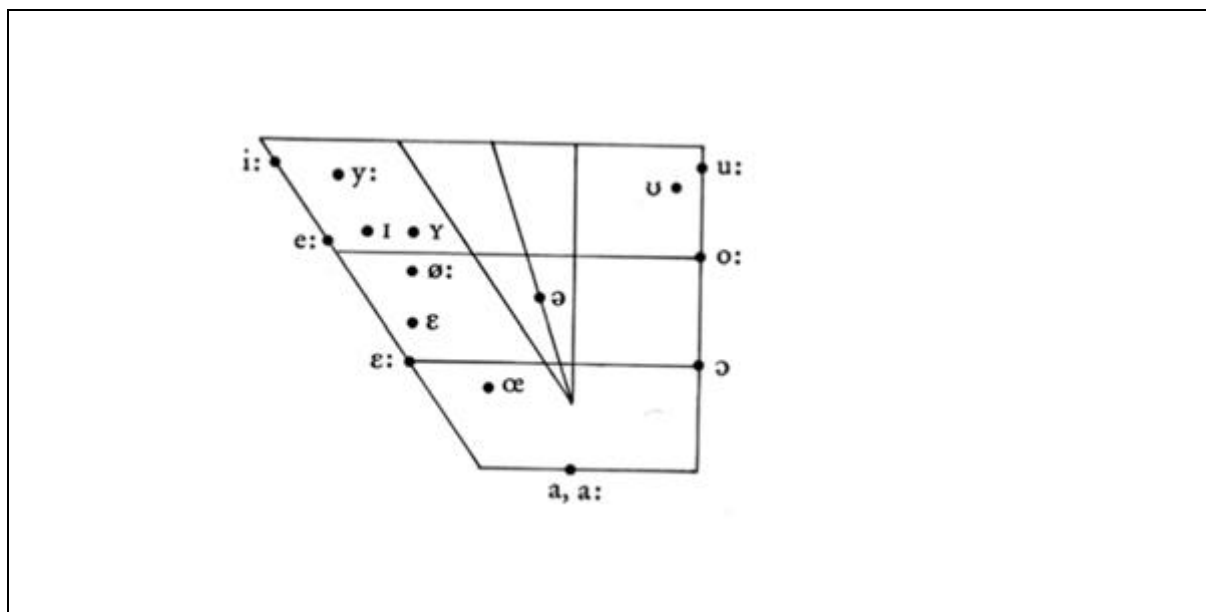


Figure 8: The German vowel diagram (Köhler 1977:176)

The long central vowel /ɜ:/ is often found to be difficult to copy for foreign learners of English (Roach, 1991). Its short counterpart /ə/, which does exist in German but is used differently, is a special case as it plays a crucial role in the prosodic shortening of polysyllabic words. This means that for example a two-syllable English word like *flower* has its primary stress on the first syllable and consequently the vowel in the second (unstressed) syllable is reduced to /ə/.

Adding the long central vowel would result in the following overview of vowels that are likely to cause difficulties for German learners of English. Shaded phonemes can result in errors:

i:	i	e	æ	ei	ai	oi
ɑ:	o	ɔ:	u	au	əu	/ɪə/
ʊ	ʌ	ɜ:	ə	eə	ʊə	aɪə/əʊə

Figure 9: Difficult English vowels for German learners

Thus, a negative transfer regarding vowels will be most likely in the following areas: /æ/, /ɜ:/, /ʌ/, /ɔ:/, /ə/ and the diphthongs /ei/ and /əu/.

Turning now to the consonants that will most probably cause problems for German learners of English, Swan and Smith (1987) list the following:

- fortis/lenis distinction esp. lenis /z/, /dʒ/, /ʒ/, /b/, /d/, /g/
- the dental fricatives /ð/ and /θ/
- /v/, /w/
- /r /
- /ʔ/

As far as the distinction between fortis and lenis (voiceless/voiced) sounds are concerned, German learners tend to carry over L1 phonemic habits into the target language by pronouncing lenis obstruents (i.e. plosives, fricatives, affricates) in word-final position like fortis sounds. This could be due to German Auslautverhärtung, which essentially means that final obstruents are devoiced. Therefore *Rad* is generally pronounced the same as *Rat* in German. In English, however, the distinction between the two in final position is retained, as in *bad* and *bat*. These two examples further illustrate a phenomenon related to the change in vowel quantity if followed by fortis consonants within the same syllable. Thus, the vowel /æ/ in *bad* is pronounced longer (i.e. pre-lenis-lengthening) as it

is followed by a lenis consonant compared to the shorter /æ/ in *bat* where it is followed by a fortis consonant (pre-fortis clipping). Accordingly, failing to produce a lenis consonant in word final position may also affect vowel length negatively.

A second group of consonant sounds that often causes problems is the group of the dental fricatives /θ/ and /ð/, which is not part of the German sound system. In this respect, German students frequently mispronounce the unfamiliar English fricative /θ/ as /s/ which can lead to misunderstandings as in the frequently quoted <I think> or <I sink>. On the other hand lenis /ð/ is often replaced by the lenis alveolar plosive /d/, resulting in *father* being pronounced as [ˈfɑːdə].

Similarly, the lenis fricative /ʒ/ as in *measure*, which is also an essential component of the affricate /dʒ/ as in *joke*, or *religion* is also difficult to articulate for Germans because of its voicing. Conceivably, with /ʃ/ and /tʃ/ as in *ship* or *child*, however, they have fewer problems as they also exist in German.

A further challenge regarding consonants is the example of the unfamiliar English sound /w/, which tends to be replaced with the familiar /v/, which is also supported by the orthography of the phoneme /w/. Therefore, words like <vet> and <wet> are often pronounced the same.

As opposed to General American, British Received Pronunciation is commonly known as a variety of English which does not realise the post-vocalic /r/. This means that the letter r in *car* would not be pronounced. There is one exception, however, when it is in fact retained, namely as the 'linking-/r/' as in *car in the street* where it serves to link the two words.

Figure 10 gives an overview of the most commonly mispronounced consonants by German learners of English. Shaded phonemes tend to be problematic:

p	b	f	v	θ	ð	t	d
s	z	ɹ	ʒ	ʃ	dʒ	k	g
m	n	ŋ	l/ɫ	r	j	w	h

Figure 10: Difficult English consonants for German learners

Therefore, negative transfer seems likely regarding the lenis consonants /b/, /d/, /z/, /ʒ/, /dʒ/, /g/, the dental fricatives /θ/ and /ð/, the liquids /r/ and 'dark l' [ɫ].

6.1.2. Segmentals in GA

To account for a broader view regarding the contrast between German and English pronunciation, in the following a few selected aspects concerning segmental differences between RP and GA will be outlined.

A comparison of the RP vowel chart with the GA vowel chart reveals the most significant differences as follows:

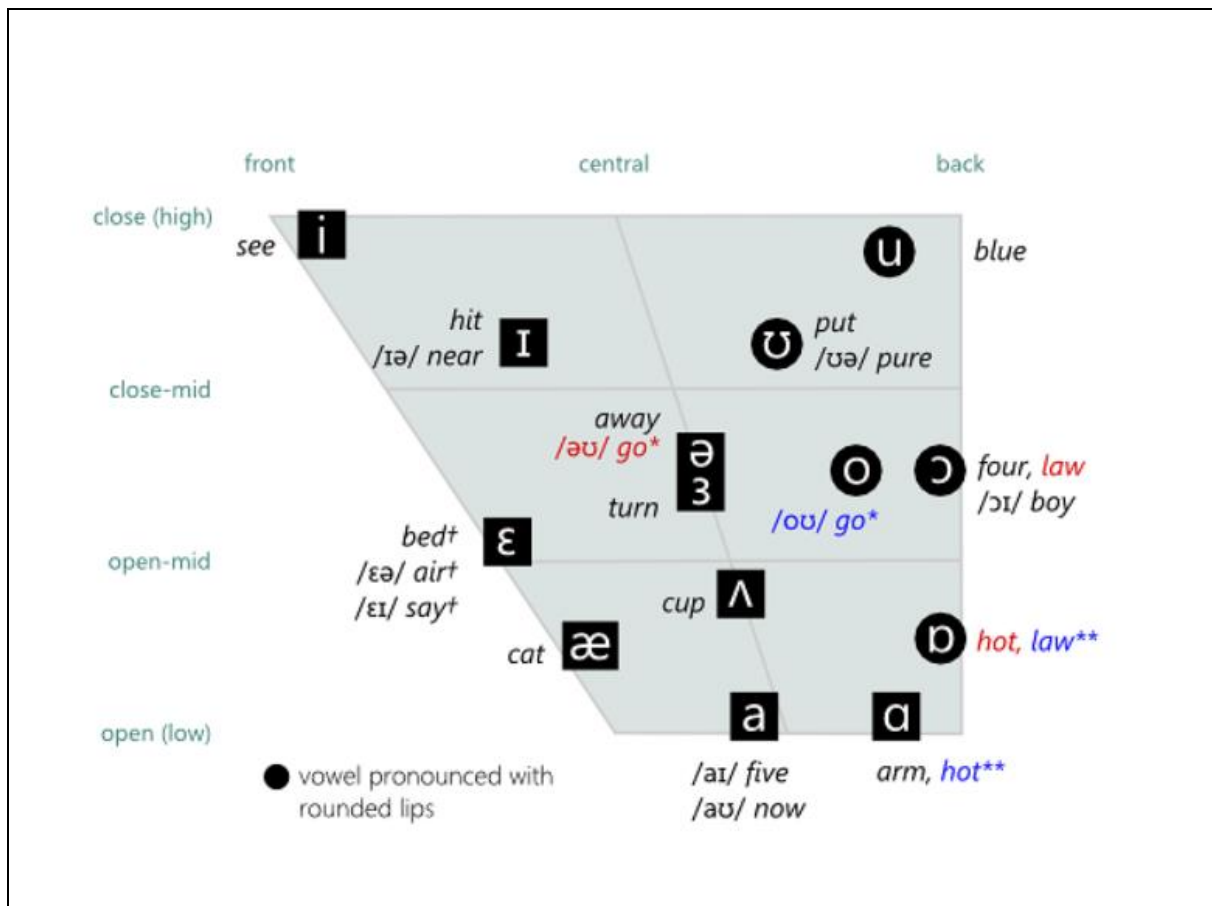


Figure 11: The GA vowel chart (Szynalsky 2015)

As can be seen in Figure 11, the most salient distinguishing features this comparison offers are threefold:

- 1) The shift from the RP diphthong [əʊ] to GA [oʊ] consists in the change of the reduced vowel /ə/ to the close-mid back rounded vowel /o/ in the first part of the diphthong. This shift is commonly seen as systematic and renders words like <go> as [goʊ].
- 2) In GA, the vowel sound /o/ is missing and generally replaced with /ɑ:/. Consequently, <not> would be pronounced [not] in RP and [nɑ:t] in General American.
- 3) The long back vowel /ɔ:/ which in British English occurs in words such as <taught> or <walk> is usually more open and less rounded in GA. In some regional varieties, it can either be realized as /ɑ:/ or /ɔ:/.

Turning to consonants, a number of salient features of GA stand out as clearly non-British. Among those, the most prominent ones include postvocalic [ɹ], dark [ɫ] and the flapped [ɾ]:

- 1) The /r/-sound is probably one of the most noticeable features of General American. Unlike RP speakers, speakers of General American pronounce the post-vocalic /r/. As a consequence the word *form* would be pronounced [ˈfɔɹm] by a GA speaker and [fɔ:m] by an RP speaker (Wells 1982: 125-126).
- 2) The use of the dark [ɫ] wherever the phoneme /l/ occurs is also widespread in American English, i.e. also before vowels where RP has clear [l] (Cruttenden 1994: 84).
- 3) In GA flapping is common; this means that either /t/ or /d/ occurs between a sonorant phoneme and an unstressed vowel. In this case the allophone /ɾ/ is commonly used (e.g. *better*).

6.1.3. Suprasegmentals

Apart from segmental foreign accent, a selected number of suprasegmental features that go beyond the level of sound (such as word stress, intonation, weak forms) also deserve due notice.

Both languages, German and English are said to be stress-timed languages (cf. Pompino-Marschall 1995: 236), which means that there is a general tendency to favour a sequence of accentuated syllables at regular intervals (Kohler 1977: 117). As Scherer & Wollmann (1986) note this means that there are two to four unaccented syllables between two accented ones (Scherer & Wollmann 1986: 53).

Whereas Northern German intonation is similar to English intonation, Southern German intonation tends to have long rising glides in mid-sentence positions. Also, wh-questions are often pronounced by German learners with a rising tone at the end based on their L1 equivalent. Most notably, German has a so-called "Sägeblatt-Intonation", which according to Schuderer (2002: 16), is caused by unaccented syllables which seem to descend too sharply between stressed syllables or at the end of a phrase. This phenomenon is often held responsible for the general perception of German as a harsh sounding language.

An area many German speakers find difficult when learning English is the principle of linking. As Kufner (1971: 134) notes within a tone unit final consonants or vowels need to be linked to the following word or syllable in English. In striking contrast to German this is particularly the case when the following word starts with a vowel. The following example serves to illustrate this observation:

German: Anna aß ein Ei.

English: Anna ate an egg.

Produced by an L1 speaker of German and English respectively, this utterance would be transcribed as follows:

German: [ʔana ʔa:s ʔain ʔai]

English: [ænər_eit_ən_eg]

The difference is obvious and hints at a crucial distinguishing feature of the two languages. In German, the lack of the principle of linking together with Sägeblattintonation can be held responsible for the commonly held belief that the German accent sounds harsh and staccato-like.

In English, structure words (e.g. articles, pronouns, prepositions, auxiliaries, etc.) have two different kinds of realisation, namely a strong form and a weak form (Biersack 2002: 69). The use of the one or the other hinges on the phonetic context, pacing, and style. As Gimson (1994) notes, in spoken English, the weak form is the unmarked form and the strong form is marked (Gimson 1994: 229). In contrast to that, weak forms in German are rare and not even part of the Standard variety (Scherer & Wollmann 1986: 229). This is further enforced through the fact that in general German pronunciation dictionaries do not feature weak forms. Accordingly, German L1 speakers of English tend to give structure words such as *and*, *but*, *than*, or as their strong pronunciation regardless of the context.

6.2. The specifics of Austrian German

Austrian German or Austrian Standard German is the variety of the German language written and spoken in Austria. Owing to a number of socio-cultural, geographical, and historical reasons it has come to be clearly distinguished from the rest of the German speaking area. In fact, Austrian Standard German is a formally recognised national variety of German that deviates sufficiently enough from the standard German spoken in Germany to be considered a variety in its own right, but not enough different to be acknowledged as a separate language (Ammon 1995: 5; Wiesinger 2000: 555-6). In 1951, the establishment of the *Österreichisches Wörterbuch* (Augst 2004: 648), a comprehensive cataloguing of the Austrian variety of German, was a significant step in codifying the national variety and fusing this variety with Austrian identity. Although clearly noticeable features of this variety can be made out on all the various levels of the language, they are most salient in the words which are commonly referred to as 'Austriazismen' (Ebner, 1998). A typical example in this respect would be the Austrian German term *Paradeiser* (for tomato) and *Tomate* in German German.

As far as pronunciation is concerned, the great majority of Austrians strongly believe that an independent standard exists for Austria, and they are also fairly consistent in what this standard variety sounds like (Moosmüller 1991). Tests carried out by Moosmüller (1991) have revealed that the phonology of Standard Austrian German is largely based on the Middle Bavarian varieties and is generally spoken by educated Austrians coming from upper and middle social classes. However, in his account of the features of Austrian English, Wiesinger (2000) points out that a specific feature of Austrian German is dialect colouring which most Austrians would be able to recognize and locate correctly.

This range of variation within the country may also be closely related to the fact that it appears to be difficult to define a Standard variety. As Ehrlich (2009) in her dissertation notes there is still a clear lack of prescriptive norm that has been generally agreed on despite the fact that in 2007 the *Österreichische Aussprachewörterbuch* with its *Österreichische Aussprachedatenbank* marked a decisive but certainly not final step in this direction.

Regarding segmentals, the most interesting and far-reaching difference to be heard in large parts of Southern Germany and Austria is that lenis plosives and

lenis fricatives are not voiced (e.g. in *beben, geben, bringen*). Similarly, fortis plosives in initial position are not aspirated rendering words like *dank* the same as *tank*. The exception in this respect is k/g but only before vowels, which would result in a clear difference between *Garten/Karten* but not in *Greis/Kreis*. Interestingly, in striking contrast to Southern and Central German, /d, t/ in medial position are in fact pronounced differently (e.g. *leiden/leiten*).

In general, in Austrian German vowels are much closer than in Central and Northern Germany. The umlaut <ä> is pronounced /e/ and the pronunciation of the letter <a> misses the dark quality that it has for example in Bavaria. In addition, a number of diphthongs tend to be monophthongized, particularly in the Viennese region, thus turning for example /au/ as in *Haus* into /ɔ:/. As far as vowel length is concerned, Iivonen (1987) investigated the difference in vowel duration between speakers of Austrian (standard) German and speakers of German (more specifically east central) German and discovered that in general, vowel duration was 32% higher for the Austrian speakers as opposed to the German speakers.

On the suprasegmental level, the most striking difference between Austrian German and German German is to be found in word stress and intonation. In Germany, a clear tendency to stress the first syllable of a word prevails, whereas Austrian German prefers the second syllable in words like *Abteil, unmöglich, Tabak* or *Kaffee* (Schmidt 2009).

6.3. Empirical research into the pronunciation of English in Austria

Although there are only a handful of empirical studies into the Austrian accent in English, they do give some indication as to the specifics of this particular domain. In the following, the most significant findings these studies have yielded will be discussed. By far the most influential and far-reaching work entitled "Pronunciation of English in Austria" was carried out by Wieden and Nemser in the early 1990s. On a much smaller scale Grosser's (1997) seminal article "On the acquisition of tonal and accentual features of English by Austrian learners" focussed on the intonational structures and the assignment of sentence accents. Then in 2008 a short BA paper by Hrubes and in 2009 Mende's diploma thesis "The pronunciation

of Austrian students of English at university-level” attempted a descriptive account of adult students’ English. And finally, Tatzl (2012) investigated pronunciation problems in Aeronautical Engineering students’ final presentations.

6.3.1. Wieden & Nemser (1991)

The pioneering work by Wieden and Nemser (1991) is the first database to analyse what mistakes Austrian learners of English make over a certain period of time. They investigated the acquisition of English phonology by 384 Austrian school children in grades 3 - 11 (two classes in four regions at each age) to determine the stages of development and the typical problems of Austrian learners. To gain a comprehensive view of the phonological resources of the learners, they administered four different tests, namely a questionnaire, a perception test, an imitation test and a production test. The sound file recordings were analysed by 4 listeners and yielded a detailed phonetic specification. The pronunciation model underlying their study was RP (Received Pronunciation), other regional varieties or accents were not included.

Segmental features

Overall, Wieden and Nemser claim that the accurate production of English vowels seems to be more challenging for Austrian learners than the production of consonants. In their presentation of the correct scores for vowels, /i:/ with 57% and /i/ with 44.1% respectively head the table, whereas /ʊə/ and /ɜ:/ with 8% and 5.6% are located at the other end. In the higher ranks a large proportion of close vowels as well as diphthongs can be found, while central and open vowels and diphthongs score lowest. This seems to confirm that Austrian vowels in general are closer than English vowels and therefore learners find it more challenging to produce open vowel sounds.

According to the authors, the deviant pronunciation of RP vowels by Austrian learners can be attributed to two main reasons. Firstly, vowel quantity (i.e. vowel length) seems to play a major role as Austrian learners tend to have problems with the shortening and lengthening of vowel sounds, which Wieden & Nemser (1991: 56) have mainly detected in the high categories of the IPA vowel chart, i.e. /i:/, /ɪ/, /u:/ and /ʊ/. Secondly, a number of problems can be attributed to L1 transfer,

as for instance high vowels tend to be raised even further because their position in Austrian German is generally higher than in RP.

To a certain extent, potential problems with the low central vowels /ɜ:/, /ʌ/, /ə/ and /ɑ:/ are also related to the notion of L1 transfer, which can be held responsible for a general tendency towards lowering. A particularly noteworthy case is the long central vowel /ɜ:/ which is not only shortened but also diphthongised producing /øə/. In terms of vowel length, Wieden & Nemser (1991: 57) even discovered a tendency towards merger, a phenomenon which becomes apparent in the observed lengthening of /ə/ and the shortening of /ɜ:/.

Further significant observations regarding vowels as observed by Wieden and Nemser (1991: 56-58) include

- raising of /æ/ (64%)
- shifting of /e/ towards /æ/ (37%)
- lowering of /ɔ:/ (50%) which often goes hand in hand with diphthongization when orthographically followed by r (as in *sports*)
- raising of /ɒ/ (29%)

Regarding consonants, Wieden and Nemser (1991: 54) point out that the percentages of convergence for the consonants /m/, /h/ and /j/ are very high with 99.3%, 98.7% and 98.0% respectively. At the bottom of the league, however, convergence patterns for /ʒ/, /v/, /z/ and /dʒ/ only range from 18.2% to 4.2%, which are attributed to the fact that those sounds are either not part of the Austrian German consonant system, or they are realized differently. As expected, Wieden and Nemser (1991: 63) also discovered a clear tendency for obstruents to abandon the fortis/lenis (unvoiced/voiced) distinction, with fortis sounds being the preferred choice. The difference between /v/ and /w/ is essentially characterized by the polar opposites of opening/closing and rounding/unrounding which both are bound to cause problems. In addition, pronouncing /θ/ and /ð/ correctly also seems to be difficult. In Austrian English the pronunciation of /θ/ seems to be characterised by backing, whereas /ð/ is marked by closing and backing. Therefore, Austrian learners often replace /θ/ and /ð/ by /s/ and /d/ respectively. Overall, these findings confirm the results of the discussion on the differences between German and English phonology in Chapter 6.1.

Learning stages and suprasegmental features

In their study, Wieden and Nemser also looked beyond the level of sounds and investigated the development of prosodic features of young Austrian learners' accent in English. By and large, they found that short rudimentary rhythmic units tend to be frequently interrupted by pauses (Wieden & Nemser 1991: 231).

As far as the learning stages are concerned, the authors identified a developmental sequence consisting of four different stages in the development of L2 phonology, namely "pre-systemic" (learner basically imitates L2 input)", "transfer" (L2 phonological elements are systematically represented in L1 terms), "approximation" (influence of L1 declines, new phonological categories are introduced), and "consolidation". Interestingly, these stages vary for the two different aspects of speech, namely sounds/segments and prosody.

Sounds	presystemic/transfer	approximation	consolidation
Prosody	presystemic	transfer	approximation

Figure 12: Learning stages (Wieden & Nemser 1991: 230)

Accordingly, in the case of sounds, the pre-systemic/transfer stage overlap, followed by later approximation and consolidation, whereas for prosody, transfer follows the sequence pre-systemic, transfer, approximation. (Wieden & Nemser 1991: 230). As can be seen, the prosodic features clearly lag behind and never reach the phase of consolidation.

As far as the early stages of learning English are concerned, the use of word stress tends to be pre-systemic and imitative and largely characterized by memorized stress patterns for individual words (Wieden & Nemser 1991: 233). Also, rhythm and intonation exhibit pre-systemic features. In other words rhythmic units are

void of clear nuclei, contracted or reduced forms, and stress timing (Wieden & Nemser 1991: 233). At intermediate level, word stress appears to be governed partly by stress rules transferred from German and an over-generalisation of target-language rules (as in ['hæʊtel], for example). Furthermore, the number of utterances the informants produced were found to be systematically but not imitatively correct. This systematic acquisition of rhythm and stress typically starts in the intermediate stage of learning giving rise to the development of coherent rhythmic groups which sounds "like typical Austrian English" (Wieden & Nemser 1991: 234). At advanced level, word stress sub-rules appear and a fairly high degree of target-like productions was reported. In terms of rhythm and stress, prominence only occasionally tends to be used as a rhythmic principle and infrequent reductions and contractions may occur. In addition, stress timing emerges as the prosodic domain is generally extended, which can be observed by learners beginning to pay attention to rhythm, stress and intonation in longer utterances.

The data analysed by Wieden and Nemser shows that the young Austrian learners in this large-scale project were more successful and faster in the acquisition of L2 segmentals than suprasegmentals. Clearly, this study suggests that supra-segmental features should not be left aside in ELT in Austria. Rather than focussing on the correct pronunciation of individual vowels and consonants from the early stages of learning on, supra-segmental aspects of the language also deserve due attention. Apparently, both aspects rightly deserve a place in the curriculum and in textbooks and should be addressed in the foreign language classroom in order to enable students to speak intelligibly.

One interesting finding concerned the receptive processing of the diphthong /əʊ/ as in *boat* that improved with increasing exposure time and other phonemes such as the final schwa /ə/ in *folder* and the dark /ɪ/ in *ball* which did not change after eight years of schooling (Wieden & Nemser 1991: 145-155). That is to say, some phonemes develop more easily than others. It will be interesting to see whether the findings of the present project confirm these observations.

Without doubt, the pioneering work carried out by Wieden and Nemser in the early 1990s marks a crucial point of departure for any exploration into the pronunciation of English in Austria. However, more than two decades have passed and a great

number of socio-cultural, political, economic and educational changes have left their imprint on the way English is taught and learnt in the 21st century. In particular, the increasing amount of exposure to English inside the classroom (e.g. in the form of EMI courses) but also outside school (e.g. through the internet) can be expected to affect the language competence of the learners. Taking account of these far-reaching developments, this thesis makes a significant step towards fleshing out the present-day features of the Austrian accent in English.

6.3.2. Grosser (1993)

In his longitudinal study on the acquisition of intonation and sentence stress by young Austrian learners of English, Grosser (1993) looked at 5 female and 3 male students aged 10 to 12 over their first two years of learning. His description of accentual patterns is based on the reading of a short text, telling a story, and free conversation.

In his article on aspects of intonational L2 acquisition of Austrian learners (ALs), Grosser (1993: 81-92) classifies four categories in which his informants make mistakes with regard to the use of stress patterns:

- a) **cumulative accentuation:** (i.e. more words or syllables are given prominence without the intention of giving special emphasis). This essentially means that the learner does not distinguish between known and unknown information and does not know how to reduce vowels in unaccented words to produce weak forms. In Grosser's data, for example he found that in many cases the young learners stressed every single word (e.g. WHAT'S YOUR NAME?).
- b) **alternating accentuation:** (i.e. an over-use of tonal accents characterized by an alternating principle). This means that both lexical content words as well as grammatical items or structure words are tonally accented (Grosser 1993: 84) suggesting that the learner cannot distinguish *content* and *structure* words. Although there seems to be a general awareness that stress can be employed as a cohesive device, it is mainly used in a rhythmic rather than semantic way (e.g. The LIon TOLD him).

- c) **backshifting of accentuation:** (i.e. a tendency to shift accentuation towards the end of an utterance). In an attempt to explain this phenomenon, Grosser argues that these learner utterances call for a contrastive interpretation, which is not appropriate in the given context. Bearing in mind that for both English as well as German, the tonal accentuation on the final position is 'unmarked', this failure to move the tonal accent from the final position to an item on the left may be attributed to what Grosser calls a "dominance of over-productivity of the final accentuation or end-focus rule" (Grosser 1993: 85).
- d) **fronting of accentuation:** (i.e. the opposite of backshifting, causing a word at the beginning of an utterance to be stressed in order to give emphasis). For Grosser this signals *marked focus* on the word whereas the context would have called for an accent further to the right.

To sum up, Grosser's findings suggest that the young learners in his sample clearly struggle with the basic concept of stress as a means to accentuate important information in an utterance. They use accentuation ambiguously and inappropriately, resulting in a general overuse of stress placement (which Grosser claims to be typical of the early stages of learning), the use of stress with the mere intention to create rhythm rather than meaning, and the general misplacement of stress (too far front or too far back) which are said to frequently occur in later stages of learning. What is of importance for the present project is the observation that Austrian learners of English tend to cumulate accentuation by stressing words that need not be stressed.

6.3.3. Hrubes (2008)

In his BA thesis on typical problems of German speakers of English, Hrubes (2008) analysed the pronunciation of 6 adult Austrian learners of English whose language competence was supposed to correspond to B2 in the CEFR. He analysed the reading of a text and the description of a picture and found that the three most outstanding pronunciation problems of his speakers were threefold:

- *Auslautverhärtung* caused lenis consonants to be devoiced
- the lenis dental fricative /ð/ was frequently mispronounced as/d/
- /æ/ was pronounced /e/ in his sample

6.3.4. Mende (2009)

In her descriptive analysis, Mende (2009) attempted to shed light on the pronunciation of Austrian students of English at the Karl-Franzens University in Graz. The aim of her MA paper was to identify pronunciation errors that these advanced learners make at the segmental level. In addition, she looked at the consistency of those students who have chosen a particular target variety such as British English or American English. Interviews with ten Austrian students were recorded, transcribed and subsequently analysed. Regarding consonants, she found that devoicing was a major challenge for her informants:

- /dʒ/: devoiced by 99 %
- /z/: devoiced by 87 %
- /ʒ/: devoiced by 74 %
- /v/ devoiced in word-final position by 92%
- /ð/ turned into a plosive (51%) which was particularly true in the case of structure words, such as *the, that, these* and so on.
- /w/ substituted by /v/
- clear [l] instead of dark [ɫ]

Interestingly, she also notes a highly inconsistent use of the postvocalic /ɹ/ no matter whether the speakers claimed GA or BE as their model.

For vowels, she pointed out the following deviant pronunciations:

- /æ/ was substituted for /a/ or /e/
- diphthongs were monophthongized, especially /əʊ/
- /ə/ was substituted by a full vowel (mostly in content words)

As far as the choice of model (GA or RP) is concerned, she observed that the speakers of RP hardly ever used GA sounds, the speakers of GA, however,

frequently resorted to the articulation of RP sounds. Additionally, Mende observed that in those speakers who do not claim to pursue a particular target variety a tendency to use RP sounds more than GA sounds could be detected.

6.3.5. *Tatzl (2011)*

In a recent study on students' pronunciation at a technical University of Applied Sciences in Graz, Tatzl (2011) looked into the main pronunciation problems learners encountered in their final presentations. The following table shows his findings:

Table 2. Frequencies of problematic phonemes in final ESP presentations			
Vowels & diphthongs	Frequencies	Consonants	Frequencies
/ə/	8	/s/	5
/ɪ/	5	/dʒ/	3
/eɪ/	5	/ə/	3
/æ/	4	/θ/	2
/aɪ/	4	/ŋg/	1
/əʊ/	3	/j/	1
/oʊ/	3	/l/	1
/i:/	2	/k/	1
/ɒ/	2	/v/	1
/ɑ:/	2		
/juə/	1		
/aʊ/	1		
/ʌ/	1		
/u:/	1		
/ɜ:/	1		
/ɔ:/	1		
/ɒʊ/	1		

Figure 13: Problematic phonemes for Austrian learners (Tatzl 2011)

This table again supports the general view that vowels and diphthongs more than consonants seem to cause problems. On the top of this list there is the schwa. As for consonants, the greatest difficulties were recorded with /s/, /dʒ/, /l/. The author claims that the mispronunciation of /s/ in his sample might be attributed to the fact that in the words they recorded (i.e. process, certification), these sounds would be pronounced /ts/ in German. Interestingly, lenis /z/ is not named as troublesome, neither is /ð/.

Tatzl concludes that he finds it surprising that the learners mainly struggled with the pronunciation of fairly widespread academic and semi-technical terms rather than heavy-duty technical terminology.

6.4 Conclusion

The following two figures provide an overview of the most common problems of Austrian learners (AL) of English based on the literature discussed in this chapter. The items provided here are taken from the text "The North Wind and the Sun" that the participants in the present project were asked to read. For each phoneme (for segmentals) or category (for suprasegmentals) one representative item was chosen. The only exception in this respect is the phoneme /ʒ/ which only occurs in combination in the affricate /dʒ/ in this text. For this reason, the item *vision* as a typical example was added in brackets. Figure 14 covers the segmental features and Figure 15 shows the supra-segmental aspects of the pronunciation of English that are bound to be difficult for Austrian learners.

Category	Phoneme	Item	Explanation
Vowels & diphthongs	æ	traveller	- Does not exist in German - Is often confused with /e/ and vice versa.
	ɜ:	first	- Long central vowel does not exist in German - Often diphthongized and substituted with /əə/
	ə	traveller	- Fewer weak vowels in German - Often full vowel is pronounced
	ɔ:	more	- Less lip rounding in German - Often too short - Often diphthongized /oə/
	əʊ	closely	- Does not exist in Standard German - Failure to produce second vowel resulting in o: - In GA: /ou/
	eɪ	came	Failure to produce second vowel resulting in e:
Consonants	w	wind	- Letter <w> exists in German, but is pronounced differently - Insufficient lip rounding of AL results in /v/
	v	gave up	- Often confused with /w/ - Lack of vibration
	ð	they	- Does not exist in German - Substituted with /d/
	θ	North	- Does not exist in German - Substituted with /f/ or /s/
	z	as hard as	These lenis sounds do not exist in Austrian German
	dʒ	obliged	Preference of ALs for fortis sound
	ʒ	(vision)	
	p	wrapped	Frequent lack of differentiation between p/b, t/d, k/g in Austrian German
	t	take	/p, t, k/ need to be fully aspirated when at the beginning of a stressed syllable
	k	coat	
	r	hard	- In British English r after a vowel is not pronounced (except for linking) - In American English /r/ is a rhotic consonant sound
	ɫ	fold	- Only clear l exists in Standard German - AL tend to prefer clear l

Figure 14: Segmental features likely to cause problems for ALs of English

Category	Item	Explanation
Word stress and vowel reduction	trav <u>eller</u>	- In English the vowel in unstressed syllables is often reduced to /ə/ (schwa sound) - In German this is not always the case
Sentence stress	And so the North <u>Wind</u> was <u>obliged</u> to <u>confess</u> that the <u>Sun</u> was the <u>stronger</u> of the two.	In English only 'content words' (nouns, verbs, adjectives) are normally stressed; structure words tend to be unstressed and reduced to a 'weak form' (see below): The result is a fairly regular rhythm.
Weak forms	<u>as</u> hard <u>as</u>	In English 'structure words' (prepositions, conjunctions, pronouns, etc.) are normally not stressed and therefore reduced to 'weak forms'
Linking	when_a traveller came_along	No principle of linking in German resulting in ALs pronouncing every word individually

Figure 15: Suprasegmental features that are likely to cause problems for ALs of English

PART II:

7. The Study: Design, Methodology and Organization

While the preceding chapters sought to contextualize the present study within the fields of English-medium instruction and L2 phonology, this chapter provides a detailed description of the empirical part of the case study. It begins by outlining the purpose and thereby addresses three specifications which are crucial in conceiving the wider implications of the research focus in the given setting. Then, the research questions are outlined and the methodology presented. This includes a detailed account of the setting, the participants and the elicitation methods. Finally, the three main project phases are described to provide a thorough overview of the implementation of this longitudinal project.

7.1. Purpose of the study

The purpose of the present study is to describe and analyse a specific EMI setting at an Austrian university of applied sciences with regard to the development of the students' pronunciation skills. This chapter sets out to delineate the aims and the scope of this particular field of investigation.

Broadly speaking, the study is situated in the context of foreign language acquisition and aims to contribute to the international literature and theory building concerning the effects of English-medium teaching on the learners' language competence. It will be interesting to see how the findings of linguistic research on language learning in an EMI context tie in with the data obtained in the present study. The interpretation of the final results is meant to contribute to and extend the scientific debate of how languages are learned. As has been discussed at length in Chapter 3.3.1., so far little empirical research in the CLIL domain has touched upon the aspect of pronunciation learning and none to foreign accent. Those researchers who have looked into pronunciation, seem to have found little to no effect in this regard.

More specifically, this study is meant to promote further investigations into the development of foreign accented speech in adult learners. It is hoped that approaching this issue from a longitudinal perspective can expand the discussion

of whether or to what extent the critical period hypothesis may hold true for adult learners' foreign accent. The review of the CPH in Chapter 4.2.1. has revealed that a number of authors (e.g. Long 1990) have suggested that there are in fact several critical periods for the various linguistic abilities. Accordingly, the first ability that appears to be lost would be the one required to develop a native-like pronunciation of an L2. However, so far no study has succeeded in providing convincing evidence for the claim that L2 speech will automatically be free of any traces of the learner's L1 if learned before the end of the critical period and that it will definitely be foreign-accented if learned after puberty. In tertiary education, the CPH has far-reaching implications impinging on the linguistic gains to be obtained not only in the foreign language classroom but also during exchange semesters or internships abroad (see Chapter 5.7.).

For the present study, this means that if the Critical Period Hypothesis indeed holds water, it does not matter what accent the lecturer speaks or to how much English the learners are exposed (both in and outside school) as the window for acquisition for tertiary level students has already been closed and they are not likely to benefit in this respect. The methodology adopted in this project seems ideal to bolster our understanding of age effects in second language learning by providing an insight into the pronunciation learning process of adult learners over a period of almost three years.

From an applied linguistic point of view, it is hoped that the research findings will sensitize designers of EMI programs to the impact of the language competence of their teaching staff on the students' language skills within the field of foreign language acquisition. According to the Eurydice country report (European Ministers 2015) on secondary education in Austria, school heads themselves can decide if a teacher can teach his/her subject in a foreign language. The same is also true for most private tertiary educational institutions, such as the UAS, where staff selection is often based on grounds other than language competence. In fact, most EMI teachers at university level are non-native speakers of the target language and do not have a professional background in language pedagogy either (cf. Hellekjaer & Westergaard 2003: 73; Tatzl 2011: 256). As Wilkinson and Walsh note "it is understandable that content teachers are rather surprised when presented with the theory and methodology behind teaching a course in English" (Wilkinson & Walsh 2015: 11). For the university management, this may also play

a role when addressing quality assurance questions. In their study on students' attitudes to lecturers' English at the University of Copenhagen Jensen et al. (2011) for example, found that the students' perception of the teacher's general lecturing competence was greatly influenced by their perception of his/her English language skills and vice versa. This means that those lecturers whose English language skills are perceived as problematic risk also being downgraded in terms of their general lecturing competence. Hence, it may be difficult to determine whether problems reported by the students can be attributed to the lecturer's language competence or his/her general lecturing competence.

Before turning to the research questions and the research design and methodology, the three specifications relevant for the present study will be outlined, namely the type of educational institution (i.e. the university of applied sciences), the concept of the L1 teacher and finally the Austrian accent in English.

7.1.1. *Specification 1: Universities of Applied Sciences*

The first specification refers to the type of tertiary education focussed on in this project, which is, as already indicated above, a university of applied sciences.

In Austria, the tertiary sector essentially comprises two main types of higher education institutions: universities and universities of applied sciences (AUS). The term "Fachhochschule" or FH (which was later translated as university of applied sciences) was originally coined in Germany as a type of tertiary education specializing in professional fields such as engineering, business or health. In Austria, the first universities of applied sciences' degree programmes started in the winter semester 1994/1995 and since then this sector has been expanding rapidly (www.fachhochschulen.at).

The practice-oriented focus of UAS is often reflected in their curricula, which include obligatory career-based practical trainings or internships. In many cases, the students are also required to undertake projects involving real companies with the idea that the knowledge gained can be beneficial for both the students and the world of business. Additionally, the lecturers usually work full time in the area of their specialisation. For them, teaching tends to be a side job which means that they bring their practical experience directly into the classroom (cf. www.fh-

wien.ac.at). This also means that for many UAS pedagogical training is a desirable yet not mandatory requirement for hiring lecturers.

In stark contrast to regular universities, UAS guarantee that their learners can finish their studies within the minimum period (i.e. Bachelor-degree: six semesters; Master's degree: two, three or four semesters). In order to gain a degree within this carefully planned timeframe, studying at a university of applied sciences requires a tight organizational structure resulting in students having a fixed timetable each semester and groups staying together for the entire duration of their studies. At a UAS not only the course length but also the number of places available is pre-determined. On the one hand this results in university management often taking great pride in providing small groups of learners with an interactive and more individual learning and teaching environment. On the other hand UAS also tend to have fairly rigid admission procedures in order to select the best and most suitable students. These might involve IQ tests, personal interviews, presentations, subject-specific competence tests, the evaluation of social skills or even assessment-centre procedures lasting several days.

To sum up, studying at an Austrian UAS typically involves

- rigid admission procedures
- working in small groups on practice-oriented topics
- more interaction in the classroom
- clear timeframes and structures
- a high percentage of lecturers coming from the private sector
- an obligatory internship
- an optional or obligatory semester abroad
- completing the study programme within the minimum study period

It has to be noted here that due to the fact that universities of applied sciences are organized in this school-like manner with fixed groups, it is also easier for the researcher to keep track of the students' progress than at an Austrian state university where students have considerably more freedom in choosing what courses to take and where drop-out rates are generally higher.

7.1.2. *Specification 2: L1 teachers of English*

The second specification relates to the fact that in this study the majority of the lecturers teaching in English are native speakers of the language, which has to be seen as a striking contrast to most European EMI programs that are taught predominately by L2 speakers of English (e.g. Hellekjaer & Westergaard 2003: 73).

With the rise of EMI programs across Europe (as discussed in Chapter 2.2.) came the need of many programme designers to recruit suitable teachers who are ideally proficient in both the content and the language. The majority of EMI teachers seem to be discipline area specialists, yet non-native speakers of English (e.g. Dalton-Puffer 2008; Smit & Dafouz 2012). It comes as little surprise that many EMI lecturers appear to be selected on the basis of their theoretical or practical knowledge of the content rather than their English language competence in general or their accent in particular.

The very sensitive issue of the lecturer's language proficiency has recently attracted the attention of a number of applied linguists and EMI program designers alike. Surveys conducted in countries like Sweden (Bolton & Kuteeva 2012), Norway and Germany (Hellekjær 2010) or Austria (Tatzl 2011) have brought to the fore a growing concern about the lack of sufficient English language competence of some lecturers. In the same vein, various language-related problems were reported by a group of non-native English lecturers in Klaassen and Graaff's (2001) study which mainly addresses problems related to oral language production, including pronunciation, accent, fluency and intonation. Similarly, Ball and Lindsay (2013) found that EMI lecturers encountered major problems in pronunciation in the course of teaching content classes.

Very recently, Valcke and Pavon (2015), have pointed out that while a number of Spanish university teachers can follow lectures at international conferences and both read and write academic papers, they still find it challenging to teach in English (Valcke & Pavon 2015: 324). In their study, which was carried out collaboratively at the universities of Cordoba and Brussels, they investigated the relationship between teacher pronunciation and student comprehension. Their results show that providing pronunciation training to non-native EMI teachers can

significantly improve comprehensibility and is also highly appreciated by the students.

As a consequence of this growing concern among all the stakeholders, universities are now re-considering language policies for quality assurance. In a number of European countries, universities have started to develop language certification schemes and assessment tools for their EMI teaching staff. Accordingly, countries like Spain (Ball & Lindsay 2013), the Netherlands (Klaassen & Bos 2010) or Denmark (Kling & Staehr 2011; Dimova & Kling 2015) have pioneered in introducing language policies including target levels (Klaassen & Bos 2010) or installing courses to support the teaching staff (Valcke & Pavon 2015). However, as Dimova and Kling (2015) note this assessment process itself does not necessarily influence lecturers' motivation to improve their English skills. Despite the fact that they receive feedback on their strengths and weaknesses, they rarely seem to take measures to enhance their English language competence (Dimova & Kling 2015: 71).

Interestingly, Dimova and Kling (2015) also observe that the lecturers with strong accents were viewed as less competent by the students (Dimova & Kling 2015: 71). This notion of credibility, or image, is consistent with a general finding in the literature on the social psychology of language. Studies have demonstrated that listeners tend to judge speakers negatively based merely on variation in accent (e.g. McKenzie 2008). Similarly, the same mechanisms can be expected to exert an influence on how teachers are perceived in the classroom, not only linguistically but also academically and pedagogically.

In the present study the majority of the EMI teachers are L1 speakers of English. Obviously, language learning is a creative cognitive as well as social process that does not only depend on the teacher, much less on the teacher's accent. As discussed in Chapter 5, contextually significant variables have to be considered, too. It goes without saying that native speakers are not automatically assumed to be better teachers. Neither can it be taken for granted that an L1 accent is easier to understand for the learners than a foreign accent they are perhaps accustomed to. In other words, L1 pronunciation and grammar, two value-ridden concepts that are highly disputed, do not automatically make a successful English language teacher. I would also like to point out here that this study does not investigate any other aspects of the teachers' L1 pronunciation such as intelligibility,

comprehensibility, or even prestige. Looking into these areas would certainly be worthwhile but would go beyond the scope of this study.

It also needs to be mentioned that in this study the pronunciation skills of the teaching staff are neither tested nor evaluated. The mere fact that these teachers perceive themselves as L1 speakers of English is taken as sufficient proof of their English language proficiency and the absence of foreign accent.

7.1.3. *Specification 3: The Austrian accent in English*

The third specification of the study is related to the development of the Austrian learners' foreign accent. The issue of foreign accent as such, one of the most salient traces of foreign language acquisition, has been highly debated in the literature since the advent of the "Audio-lingual Method", which set native speaker fluency as a goal for language learners. As Munro et. al. (2006) note there is now a growing awareness among L2 researchers, teachers, and teacher trainers of the crucial role of pronunciation in communication (Munro et al. 2006).

The decision to focus on foreign accent in general and the Austrian accent in particular, has largely been motivated by the insights I have gained in teaching speaking skills to Austrian students at a number of different tertiary-level institutions for more than a decade. Through this experience, the investigation and implementation of effective learning methods to enhance pronunciation skills has become one of my major concerns.

At the University of Vienna, where I teach practical phonetics courses, all students majoring in English and American studies have to take compulsory classes to improve their pronunciation. It is believed that pronunciation needs to be an inherent part of language teaching at tertiary level as good pronunciation skills are an indispensable qualification for future language experts (Dalton et al. 1997: 115) and of particular importance for future language teachers. One part of this pronunciation module within their study programme is a class called "Practical Phonetics and Oral Communication Skills 1" which elaborates the main aspects of English pronunciation and reinforces the students' theoretical and practical knowledge in phonetics. For this course, the students either choose American or British English as a model depending on what they can identify with most. The final

examination is oral and consists of the reading of a text, a short presentation on a topic of their choice and a casual conversation between examiners and students. At this oral exam, two examiners are present and both need to agree on the final grade.

To me one of the specifically interesting aspects of teaching this class is related to the questions: Who improves to what extent and why? Why would a student who has lived in London for a year or even longer retain such an undeniable and clearly noticeable Austrian accent? And why would a student who has never set foot in an English-speaking country be easily mistaken for a native speaker? As a teacher, of course, it is crucial to know how to foster the learning process. In other words, a pronunciation teacher needs to know what to focus on when teaching segmental and supra-segmental aspects of a particular language variety. Which features of English pose special difficulties and when does learning take place? How do the characteristics of Austrian English vary in the course of acquisition?

It is hoped that this longitudinal study can shed light on the issue of the development of the Austrian accent in English by answering some of the questions above. As such the study might also pave the way for further discussions into the role of pronunciation in teacher training programmes.

7.2. Research questions

To the best of my knowledge the present study is the first to exclusively focus on the development of foreign-accented speech of adult learners in a tertiary English-medium setting. The overarching goal resulting from this standpoint was to help stake out a field in which the intricate nature of advanced language learning specifics in the given circumstances could be described. In an attempt to make headway in this direction, specific research questions were formulated and cornerstones of the research project laid. The research questions as detailed in Chapter 1.2. need to be seen as the foundations on which this longitudinal project rests. Accordingly, the following main research question took centre stage: How and to what extent does English-medium instruction affect the pronunciation of the Austrian business students' pronunciation? Other parameters that were investigated were affective, educational and other individual factors like gender or musicality. In order to be able to relate those distinct features to the learners'

pronunciation development, it was of paramount importance to compare the performance of a group from the bilingual study programme with a group of students from the German programme. In addition, it seemed sensible to scrutinize the data collected here more closely in order to identify those features of Austrian-accented English that appear to be less resistant to change over a longer period of time. As a by-product of this research a list of segmental as well as supra-segmental features of the Austrian accent was devised and then drawn upon for the purpose of closer investigation regarding its relevance and validity in the present context.

7.3. Research Design & Methodology

7.3.1. *Setting*

For the present study, the UAS Vienna was chosen as a research site as it offers unique conditions to study the differences between an EMI and an ESP classroom setting. This is also the place where I worked as a lecturer and research associate at the time of the data collection and thus I had easy access to teachers, students, and administrators.

The UAS Vienna, a private but state-subsidized university, launched its first degree programme in Tourism Management in 1994 and since then has established 7 additional programmes in the field of management and communication. Today 17 bachelor and master degree programmes covering a broad spectrum of specialisations from Real Estate Management to Entrepreneurship, Corporate Communications and Tourism Management are offered. The student body is approximately 2,400, which corresponds to 6 % of all UAS students in Austria (cf. www.fh-wien.ac.at).

Regarding student numbers, the largest of the degree programmes on offer is the BA programme in Entrepreneurship which provides a three-year general education in business administration. The topics covered in the courses range from management and law to controlling, marketing and social skills. As far as the students' foreign language competence is concerned, applicants have to prove - amongst other qualifications - a level of English proficiency comparable to CEFR-

B2. In the current curriculum English is the only foreign language taught - other foreign languages are optional and are subject to an additional fee. In the third semester students are given the opportunity to do a voluntary semester abroad at one of the partner universities all over the world. Between the fourth and the sixth (and last) semester, students are required to do a 12-week internship in a company of their choice, either in Austria or abroad.

What clearly sets this programme apart from others, however, is the fact that one group comprising 36 students each academic year is run as a "bilingual programme". This means that in one of five parallel groups up to 50% of the content courses are held in English, the other four groups have content courses in German only. What is more, the majority of the lecturers teaching in English are native speakers of the language who either fly in from one of the partner universities or are expatriates living and working in Vienna. This has to be seen in striking contrast to the majority of EMI courses taught at European HE institutions where the teachers of the content courses are predominantly L2 speakers of the language (cf. Hellekjaer & Westergaard 2003: 73; Tatzl 2011: 256).

In the EMI courses (e.g. marketing, personnel management, controlling), the focus is above all on content knowledge with English taking on a vehicular role, the medium through which business concepts are conveyed and discussed. In the curriculum and in the course descriptions explicit language learning goals are not formulated and language skills are neither discussed in the classroom nor assessed. It is clearly taken for granted that the students' foreign language skills are enhanced incidentally which the institution considers to be sufficient at this stage. All applicants interested in this bilingual programme go through the same entrance procedure as the other applicants, with one exception: the application interview with one of the members of staff is held in English and points are awarded for spoken language competence on a scale from 1 (good) to 3 (insufficient).

7.3.2. Participants

This study investigates the performance of two parallel groups, on the one hand the EMI group (focus group) from the bilingual programme and on the other hand the ESP group (control group) from the regular (German) programme. Both groups comprise male and female students who are all L1 speakers of (Austrian) German.

At the time of data collection 1 (T1), their age ranged from 19-27 years (M= 23) in the focus group, and 18-25 (M= 23) in the control group. The majority of them started to learn English as a foreign language (EFL) in primary school around the same age (8 years), thus they all share a similar age of onset of L2 learning (AOL).

The following figure provides a detailed overview of the two participating groups:

FOCUS GROUP	CONTROL GROUP
N=32	N=36
11 male/21 female	19 male/17 female
Age range: 19-27 (M=23)	Age range: 18-25 (M=22)
L1: (Austrian) German	
English language proficiency level required by UAS: B2	
mean AOL: 8 years (primary school)	

Figure 16: Participating groups upon entry at the UAS (at T1)

As can be seen very clearly, both groups have a fairly similar profile in terms of size, gender distribution, age range, L1, L2 proficiency, and AOL. The most crucial difference that can be made out between the focus group and the control group is the amount of exposure to the English language in the classroom:

FOCUS GROUP	CONTROL GROUP
1 ESP course/semester (=2 weekly semester hours)	
+ up to 50 % of the content courses taught in English by native speakers (=up to 10 weekly semester hours)	

Figure 17: Differences in curriculum design

Whereas both groups have one ESP course per semester with roughly the same contents, the focus group also has up to 50% of the content courses taught in English. Especially in the first two semesters, great care is taken by the

organization to ensure that in addition to the ESP class, 10 out of a total of 20 weekly semester hours are held in English. This adds up to a weekly exposure of approximately 12 hours. In the last year of the programme, however, a general decline in the number of EMI courses could be observed. This was also a point that the respondents in the present study complained about in the questionnaires (see Chapter 8).

7.3.3. Methodology

This study targets the research questions outlined above through a case study approach, using mixed methods that draw on both quantitative and qualitative techniques.

In the last thirty years, **case studies** have become a widely-used research method in applied linguistics, having influenced our collective thinking in fundamental ways (Dörnyei 2007: 154). As van Lier (2005) notes, they have “helped shape the entire field in quite substantial ways” (van Lier 2005: 198). A frequently given reason why case studies are popular in SLA is that the focus is on the means to reach language proficiency rather than ultimate attainment, or, what Saldana (2003: 7) terms “the from-through” instead of the “from-to” point of view. In other words it is crucial to look at the full sweep of the journey across time and not just one snapshot at a certain stage along the way. Still, most case studies so far have focused on the initial stage of the language learning process and less work has investigated the equally important process of advanced language learning (Harklau 2008). In this field, longitudinal case studies are particularly suited owing to the nature of advanced language learning as a protracted process.

As an inherently qualitative approach, case studies seek to understand a particular situation in its uniqueness as part of a larger context and to provide in-depth information of a certain phenomenon by drawing on multiple sources of information (Merriam 2002). Along the same lines, Eisenhardt (2002) sees a case study as “a research strategy which focuses on understanding the dynamics present within single settings” (Eisenhardt 2002: 8). Looking at definitions of case study in the literature, it appears that four essential criteria are frequently mentioned: firstly the bounded, single entity of the case, secondly the role of context, thirdly the use of multiple sources of information, and finally the in-depth

analysis of the data obtained (Yin 2014). In this case, a longitudinal study bounded by the beginning and end of the programme (in its single-entity) seeks to explain the process of pronunciation learning in an EMI setting (the larger context) by relying on case-specific data (obtained through sound file recordings and questionnaires) that is analysed in great detail.

In terms of data collection and analysis, a **mixed-methods approach** employing both quantitative and qualitative methods seemed most appropriate for the case study, as it allows for a multiple perspective of the situation by going beyond the limitations of a single approach (Dörnyei 2007) and providing stronger and more valid conclusions than data captured by a single method.

The idea of mixing quantitative and qualitative methods has gained momentum in the field of applied linguistics in the past decade after a fairly long period which is frequently referred to as the 'paradigm war' between those two approaches (Dörnyei 2009: 28-29; 44). At present, research tends to consider both methods as "complementary rather than fundamentally incompatible" (Duff 2002: 14). It has even been claimed that certain questions in applied linguistics need to be approached from more than one angle involving "a variety of methods for data collection and analysis" (Duff 2002: 22). Without doubt, a multi-method and multi-perspective study design may produce results that are both more tangible and more meaningful. Instead, it is essential to "be clear on what the purpose of the study is and to match that purpose with the attributes most likely to accomplish it" (Larson-Freeman & Long 1991:14).

From a methodological perspective, the mixed methods approach in the present project follows an **embedded case study design** including both qualitative and quantitative data. While generally approaching this issue from a qualitative (case study) point of view, both quantitative measures (questionnaires) to identify factors contributing to pronunciation learning and qualitative measures (close analysis of selected informants and sound files) are included providing a broad view of the phenomenon to be analysed.

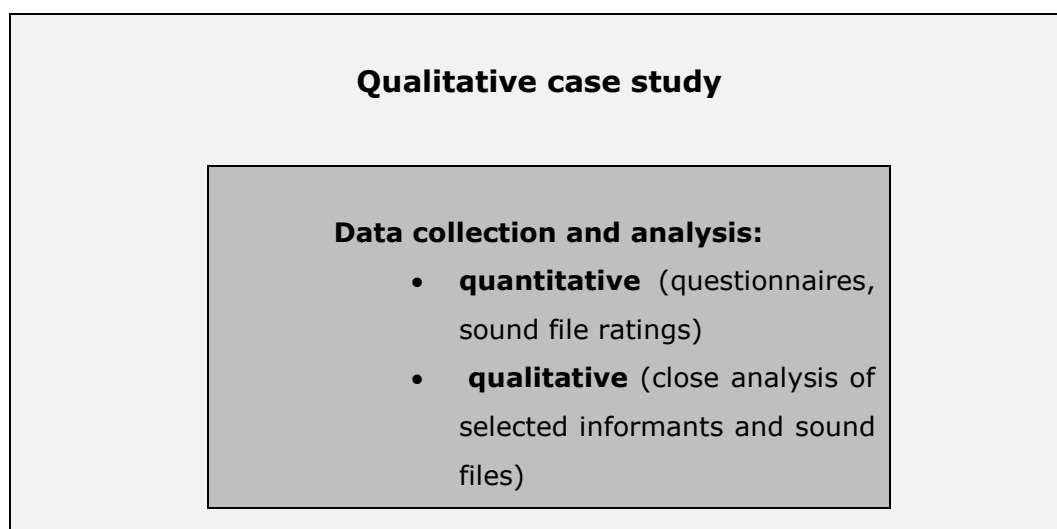


Figure 18: Embedded design

This study incorporates both cross-sectional and longitudinal data collection. Whereas cross-sectional investigations produce a snapshot of a population at a particular point in time, longitudinal studies extend over a certain period of time. More precisely, longitudinal research is defined in terms of both the data and the passing of time. Menard (2002: 2) maintains that three essential conditions need to be given in longitudinal research: data are collected for two or more distinct periods, subjects or cases analysed are either the same or comparable and the analysis includes a comparison of the data obtained. These are all conditions that the present study certainly fulfils.

The longitudinal focus of this study is largely motivated by the fact that developmental processes can hardly be captured cross-sectionally alone, but benefit from the diachronic perspective offered in longitudinal research. From an SLA perspective, longitudinal studies focus on language development as an intersubjective process that unfolds in particular social contexts. It goes without saying that learning a language in general is a complex process that happens over a certain period of time. Indeed, it can be claimed that fundamental issues in SLA research are closely linked to the notion of "time" and that any claims made about "learning" (or development, progress, improvement, change, etc.) can be most meaningfully observed and interpreted within a longitudinal perspective.

It has been claimed that longitudinal studies can uniquely bolster our knowledge of how languages are actually learned, and therefore practitioners tend to consider longitudinal findings particularly convincing by seeing them as a solid basis on

which to justify recommendations for the classroom (Ortega & Byrns 2008: 3). The case for a longitudinal methodology is sufficiently well established: In simple terms, L2 learning takes a long time, and it is by examining this process through time that complex insights into L2 learning can be attained.

Although Abbuhl and Mackey (2008) consider longitudinal research as one of the most promising research paths for applied linguists to take, it is surprising how few studies in this field are in fact carried out in this particular manner. Without doubt, longitudinal studies have great potential for yielding rich data with great accuracy (Gorard 2001: 86), however, there are also a number of drawbacks to be considered. They are often prone to attrition and they can be time consuming and expensive (Ruspini 2002: 71). Inevitably, in the course of a long-term cohort study, students drop out or simply refuse further cooperation.

In this particular study, a potential risk was not so much of a financial nature but more related to student attrition. In order to obtain data from as many students as possible, care had to be taken to ensure that the students participated voluntarily. As a known member of staff, it was not difficult for me to persuade English language lecturers to set aside half an hour of one of their in-class sessions for my data collection. On the agreed day, the students were collected from their classrooms and accompanied to the sound-proof radio studio where the recording was to take place. This way, it was guaranteed that a maximum number of students participated as the project was part of the English class, the students knew me and the whole procedure only took 60 minutes. Students who missed the class on that day were then contacted by email and given a second appointment. Nevertheless, as the following table shows, at the time of data collection 2 (T2) six and seven students respectively had dropped out.

Table 2: Student attrition

	Focus group ("bilingual programme")	Control group ("German programme")
2011	32	36
2014	25	30

Another potential threat to the validity of a longitudinal study is related to the influence of the setting, namely the test situation. This means that the performance of the participants might be subject to familiarity with the measurement tools or procedures. Indeed, researchers have pointed out that participating in a longitudinal study may influence the outcome due to a heightened awareness of the phenomenon under investigation (Goldstein 1979). In this case, students were informed that they were to take part in a project investigating their English language proficiency but no further details were given. At the time of data collection 2, it turned out that the students had already forgotten about the project and did not remember the 2 tasks they had been asked to perform 3 years previously. To them, it did not seem to make a difference whether the tasks were the same or different or that they knew their pronunciation skills were being studied. In fact, most students remarked that they could neither remember the text nor the picture story.

As the diagram below shows the case study presented here involves two cross-sectional snapshots of the two data sets, each consisting of recordings (R) and questionnaires (Q) collected in 2011 (T1) and then again in 2014 (T2) and also a longitudinal view of the difference between those two.

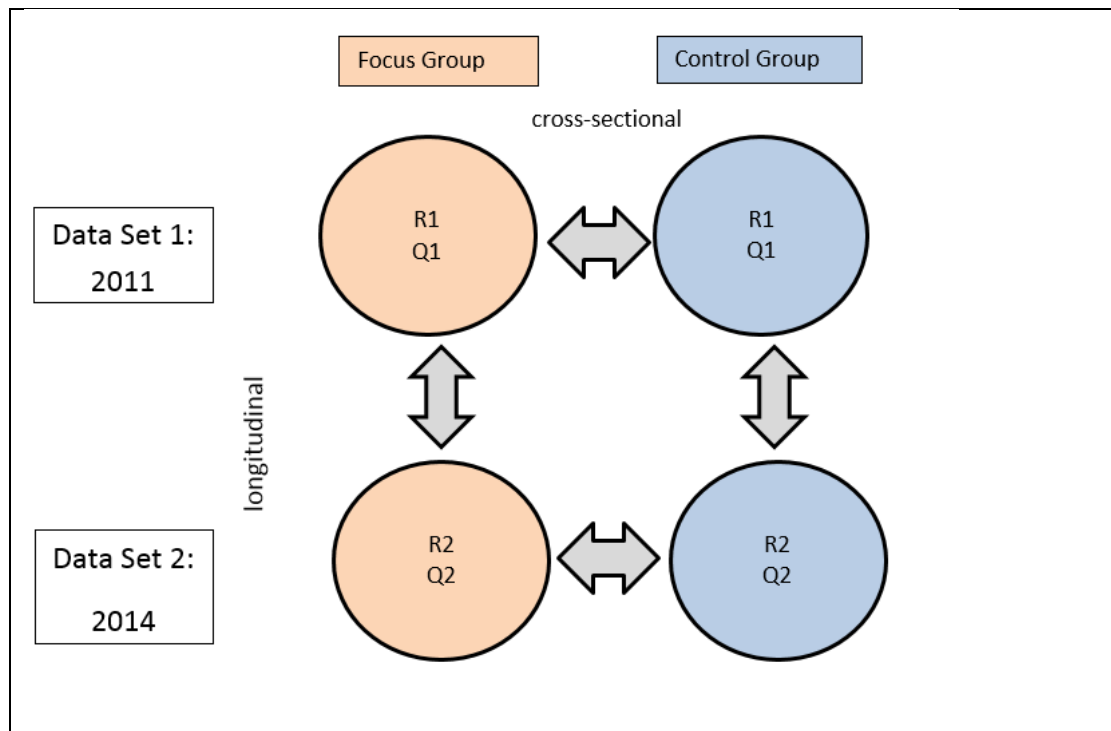


Figure 19: Overview of data sets

A closer look at the different types of longitudinal designs shows that the two main categories are cohort studies, also called “panel studies” or “follow-up” (follow a sample of a population over time) and “trend studies” (follow different samples of the same population). Although some researchers further differentiate between “cohort study” and “panel study”, it appears that both terms are frequently used interchangeably. Dörnyei, for example, notes that in British literature “cohort study” is used to denote the study of the same respondents at different points of time, in the US, this is referred to as “panel study”. (cf. Dörnyei 2009: 212). In this thesis, the term “cohort study” will be used. Accordingly, in a longitudinal cohort study, a specific population is tracked over a specific period of time and within that sample, selective sampling occurs. Cohort studies are particularly appropriate when trying to establish a cause-effect relationship, as this task includes the identification of changes in certain characteristics that result in changes in others. Therefore the appeal of longitudinal analysis is that it enables causal analysis to be undertaken and emergent patterns to be observed over time. This in turn permits individual and group profiles to be examined pointing out similarities and differences in respect of the given variables. In this light this study is by nature a cohort study based on cross-sectional as well as longitudinal data.

One of the most common longitudinal research designs is a pre-post study in which a single baseline status measurement is collected first, then an intervention is carried out, and a follow-up measurement is obtained. In this experimental design the change in the outcome measurement can then be related to the change in the exposure condition. For the present study this means that the students' degree of foreign accent was recorded and rated twice, namely at the beginning (T1) and at the end (T2) of their studies with the degree program as such and the increased exposure to native-speaker English as the intervention in between T1 and T2.

In a nutshell, the longitudinal case study presented here takes an embedded mixed-methods approach in order to explore the development of the UAS students' perceived degree of foreign accent. The two cohorts are tracked over a period of roughly three years with data sets collected in the form of a pre-test at the time of entering this educational institution (T1) and then again as a post-test shortly before graduation (T2).

7.4. Organization and project phases

Basically, the organization of this study can be divided into three main phases: First, in the preparation phase conceptual considerations were made and the research project was designed and planned. Second, the data collection phase includes the administration of the questionnaires and the sound file recording. Third, the evaluation phase comprises the statistical analysis of the findings and the evaluation of the hypotheses. All these phases were accompanied by a thorough literature review and therefore conceptual considerations were frequently updated based on new insights coming from empirical and theoretical investigations in the field.

Figure 20 presents an overview of the three-step project phases:

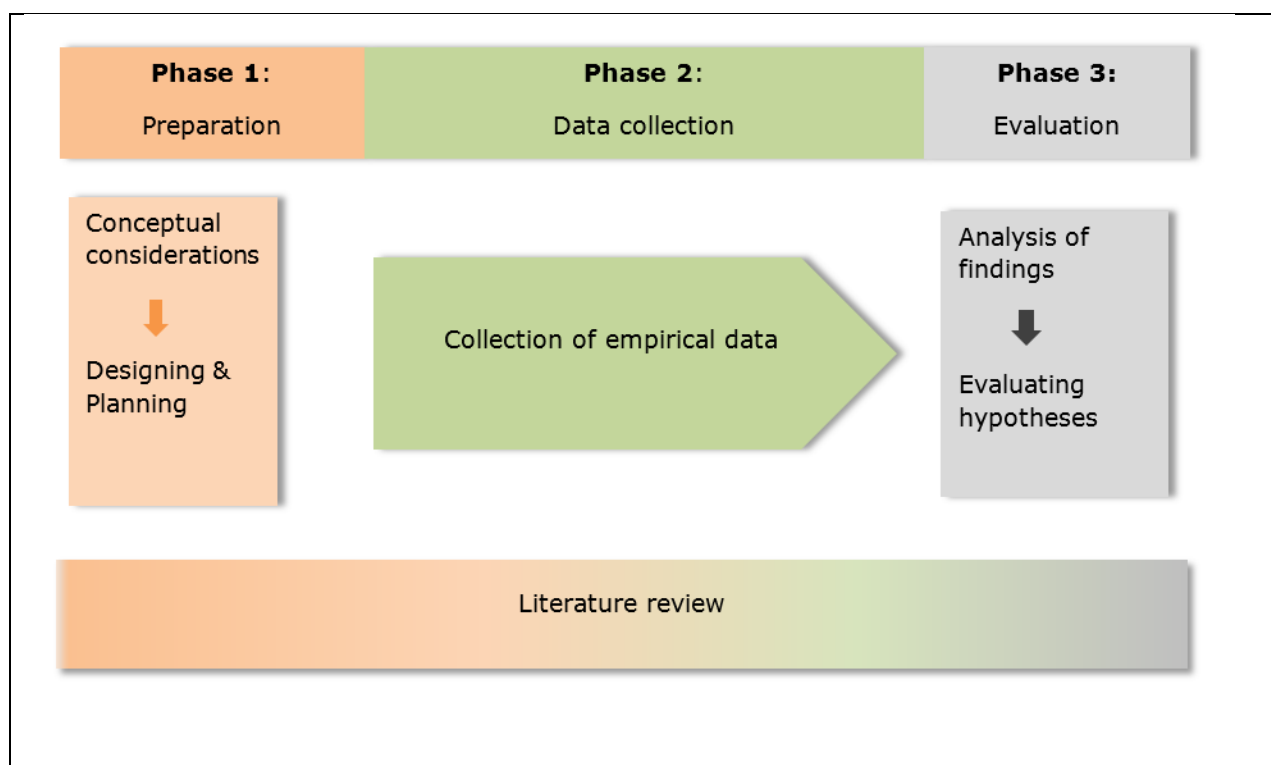


Figure 20: Project phases

Altogether the phases of this longitudinal project covered a time-span of approximately four years, starting with the preparation phase in early spring 2011 to the data collection phase which spanned from October 2011 to April 2014 and ending with the evaluation of the data collected in winter 2015. From the researcher's point of view, it is important to note that both the first and the last phase were inevitably the most intensive as the following detailed description of each phase will elaborate.

7.4.1. Phase 1 - Preparation

By definition, the preparation phase is crucial as it lays the foundation on which the whole project rests. As such, the initial phase of research involves not only the intellectual process of developing a research idea but also finding a realistic and appropriate research design. While, in this case, it turned out to be a fairly easy and straightforward undertaking to narrow down the general research topic 'EMI and pronunciation' in order to formulate specific research questions that the planned study shall seek to answer, it proved to be a great challenge to

operationalize the research purpose and decide on a feasible research design that could be applied in the given context.

In this phase, a number of far-reaching methodological issues had to be addressed. The five most imminent tasks in this respect concerned the following:

- deciding on a time scale and data collection times
- designing questionnaires
- choosing tasks for the recording
- developing a rating tool
- selecting listeners

Any researcher, especially a novice who wishes to conduct a foreign accent rating experiment will have to consider the implications of these decisions as they are critical to the validity, reliability and comparability of such an endeavour. For this reason, it was immensely helpful for me to find another researcher in Vienna who was also working on the question why some language learners are better or more talented when it comes to pronunciation learning than others. Susanne Reiterer, then a guest professor at the University of Vienna, was working on a large-scale project at the University of Tübingen, Germany, investigating the neural correlates of pronunciation talent, i.e. the differences in the brain activity between talented and untalented speakers (cf. Dogil & Reiterer 2009). To cover all possible manifestations of talent and to find correlations between a number of supposedly significant factors and the overall talent score, psychological and behavioural tests and questionnaires were administered as well as tasks assessing phonetic and general linguistic aptitude. After intensive talks and discussions with Susanne Reiterer, I decided to draw on her study and use some of the data collection tools that had already proven to be successful in their project (i.e. the questionnaires, the choice of text types, the online rating tool) as the basis for the development of my own data collection instruments and assessment tools and tailored them to my own needs. By doing so, it is also hoped that the results of the present study complement and add a longitudinal view and a novel perspective to the information gathered by the German researchers.

7.4.1.1. Time scale and data collection times

A major decision that had to be made concerned the length of the project and the times set for the data collection. Although there seems to be no consensus in the literature as to what is commonly considered 'longitudinal' (Saldana, 2003: 3), the most frequently mentioned benchmark for the minimum length seems to be one year (Young, Savola & Phelps 1991). However, as a number of studies into English-medium instruction and pronunciation have revealed, one year does not seem to be sufficient (see Chapter 3.3.2.). For this reason, it was decided to track the students' development over the longest possible period of time, i.e. the beginning of their studies until the end covering 6 semesters. This decision was further prompted by the fact that some students were not available in semester 3 (optional semester abroad) and none of them in semester 5 (mandatory internship).

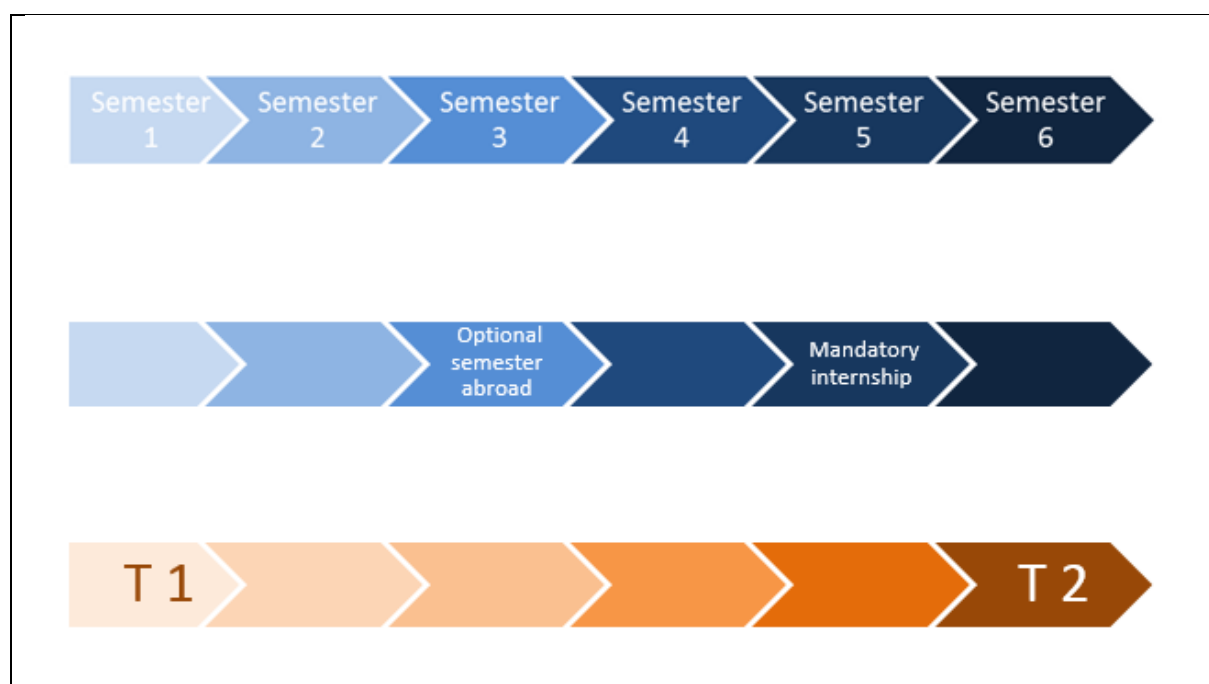


Figure 21: Data collection times T1 and T2

As the figure above shows very clearly, the times set for data collection 1 and 2 cover the longest possible period to track the development of the students' pronunciation skills. Accordingly, T1 was set at the beginning of their studies (in October 2011), when they were about one month into the programme and T2 (in April 2014) in their last semester right before the end of their regular classes. At

the UAS Vienna, these regular classes finish in the middle of May in order to give students time to prepare for their BA exams, which are usually held at the beginning of June.

7.4.1.2. Questionnaire

To obtain biographical data from the participants regarding a number of factors that are commonly linked to the level of pronunciation mastery (see Chapter 5), it was decided to administer a questionnaire to the chosen cohorts. It seemed sensible to design a questionnaire (Q1) and give it to the students at the beginning of their studies and to design another one (Q2) in order to gather information about the time period in between T1 and T2. Thus Q1 captures the time prior to their studies and Q2 focusses on the period between T1 and T2.

As far as the design of the questionnaire is concerned, Q1 is largely based on Gardener's attitude and motivation test battery (Gardener 2003), Dogil and Reiterer's (2009) online questionnaire and the author's own experiences of teaching pronunciation to Austrian students for more than ten years. The language chosen for this questionnaire was German to avoid misunderstandings where finer shades of meaning were at stake. Overall, Q1 (75 questions) covered the following main areas:

- personal data (gender, date of birth, education, language/s spoken at home)
- exposure to English in their free time
- musical talent
- self-perceived L1 and L2 competence
- attitudes and motivation

A number of open-ended questions (e.g. for stays abroad) but mostly closed questions on either a 5 point scale (especially for rating their own language skills) or a 7 point scale (for attitudes and motivation) where the respondents are asked to indicate the extent to which they agree or disagree were included. According to Dörnyei (2009: 111) mixing up the scales can create a sense of variety and prevents the respondents from repeating answers.

For T2 a much shorter questionnaire consisting of only 10 items to elicit crucial data covering the period between T1 and T2 was designed. Therefore questions regarding

- stay abroad (internship, exchange semester, summer holidays in English-speaking countries)
- self-perceived language competence and progress made in English
- satisfaction with the degree programme and suggestions for improvement

were addressed. The last item regarding their opinion of the programme was included to create a sense of responsibility for future generations of UAS students in the respondents, making it clear to them that their answers could make a difference in the running of the programme.

Regarding the administration of the questionnaires, it was decided to do this by hand. As Dörnyei (2009: 113) notes in applied linguistics group administration is the most commonly used method of having surveys completed, because the subjects studied are usually learners within a particular institutional context. In addition, administering the questionnaires as part of a lesson facilitates the collection of a very large number of data within a relatively short period of time.

Once finalised, Q1 and later Q2 were piloted with a small number of students from the same programme but a different year. Their valuable input and feedback served as the basis for a few changes that were made to the first draft.

7.4.1.3. Choice of tasks

Most studies investigating the perceived degree of foreign accent have included two main types of tasks, namely controlled production tasks (e.g. the reading of a text or the repetition of a recorded model) and extemporaneous production tasks (e.g. picture stories, personal narratives, interaction). Whereas the former approach has the advantage that it allows the researcher to elicit pre-determined, clearly specified speech material from the speakers, the language is bound to lack naturalness as it is not formulated by the speaker (cf. Munro in Hansen 2008: 202). Less controlled tasks, such as the narration of a picture story, may compensate for the weaknesses of controlled tasks by producing more natural speech, however, the output may not contain those pre-determined features of

the language the researcher is interested in and thus it will also be difficult to compare two speakers or groups. Owing to the drawbacks of both approaches to how speech can be elicited, it seems sensible to rely on more than one task type in order to be able to draw reliable conclusions about a particular accent. For this reason it was decided to include the reading of a text as well as the narration of a cartoon in the present study.

Again based on the Tübingen project, two different tasks were chosen, namely the reading of the standard IPA text “The North Wind and the Sun”, the classical fable by Aesop, and the narration of a Gary Larson cartoon. As outlined above, the reading task was included as it facilitates a controlled coverage of the phonemic inventory and prevents the use of avoidance strategies for potentially problematic sounds:

The North Wind and the Sun were disputing which was the stronger, when a traveller came along wrapped in a warm cloak. They agreed that the one who first succeeded in making the traveller take his cloak off should be considered stronger than the other. Then the North Wind blew as hard as he could, but the more he blew the more closely did the traveller fold his cloak around him and at last the North Wind gave up the attempt. Then the Sun shined out warmly, and immediately the traveller took off his cloak. And so the North Wind was obliged to confess that the Sun was the stronger of the two.

Figure 22: The North Wind and the Sun

Among others, this text was also used by Gass and Varonis (1984) in their study into the comprehensibility of non-native speech. The reason why this text enjoys such great popularity in the field of pronunciation research goes back to the early 20th century when the International Phonetic Association started to invite linguists to contribute phonetic versions of the text in different languages and dialects. This corpus has proven to be an exceptionally valuable resource for the comparison of the pronunciation of different language varieties and accents. Not only is there a considerable number of descriptions of its rendition in a wide range of languages available, but transcriptions have also been provided for many English accents, ranging from Californian American English (Ladefoged 1999) to Tyneside British

English (Watt & Allen 2003) and RP British English (Roach 2004). In addition, on the CD-ROM in Schneider et al. (2004), more than thirty different varieties of English from around the world including English-based creoles are recorded.

The following phonemic transcription of this text shows, for example, its rendition into RP English:

Phonemic

ðə 'nɔ:θ 'wind ən ðə 'sʌn wə drɪ'spju:tɪŋ 'wɪtʃ wəz ðə 'strɒŋgə, wen ə 'trævlə keɪm ə'loŋ 'ræpt ɪn ə 'wɔ:m 'kləʊk. ðeɪ ə'grɪ:d ðæt ðə 'wʌn hu 'fɜ:st sək'sɪ:dɪd ɪn 'meɪkɪŋ ðə 'trævlə teɪk hɪz 'kləʊk ɒf ʃʊd bi kən'sɪdəd 'strɒŋgə ðən ði 'ʌðə. 'ðen ðə 'nɔ:θ wind 'blu: əz 'hɑ:d əz ɪ 'kʊd, bət ðə 'mɔ: hi 'blu: ðə 'mɔ: 'kləʊsli dɪd ðə 'trævlə 'fəʊld hɪz 'kləʊk ə'raʊnd hɪm, ænd ət 'lɑ:st ðə 'nɔ:θ wind geɪv 'ʌp ði ə'tempt. 'ðen ðə 'sʌn ʃɒn aʊt 'wɔ:mli, ænd ə'mɪ:diətli ðə 'trævlə 'tʊk ɒf ɪz 'kləʊk. ɪ səʊ ðə 'nɔ:θ 'wɪn wəz ə'blaɪdʒd tʊ kən'fes ðæt ðə 'sʌn wəz ðə 'strɒŋgə əv ðə 'tu:.

Figure 23: Phonemic description of the North Wind and the Sun (Roach 2004)

This extensive use of the text together with the detailed descriptions provided by a number of researchers investigating the phenomenon of foreign accent makes it highly appropriate for the present project.

To account for a more natural type of speech, the students were also asked to narrate the following Gary Larson cartoon which was also used in the Tübingen project:

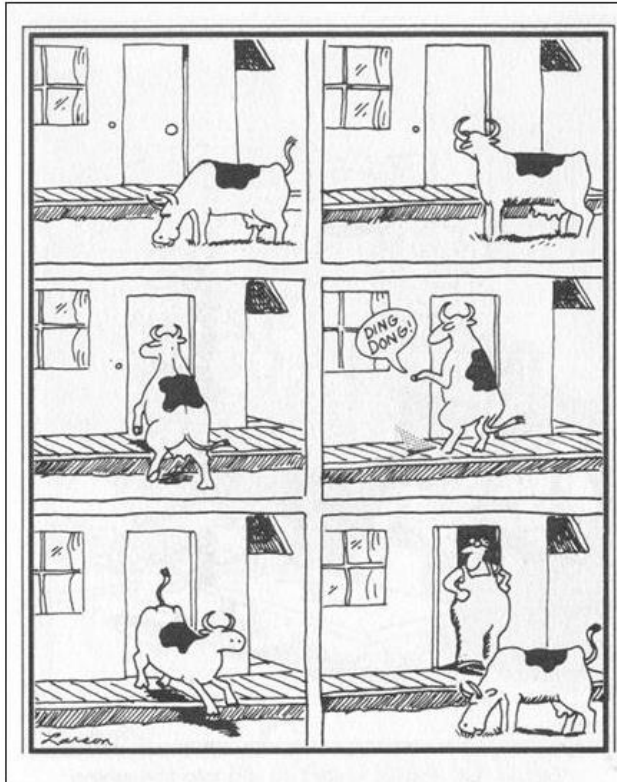


Figure 24: Cartoon to be narrated

This quasi-spontaneous task was included as it primarily promised to reflect best the learners' overall pronunciation abilities and secondly, output can – to a certain extent – be controlled and more effectively compared (Jilka 2009). Notably, words like *cow*, *farmer*, *door*, *bell*, *house* or *grass* are likely to occur. The decision to choose this particular story was also prompted by the fact that it does not require any advanced technical or business terminology. Rather, it relies on the students drawing on their knowledge of very basic vocabulary which means that they can tell the story quickly and without much preparation.

A further - more pragmatic - advantage of those two tasks has to do with the length of the text, which was an important criterion for the recording and the rating process as well. Each task took no longer than one minute to record which was considered advantageous for both the speakers as well as the listeners.

7.4.1.4. The rating tool

Despite the growing body of empirical research into foreign accent, there still is no standard scale for measuring degree of foreign accent (Piske et al. 2001;

Southwood and Flege 1999). Piske et al. (2001) point at this lack and raise the question of whether the various utilised rating scales “ensure equally valid and reliable measures of degree of L2 foreign accent”. Indeed, the objective characteristics of FA remain elusive (see Chapter 4.1.). In this regard, Southwood and Flege (1999) purport that there are no physical units in which an accent can possibly be measured, and that there is therefore a certain danger in a foreign accent experiment of the raters applying a contraction bias, which means that they might overestimate small differences and underestimate large ones (Southwood & Flege 1999: 344).

Although there is great diversity in the type of assessment, most studies on perceived degree of foreign accent have been based on the listeners’ intuition to place speakers on a scale ranging from native speech to strongest foreign accent (Thompson, 1991). Whereas some studies explicitly ask the listeners to rate the degree of foreign accent on a particular scale (e.g. Flege, MacKay & Piske 2002) others label only the endpoints of the scale as “native” and “non-native” (e.g., Moyer 1999), “very good pronunciation” and “very poor pronunciation” (e.g. Yeni-Komshian, Flege & Liu 2000) or more vaguely in relative terms such as “close to native English” and “less close to native English” (e.g. Magen 1998), respectively.

Owing to this lack of a standard measuring tool and scale, I decided to refrain from designing yet another rating tool with another rating scale that would significantly complicate the comparison across empirical findings. Instead, I opted for the replication of a model that had already proven to be effective. Thus the evaluation tool developed by Dogil and Reiterer (2009) served as the basis for the development of a suitable online rating instrument. With the help of a professional software programmer, a few minor changes were made to the model in order to meet the requirements of the present project. In particular, a clearer focus on the rating of foreign-accented speech - rather than intelligibility or fluency - was expressed in the basic instructions provided for the listeners.

The raters needed a username and a password to access the tool, then they were asked to fill in a short form asking them to provide a few personal details such as gender, L1, or experience in teaching pronunciation courses. After a brief demonstration on how to use the tool correctly the self-timed rating process of the sound files started. It should be noted here that all the raters were asked to use earphones for listening as the importance of controlled quiet conditions in the

research-related sense cannot be underestimated (cf. Munro & Derwing 2015). These sound files appeared in random order with all the raters listening to the reading of “The North wind and the sun” first, followed by the cartoon narration.

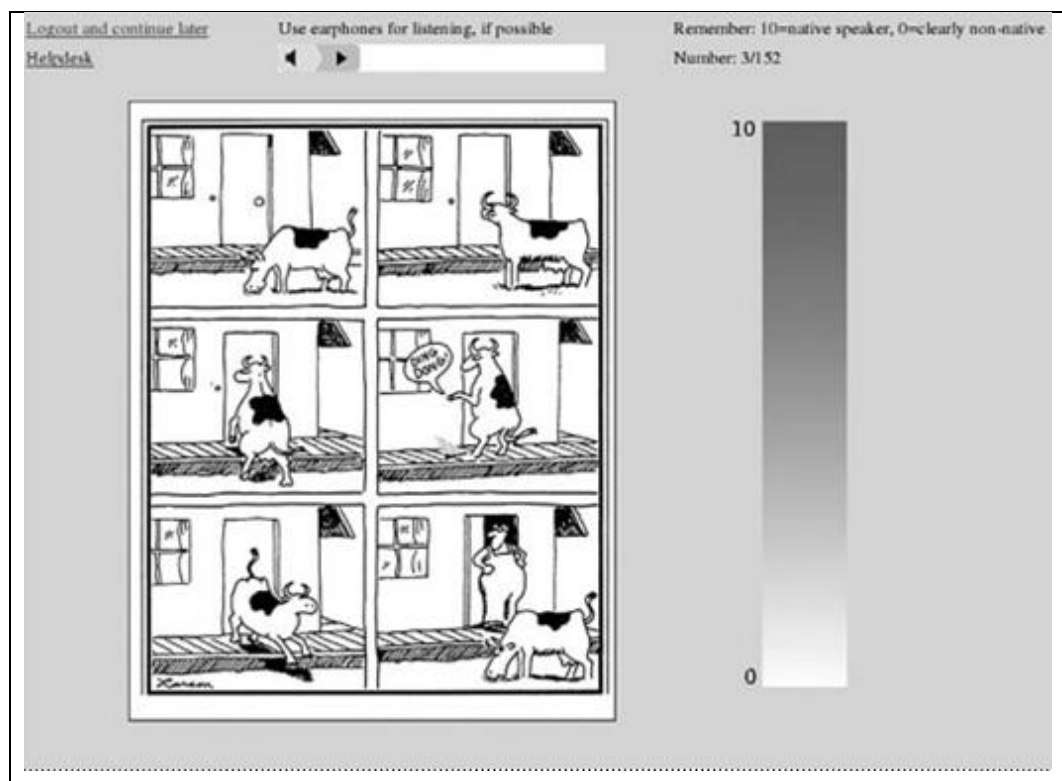


Figure 25: Screenshot of the rating bar

As the screenshot above illustrates the listeners listen to the stimuli (using headphones), see the pictures to be narrated (or the text to be read) and use the rating bar where they can directly indicate the degree of FA. This rating bar features a visual analogue scale, or VAS, which consists of a vertical line with merely the two poles labelled. The scale that has been used in the present study, as shown above, is unipolar and denotes the lack of the degree of FA of 0 at one end and its maximum intensity (10) at the other end of the line. Any click along the scale is assigned to a corresponding numerical value. On the scale, no further marks are provided, which allows for little orientation for the listeners, but is at the same time assumed to provide a more uniform distribution of scores along the scale’s entire length (Scott and Huskisson 1976).

Visual analogue scales are said to be easily understood, quickly processed and also account for fine discriminations. Indeed, by using this particular tool information

can be obtained very quickly from any number of raters who do not require any special training. This way, a holistic and intuitive assessment of a speaker's perceived degree of foreign accent can be provided. As the screenshot of the instructions for the listeners below shows, at the beginning of the rating process a chart providing an approximate orientation was given with five sub-categories ranging from "speaker sounds like a native speaker of English with NO foreign accent" to "very strong foreign accent". In addition, listeners could also leave comments if they wished.

Instructions for using the rating bar

Please use the rating bar in a holistic and intuitive way. Just click on the approximate area in the rating bar, where you would roughly put the person's foreign accent. The picture below should give you an approximate orientation:

Speaker sounds like a native speaker of English with NO foreign accent

Slight foreign accent

Clearly recognizable foreign accent

Rather strong foreign accent

Very strong foreign accent

In addition, you will find a box for comments.
There you can note down anything about the performance that you consider to be strong features of the particular foreign accent displayed (segmental or super-segmental features, prosody, etc.).
Any comment is optional but highly appreciated!

Please note that once you have clicked on the rating bar, the next file starts and you cannot go back. If you would like to add a comment, you need to do this **BEFORE you rate:**

Step 1: comment
Step 2: rate

Figure 26: Screenshot of the instructions for using the rating bar

A further aspect which needs to be mentioned here concerns the fact that the scores also reflect fine discriminations, as in this case the scale underlying the rating bar 0-10 in fact consists of 100 rather than 10 units. This means that for example a listener who clicked on the middle of the rating bar in fact clicked the value 50 rather than 5, which allowed for more precise and distinct differences to be established among the speakers.

Apart from the already mentioned small extent of orientation a visual analogue scale can give the rater, another possible drawback could lie in the indistinct definition of what exactly "maximum" and "minimum" on the scale indicates, which allows for different interpretations by different listeners. Nevertheless, the

absolute values for overall degree of FA are not of the top priority of the present study as its purpose lies in the investigation of the development of FA, i.e. the comparison of the values obtained at T1 and T2 rather than ultimate attainment.

Another potential weakness of global foreign accent ratings (FAR) is based on the assumption that FA can be captured on a unidimensional, linear scale or simply assigned to one of a given number of discrete categories. This view is of course a simplification of a phenomenon that comprises a wide range of features on both the segmental (sound) as well as the suprasegmental level (stress, pitch, tone, intonation, speech rate, or rhythm (cf. Munro, 1995; Southwood & Flege 1999). In addition, disfluency and hesitation markers also play a role in the assessment of foreign versus native speech (Yu 2005). As in the present project (see RQ 1 and RQ2) the aim is to monitor the development of FA and not to identify specific feature of it, the use of FAR is certainly justified. It goes without saying that for the identification of those features of the Austrian accent in English that are least susceptible to change, a different approach needs to be taken.

7.4.1.5. Selection of listeners

Just as the number of speakers included in experimental studies into the degree of foreign accent appears to vary greatly, so too does the number of listeners who have been involved in the rating process. Snow and Hoefnagel-Höhle (1977), for example, used only one single listener to judge all the recordings whereas Anderson-Hsieh & Koehler (1988) employed more than 200 raters, although not all of them rated every single stimulus. Most studies, of course, can be located somewhere in between the two extremes. On logical grounds, Piske et al. (2001) put forward the claim that generally a large number of listeners is needed for the reliable detection of differences between speakers.

Beyond numbers, of course, the linguistic background of the judges for the rating task is also an important consideration that needs to be taken into account. This being said, in the vast majority of cases, “experts” of the target language have been used to make judgments of L2 language performances or to validate rating scales. However, it is not always clear how “expert” is defined and operationalized. As a consequence, “expert” has come to denote the self-reported familiarity with foreign-accented speech (e.g. Munro, Derwing & Morton 2006), or the degree of exposure to L2 speech (Kennedy & Trofimovich 2008) or phoneticians (e.g.

Cucchiarini, Strick & Boves 2002) or ESL teachers with extensive teaching experience (Calloway 1980) or just native speakers of the target language (Wrembel 2010). Still others have used some combination of these different criteria (Huang, 2013). These inconsistencies of course render cross-study comparisons very difficult.

Generally, studies investigating the relationship between rater background and scoring performance have yielded conflicting results. For instance, some researchers (e.g. Johnson & Lim 2009) failed to find a consistent correlation between listeners' language background and measures of their performance in rating oral responses. However, other studies concluded that raters' background variables partially accounted for some scoring differences. Interestingly, Carey, Mannell, and Dunn (2011) examined familiarity in accented English and found that a significant number of non-native-speaker listeners scored candidates from their own home country higher than candidates from a different country. In his study, Thompson (1991) compared the FA ratings provided by an experienced group (i.e. learners who spoke at least one foreign language, attended language classes and had frequent contact with native speakers) and a novice group (i.e. learners who spoke no foreign language fluently, did not attend language classes and rarely had contact with native speakers). He found that the novice group generally evaluated the recordings as decidedly more accented than the experienced raters.

Similarly, Flege and Fletcher (1992) drew a comparison of the FA ratings of students with a university degree in neuroscience (who were classified as 'experienced') and students who were less familiar with foreign accents. Surprisingly, in this particular study the ratings were in fact comparable, suggesting that, in contrast to Thompson's findings, judges who are inexperienced need not automatically be less reliable. Along the same lines, Bongaerts, van Summeren, Planken & Schils (1997) and Anderson-Hsieh & Koehler (1988) also reported good levels of agreement between ratings made by experienced and inexperienced listeners.

As far as training in phonetics is concerned, the literature seems to suggest that this does not affect foreign accent ratings. Groups of phonetically trained and phonetically untrained raters overall seem to display great agreement in their overall ratings (e.g. Hopp & Schmid 2013), even though interrater reliability is

generally found to be higher among trained raters (e.g. Thompson 1991; Xi & Mollaun 2011).

After careful consideration, it was decided to employ phonetically trained rather than untrained judges as the latter might rely on factors other than phonological/phonetic cues when assessing the foreign accent of learners' productions (see Gallardo del Puerto et al, 2007), such as grammatical accuracy (Varonis & Gass 1981) or fluency (Anderson-Hsieh & Koehler 1988) or content (Ludwig 1982). A pilot experiment carried out in the preparation phase of this project with a number of untrained listeners clearly confirmed this assumption.

All in all, nine potential judges were identified to be suitable listeners for the present project. They had all taught English pronunciation courses and assessed students' pronunciation skills at the University of Vienna for about 10 years. Three male and six female lecturers from various linguistic backgrounds (L1 speakers of American English, British English, and Austrian German) were included to ensure a wide range of perspectives. What is even more, in their courses, they had always assessed the (predominantly Austrian) students' pronunciation skills in pairs which means that they were largely familiar with the Austrian accent and due to their extensive experience and common understanding of grading foreign-accented speech, a high degree of reliability, validity and homogeneity was to be expected.

All potential listeners were contacted and agreed to participate. None of them reported any hearing impairment. After T1 rating, however, it turned out that two of the raters had experienced major technical problems and that their ratings could not be used. The remaining seven listeners each rated all the sound files, i.e. approximately 140 sound files at T1 and 120 sound files at T2.

7.4.2. Phase 2 - Data collection

Language data collection for T1 and T2 was performed on two consecutive days in October 2011 and April 2014 respectively, split up into two groups (focus group/control group) with each group taking approximately one hour. The students were initially informed in an email in which it was stressed that the project was being carried out within their own institute Entrepreneurship. For them, this meant

that their contribution would be of immediate relevance to their own studies and also for the next generation of students in the bilingual programme.

The ESP teachers had agreed to set one hour of their in-class teaching time aside. In practice, this meant that I picked up the whole group about one hour before the end of their regular English language class and accompanied them to the radio studio assigned to the degree programme journalism, which was located in the same building but on a different floor.

Each student began by filling in a brief language background questionnaire, which is included in Appendix A. At this stage, my presence turned out to be very helpful in that it enabled any queries or uncertainties to be addressed immediately and it also ensured a good response rate. In addition, I made sure that all the questions were completed and filled in correctly. This way, information from a great number of respondents could be gathered quickly and correctly.

One by one, the students were then asked to go to the enclosed sound-attenuated room where they met my colleague from the degree programme Journalism (who teaches radio broadcasts and who knows how to handle the sound mixing console) to ensure the highest possible quality of the recordings. The students were given a headset, the sheet with the text they had to read and the cartoon they were to describe. They were given about a minute to prepare and then they read the text and narrated the story wearing a head-mounted microphone. The entire task took two to three minutes for each participant. The two tasks were recorded separately and saved as jpg files on a USB stick.

Recordings of four L1 speakers of English (exchange students from the US) were included in the corpus to serve as distractors for the raters on the one hand and as baseline data to assess the learners' performance on the other hand (cf. Dogil & Reiterer, 2009).

The recordings were then transferred to the online rating tool, and passwords were distributed to the raters together with an email containing general information about the project. The rating process as such ran over several weeks in the summer of 2011 and then again in the summer of 2014. Upon entering the language rating site, the listeners found basic information about the project and were asked to provide details concerning their age, gender, years of teaching pronunciation, L1, etc. Then they were shown a sample to ensure that the

instructions were clear. In random order (which varied from listener to listener) they rated the stimuli with all the files for the reading task appearing first and then all the files for the story coming next. Throughout the rating process, the extreme values “no native speaker” (1) to “native speaker” (10) were displayed on the rating bar. The listeners were permitted as much time as they needed to rate. The sound files could be played again, but once given the ratings could not be altered. The next sound file started immediately after each rating response was given. Space was also provided to make comments but the raters very rarely took advantage of that option. If necessary, they could listen to the same sound file several times before clicking the rating bar. As the whole rating process took between 2 and 4 hours, they could also log out and continue later. On the whole, it took roughly 2 months to collect the ratings from all seven listeners.

7.4.3. Phase 3 - Evaluation

Once all the data (questionnaires and sound file ratings) were obtained, the next phase ensued; the evaluation of the collected information. In this phase, it was necessary to employ a variety of statistical analysis tools in order to identify relationships between the given variables that are expected to answer the research questions. The collected data were therefore computed and analysed via descriptive statistics, t-test, and one-way analysis of variance (ANOVA).

The first task at this stage was to process the stacks of completed paper-based questionnaires and merge the information with the sound file ratings. For this purpose, SPSS (Statistical Package for Social Sciences), version 17, the software most commonly used in applied linguistics in general and education research in particular (cf. Dörnyei 2009: 198), was chosen and thus all the information gathered was fed into an SPSS data file. Each respondent was given a numeric code and the variables for each respondent were entered. This involved the creation of a data base, defining the coding frames for the variables, and then keying in the information.

In order to get a first glance of the project in progress and to determine the point of departure of the students’ development, the entering of the data into this data base was in fact carried out in two steps, namely immediately after the collection at T1 and then the data sheet was completed after T2.

Next, the data was screened and cleaned to rule out the possibility of incorrectly entered values and typing errors. It was also necessary to reduce data entered at T1 owing to the drop-out rate between T1 and T2. Of course, any reduction of the sample size results in a loss of power and increased error in estimation (wider confidence intervals) and every lost participant potentially threatens the ultimate validity and also viability of the study. In this case, data from 7 informants from the focus group and 6 informants from the control group had to be discarded as the students had dropped out after T1.

In order to provide a thorough statistical analysis of the data collected, it was decided to draw on the expertise of a colleague from the University of Vienna, Martina Koller, who has extensive experience in dealing with quantitative data collected in empirical studies (cf. Koller 2014). Her advice particularly regarding the choice of appropriate test types and calculation methods proved to be crucial in developing a systematic approach in my attempt to analyse the collected data sets.

The presentation of the study's research questions in the table below shows how the research questions were tackled, i.e. which data sets were used to answer them.

	Research Questions	Corresponding data
#1	How does the degree of foreign accent develop longitudinally under EMI instruction as opposed to ESP instruction?	Ratings of audio recording at T1 and T2
#2	What are possible reasons for the changes in the students' pronunciation observed in the two groups?	Questionnaire 1 (Q1), Questionnaire 2 (Q2)
#3	What are the most prominent segmental and supra-segmental features of the Austrian accent that are least susceptible to change?	Analysis of selected sound files from T1 and T2

Figure 27: Research questions and data sets

Research question 1 set out to determine the degree to which a speakers' FA would develop over a period of three years. To answer this question, it was necessary to

calculate the difference between the average ratings obtained from the listeners at T1 and T2. Basically, three different values were assigned to each speaker, namely the difference between reading the text at T1 and T2, the difference between narrating the story at T1 and T2 and finally the mean difference. As a next step, the scores for both groups were calculated and contrasted.

With research question 2 in mind, the variables derived from Q1 and Q2 were clustered according to the following factors:

- 1) Motivation
 - a) to learn English
 - b) to improve the pronunciation
- 2) Attitude
- 3) Gender
- 4) Musicality
- 5) Type of instruction
- 6) Exposure
 - a) internship
 - b) study abroad
 - c) media

These factors were selected as they were identified in the literature as influential regarding the learner's pronunciation skills (see Chapter 5). Consequently, all relevant variables in the data base were assigned to one of those variables. This also means that data which were not directly relevant in answering the research questions (e.g. related to organization of the degree programme) are not considered in this thesis.

In order to identify those features of the Austrian accent that are least susceptible to change (i.e. RQ3), it was necessary to approach the sound files in the data base in a qualitative manner. From the large amount of data collected in this project, it is clear that only a limited number of sound files could be analysed more closely. Therefore it was decided to focus on those ten speakers who had shown the greatest improvement in their development. Based on insights gained from the literature (see Chapter 6), a list of potentially difficult sounds was used as the basis for further analysis.

Despite the fact that the stimuli collected here generally offer a wide range of possibilities for linguistic analysis of the learners' pronunciation development, not all aspects could be taken into consideration. In light of the research questions, and for reasons of a limited scope, it was therefore decided to confine analysis to the most prominent segmental and supra-segmental features of the Austrian accent as suggested in comparative phonetics and phonology as well as previous studies. An investigation into other significant linguistic features such as fluency, prosody, stress etc. would certainly also be an interesting endeavour.

8. Results and discussion

This chapter provides a detailed analysis and interpretation of the data gathered in this study. As described in Chapter 7.3.3. the information obtained from the questionnaires at T1 and T2 was complemented with data derived from the rating of the sound files. In addition, the results of the close qualitative scrutiny of a selected number of recordings completed the data base. The mixed-methods approach applied in this study together with the comprehensive nature of the research questions have prompted the decision to combine the analysis, interpretation and discussion of findings. Besides, references will be made to empirical research discussed in the preceding chapters to reveal significant similarities as well as notable differences and thereby contribute to the growing body of research on EMI in higher education.

8.1. The development of the degree of foreign accent

In order to answer the first research question, which addresses the development of the degree of foreign accent, the main source of information is the data set comprising the sound file ratings. As already elaborated in Chapter 7.3.3. the informants in the two participating groups, the focus group from the bilingual programme (n=25) and the control group from the German programme (n=30), were recorded at the beginning of their studies (T1=beginning of winter term 2011) and then again shortly before graduation (T2=end of summer term 2014). The informants were asked to read the text "The North Wind and the Sun" and to narrate a picture story by Gary Larson. Each sound file was subsequently rated by seven carefully selected pronunciation experts from the University of Vienna. These listeners used a visual analogue scale ranging from "very strong foreign accent" (0) to "no foreign accent" (10). A statistical analysis of the interrater reliability (two-way mixed) was carried out by the consulted statistician and revealed that the raters were using the measurement technique correctly and consistently, reflected by intra-class correlation coefficients ranging from 0,816 to 0,876 across the four experimental conditions A to D (i.e. 2 pre-tests and 2 post-tests).

8.1.1. Comparative analysis of the two groups

One of the main aims of this project was to compare the mean scores received from the expert judges for the focus groups with those for the control group. A statistical analysis of the data derived from the sound file ratings shows the following results for both groups and tasks for T1 and T2 respectively:

Table 3: Statistics of results for T1 and T2:

	Mean (SD)		t-test	
	Focus group	Control group	t	p
Reading T1	5.7 (±1.5)	4.0 (±1.1)	4.69	0.000
Reading T2	6.8 (±1.7)	4.6 (±1.7)	4.75	0.000
Speaking T1	6.2 (±1.5)	4.4 (±1.0)	5.19	0.000
Speaking T2	7.2 (±2.0)	5.0 (±1.7)	4.50	0.000
Average T1	5.9 (±1.4)	4.2 (±1.0)	4.75	0.000
Average T2	7.0 (±1.8)	4.8 (±1.6)	4.86	0.000

As illustrated in the table above, a t-test for independent samples revealed a significance level of <1 % which means that the differences between the focus group and the control group at T1 and T2 for all aspects analysed (reading, speaking, average) are highly significant. This clearly supports the methodology adopted in this project which aims at investigating the *development* of the learners rather than *ultimate attainment*. Already at T1 the performance of the control group (average mean 4.2) was significantly below that of the focus group (average mean 5.9) and the same trend can be observed at T2 with the control group (average mean 4.8) distinctly lagging behind the focus group (average mean 7.0). This initial superiority of the English-medium students hardly comes as a surprise as other empirical investigations into linguistic outcomes of secondary school CLIL students have pointed out that this particular teaching method appears to attract

a very specific group of learners. For instance, Sylvén in her study into the effects of CLIL on young Swedish learners notes that

[t]here is (normally) a requirement of a certain level of proficiency before entering a CLIL class. Therefore, students who enjoy, and are interested in, English are more likely to find the CLIL method appealing than those who are less interested in English (Sylvén 2004: 180).

Apparently, this also seems to be the case in the context of the UAS Vienna. For this reason, a mere cross-sectional comparison of the differences in achievement in both groups would not have produced any new insights.

By and large, these results overwhelmingly exceed all expectations and hopes raised by empirical research carried out at secondary school level that was discussed in the review of the literature in Chapter 3.3. As outlined there, a number of studies in the Spanish context (Ruiz de Zarobe 2008, Rallo Fabra & Juan Garau 2010, Gallardo del Puerto et al. 2009) claimed that secondary CLIL hardly seems to contribute to the amelioration of the degree of foreign accent in the short or mid term (after 1 year), attributing the main reason for this to a clear lack of native-speaker input and a low number of subjects taught in English. This longitudinal study now fills this gap by providing pioneering and evidence-based data according to which tertiary EMI can indeed have a positive effect on the students' pronunciation skills if favourable conditions are given. In this regard, the design of the bilingual programme at the UAS Vienna with increased quantity and quality of L2 input as central parameters appears to have produced clear and convincing results.

A further interesting observation concerns the fact that the scores for elicitation task 1 (the reading of "The North wind and the sun") were clearly lower than for elicitation task 2 (the narration of the picture story) for both groups at T1 and T2. This finding is largely supported by other empirical studies of L2 foreign-accented speech which employed both methods. Oyama (1976), for example, reported that on the whole the read speech of Italian-English bilinguals was deemed to be more accented than the spoken speech tokens. Munro and Derwing (1994) hypothesized that such effects might be largely due to the nature of the task type, as in the reading the speakers cannot select words and expressions with which they are familiar, i.e. they cannot avoid those they find challenging. Another important aspect to be considered especially when it comes to adult learners is orthography. In their study on orthographic interference on adult L2 learners' speech production

Bassetti, Bene and Atkinson (2015) confirm that orthographic forms indeed affect adult learners' pronunciation of known words, albeit to a lower degree in immediate word repetition than in read-aloud tasks. I would like to add here, that in Austria it is not common to practice reading a text aloud in class. Therefore reading a given text aloud can be more difficult for learners as this also puts their reading skills to the test. In brief, the main reasons why the scores assigned to the read text were considerably lower than those for the narration of the story might be threefold: difficult words and/or sounds cannot be avoided, orthography might have interfered and reading-out aloud is not practiced in Austrian classrooms.

8.1.2. Development of FA

After having explored the main differences in achievement between the two groups, the next aspect to focus on is the development of the foreign accent. The table below presents the statistical analysis of the scores obtained for both groups at T1 and T2:

Table 4: Statistics of the development of FA

Group	Task	Mean (SD)				t-test	
		T1	T2	Average difference		t	p
Focus group	reading	5.7 (±1.5)	6.8 (±1.7)	+1.1		-6.37	0.000
	speaking	6.2 (±1.4)	7.2 (±2.0)	+1.1		-5.12	0.000
	average	5.9 (±1.4)	7.0 (±1.8)	+1.1		-6.65	0.000
Control group	reading	4.0 (±1.1)	4.6 (1.7)	+0.6		2.56	0.016
	speaking	4.4 (±1.0)	5.0 (1.7)	+0.6		2.56	0.016
	average	4.2 (±0.9)	4.8 (±1.6)	+0.6		2.89	0.007

A t-test for independent samples performed on the data revealed that both groups experienced a significant improvement in the development of their pronunciation skills. The figures derived from the comparison of the results obtained for the focus group are highly significant with $p < 0.01$. The scores for the control group are also significant albeit to a lower extent with $p < 0.05$. Still, both groups distinctly managed to ameliorate their foreign-accented speech. While the focus group improved their speech production by an average of 1.1 points, the control group in the German programme scored significantly lower at 0.6 points, as the following figure shows:

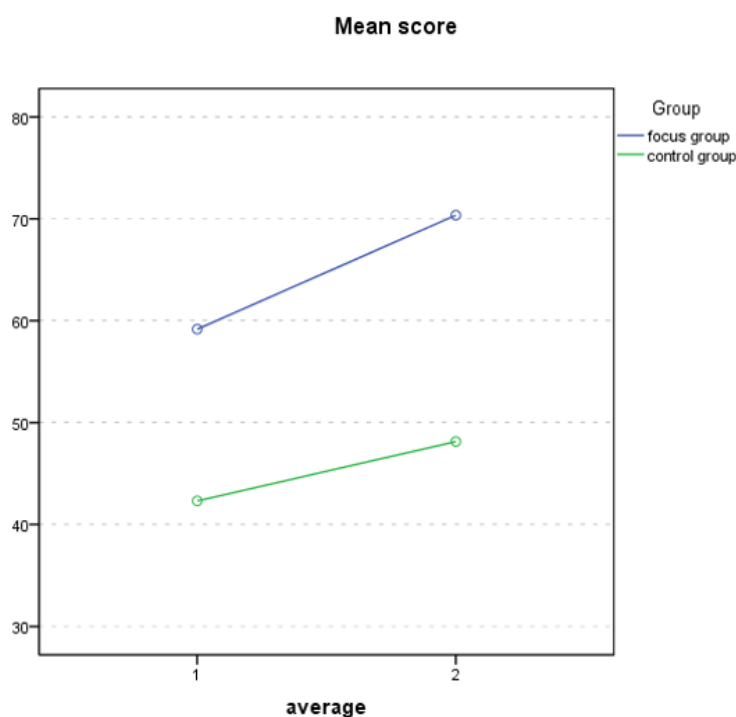


Figure 28: Mean score overall

Accordingly, the average mean for both groups increased consistently in the given time period for the focus group (+1.1) and for the control group (+0.6).

As it was also deemed relevant to analyse the scores for the two tasks (reading and speaking) separately, the following two illustrations present the detailed development according to these two elicitation techniques:

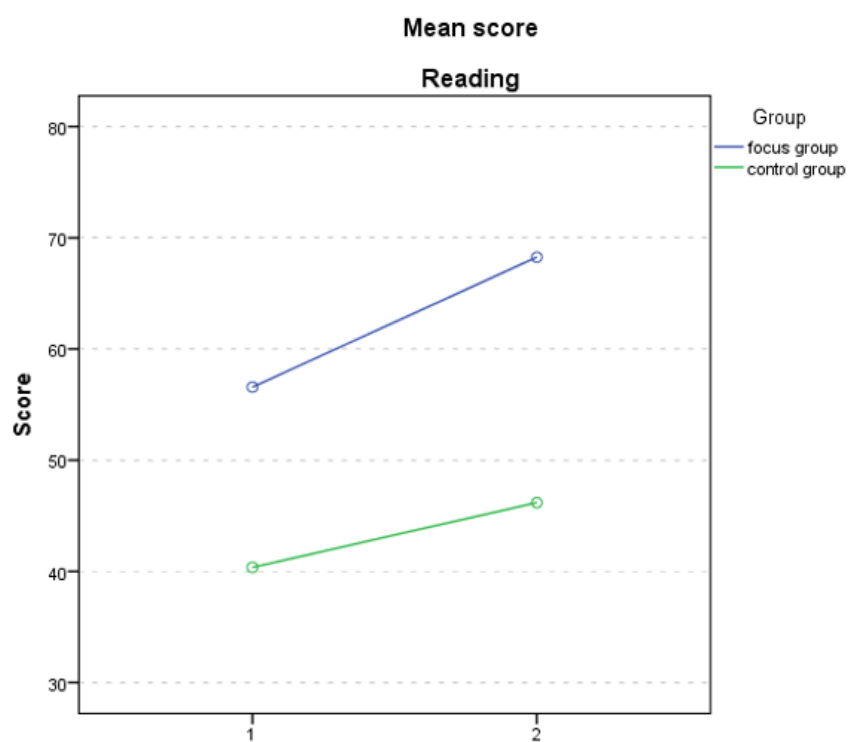


Figure 29: Mean score reading

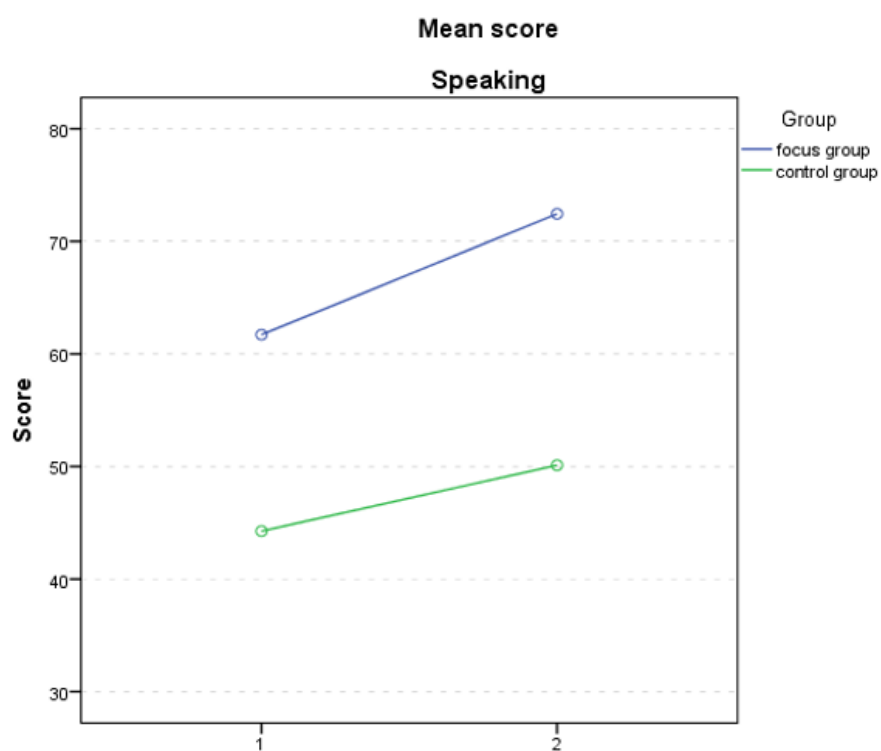


Figure 30: Mean score speaking

As can be seen very clearly, for both tasks the scores have undergone a favourable development. In order to find out whether the changes depicted above are in fact significant, it was necessary to conduct a t-test.

Table 5: Difference between groups according to tasks

	Mean difference (SD)		T-test	
	Focus group	Control group	t	p
reading	1.1 (± 0.9)	0.6 (± 1.2)	1.95	0.056
speaking	1.1 (± 1.0)	0.6 (± 1.3)	1.55	0.127
average	1.1 (± 0.8)	0.6 (± 1.1)	1.99	0.052

The results of the t-test of independent variables shows that the differences at T1 and T2 for reading, speaking and average are in fact not significant ($p > 0.05$). However, as 0.056 (for reading) and 0.052 (average) are very close to significance level 0.05, it can be assumed that a larger sample size might have led to a higher significance level. The results for the mean difference for 'speaking', however, are clearly not significant. In sum, the mean scores for the development of the learners' foreign accent as tested in a read-aloud task are statistically significant, whereas the scores for the difference observed in the speaking task vary less.

Despite these differences in the development of the two skills, the most striking finding in this study concerns the fact that both groups improved their pronunciation, albeit to different degrees. Although there were sound reasons to expect moderate improvement on the part of the focus group owing to favourable conditions that were outlined in Chapter 7.3.1., it does come as a surprise that the scores obtained for the control group at T2 also revealed a significant progression. These findings evidently support the view that the pronunciation skills of adult language learners are not necessarily subject to maturational constraints as proposed by the critical period hypothesis. It can therefore be safely assumed that for the learners in the present project the learning process has not been compromised by age and that under favourable conditions further improvements are possible and not precluded by any critical or sensitive period. Based on the results presented here it could be argued that the Critical Period Hypothesis (see Chapter 4.2.1.) does not provide a full explanation for the favourable development of the foreign-accented speech of the adult Austrian subjects in the present

project. Contrary to the tenets of the critical period hypothesis a steady and gradual increase in language proficiency was revealed across both participating groups.

In addition to the determination of the group scores at T1 and T2, it was also interesting to investigate the range of distribution within the two groups. To visualise the range of distributional characteristics, it was decided to conduct a box plot analysis displaying the statistical variance for both groups. Figure 31 presents the difference in the distribution of the average difference (i.e. development) within the focus group and the control group respectively:

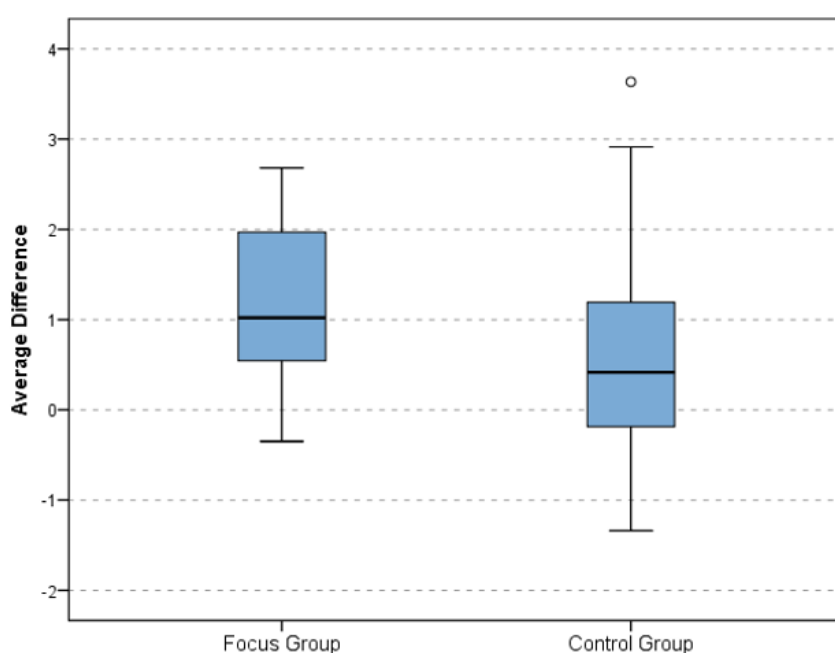


Figure 31: Distribution of average difference

What can be seen here is that the box plots for the two groups are generally similar in size but uneven in distribution and height. As for the focus group, the median is roughly 1.0 and the second quartile is the largest in size. In contrast, the median for the control group is approximately 0.5 and here the largest quartile seems to be the upper one spanning nearly 2 points. The most outstanding difference between the two box plots is clearly the distribution range from -0.4 to +2.8 in the focus group and -1 to +2.9 in the control group. This means that in the focus group the learners are generally much more homogeneous in their development than those in the control group.

Overall, these results confirm the findings presented above according to which the focus group experienced a more substantial improvement than the control group. However, within the control group the difference is considerably more varied in its distribution. In the focus group about 75% of the learners experienced an overall improvement of up to 2 points whereas 75% of the participants in the control group only reached an improvement of up to 1 point. The outlier in the control group turns out to be informant #61 whose performance deserves special attention and will be discussed separately in Chapter 8.2.1.

When turning to the distribution range for each of the two tasks, the pattern that is revealed appears to correspond to the overall trend. The following box plots show the detailed statistical variance in distribution for the two tasks speaking and reading:

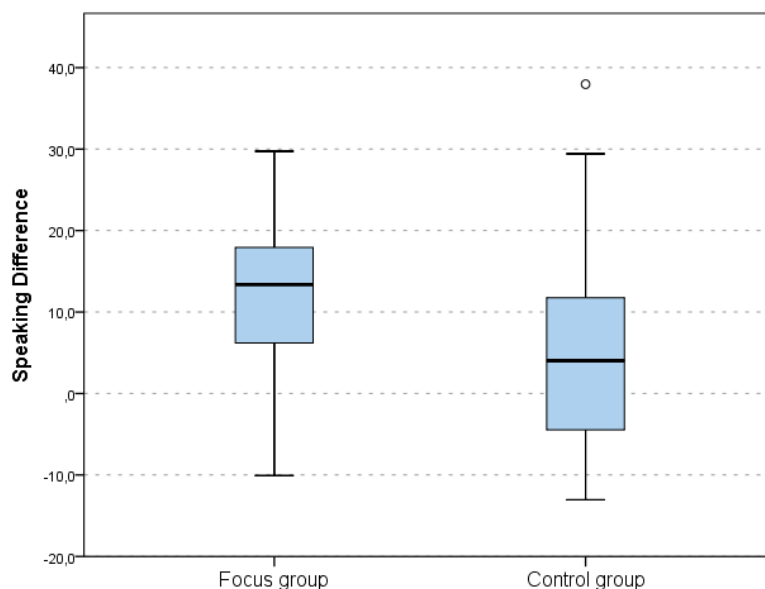


Figure 32: Distribution of speaking difference

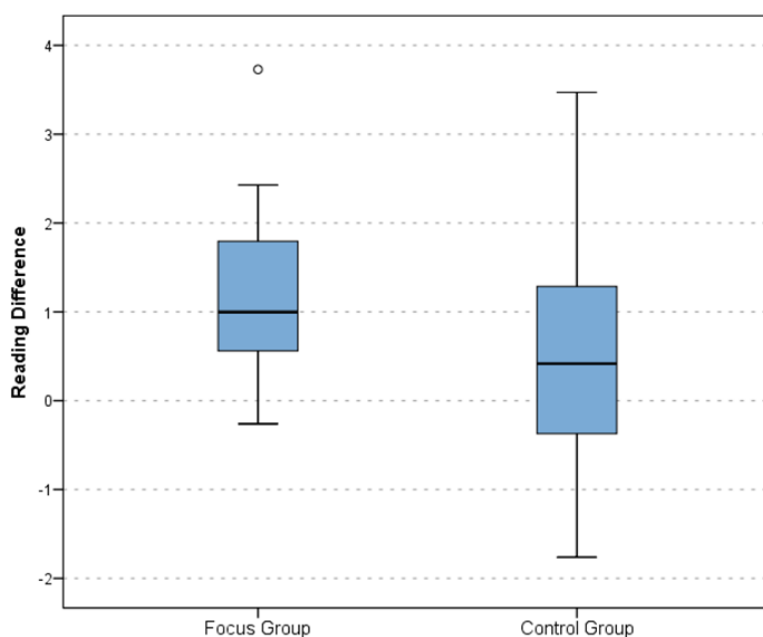


Figure 33: Distribution of reading difference

Overall, the range of distribution for the speaking task in the focus group is fairly similar to that of the average distribution presented above. In the reading task, however, the range spans from -0.2 to +2.5 in the focus group and -1.9 to +3.5 in the control group. Accordingly, in the control group there is again a considerably greater degree of heterogeneity characterized by a wide range of linguistic diversity when it comes to reading a text aloud.

5.8.1. Self-assessment versus FA ratings

Apart from an examination of the figures presented above that show the learners' development of FA as rated by pronunciation experts, it was also considered noteworthy to compare those scores with the students' own perception of the progress they had made regarding their pronunciation skills. Researchers have purported that evaluating self-perceptions of language competence can be an efficient mechanism for placing students at appropriate levels (e.g. Leblanc & Painchaud 1985). To take account of the learners' own perceptions, the questionnaires administered to the students at T1 and T2 also featured probing questions about their own feelings in terms of their English language gains in the course of their studies. Specifically, they were asked to rate their competence in

different skills and language areas. As far as the students' pronunciation development is concerned, it is particularly interesting to compare and contrast the answers provided in Q2 with the scores obtained in the FA rating experiment. Hence, the following chart shows the learners' self-perceived progress at T2:

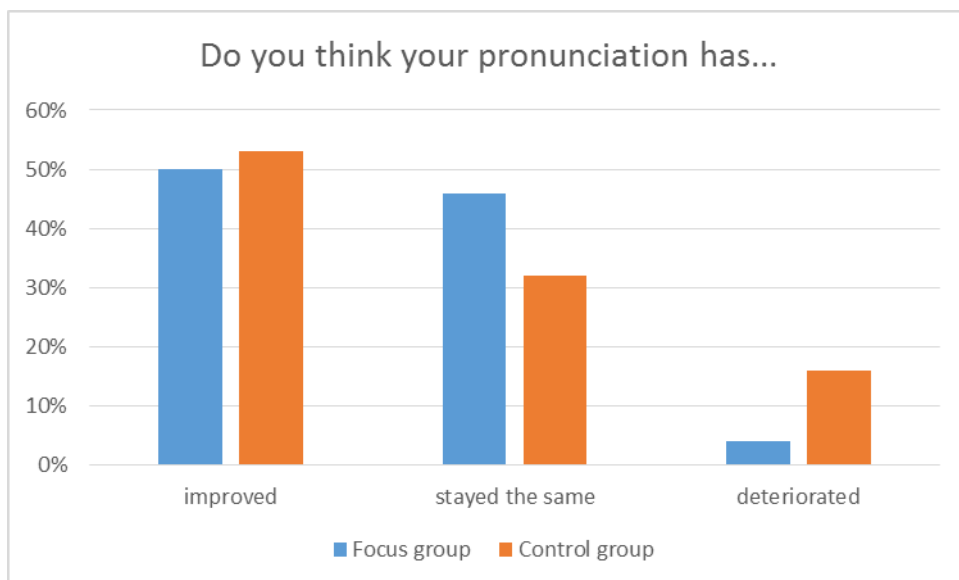


Figure 34: Do you think your pronunciation has improved?

In both groups, about half of the learners had the impression that their pronunciation had improved. However, 46% in the focus group and 32% in the control group said that they saw no changes. The main difference to be detected between the two groups can be found in their view concerning the deterioration of their pronunciation skills. In this respect, the figures diverge considerably with 4% in the focus group and 16% in the control group believing that their pronunciation had suffered during their studies.

In stark contrast to that, the scores from the FA rating experiment exhibited the following results:

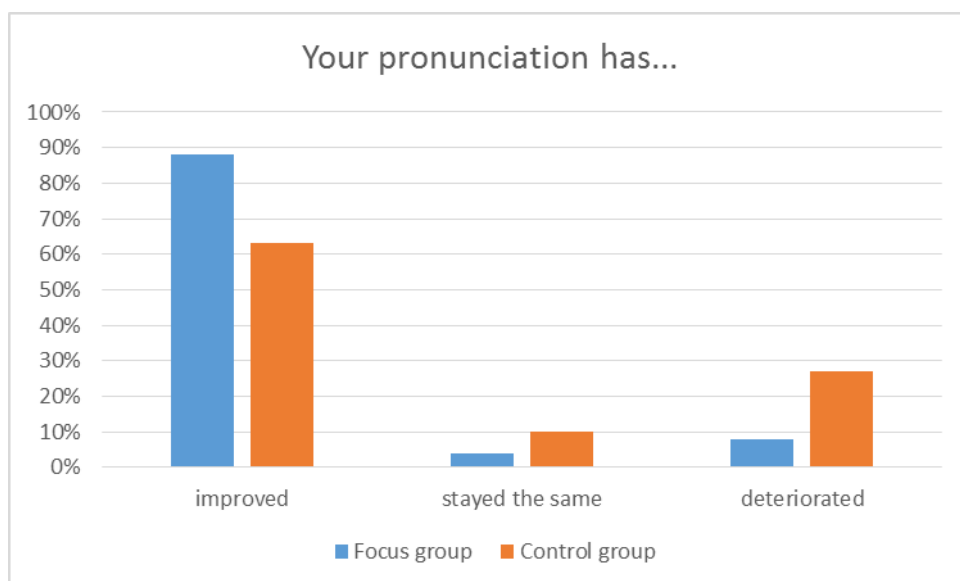


Figure 35: FA rating – development

As the chart shows, 88% of the learners in the focus group improved their foreign-accented speech, 4% stayed the same and for 8% the score at T2 was below that at T1. In the control group, 63% improved their accent, 10% stayed the same and 27% were in fact downgraded at T2.

The available evidence suggests that for both groups a clear mismatch between self-reported L2 phonological competence and the actual FA rating can be discerned. Whereas 50% of the students in the focus group believed that their pronunciation had improved, the actual figure from the FA rating was considerably higher with 88%. Likewise, only 52% of the learners in the control group expressed the view that they felt they had improved. However, the FA score for them was 63% and therefore also clearly higher. An interesting detail that deserves due notice is related to those students who perceived their pronunciation to be at a lower level at the end of their studies than three years previously. In fact, there was only one single student from the focus group (i.e. 4%) who indicated that his pronunciation had deteriorated. A closer look at the information he provided in Q2 reveals that among other aspects, he spent one semester in Argentina where he spoke mostly Spanish.

By nature, self-perception is subjective and may therefore fail to correspond to external indicators of proficiency. It is clear that language students sometimes underestimate or overestimate their language ability. Interestingly, a number of

studies have reported that some learners systematically underestimate their abilities (e.g. DesBrisay 1984). Fiske and Taylor (1991) proposed that “by leading the self to expect poor outcomes or poor performance, one lays the groundwork for defending against loss of self-esteem in the event of failure” (Fiske & Taylor 1991: 216). In the present context, this might mean that the students may have rated their own performance lower in order to protect themselves from disappointment.

The marked divergence displayed here between the learners’ self-perceived L2 phonological development and the actual competence as rated by pronunciation experts also seems to hint at the role pronunciation learning and teaching assumes in the given context. At the UAS, this particular sub-skill of spoken language competence is relegated to the sides not only in the EMI courses but also in the ESP classes, where language learning is primarily seen in business-related contexts such as meetings, telephoning, or negotiations where the focus is more on intelligibility and comprehensibility rather than form and accuracy. This inattentiveness on the part of the programme designers and teachers alike together with a general lack of capability to assess their own accent seems to result in many students generally underestimating their own pronunciation skills.

8.2. Factors influencing pronunciation mastery

Having discussed the development of the degree of foreign-accentedness in the two learner groups, the next central concern of this study relates to the factors that influence pronunciation mastery. This section therefore seeks to shed light on the question of what factors may have influenced the pronunciation development of the learners i.e. which individual variables, as specified in Chapter 5, affect pronunciation learning favourably. Without doubt, every learner brings to bear a unique set of personality traits and preferences which affects the language learning process. Taken together, these a priori factors are said to interact dynamically with the learning context. In other words, socially and psychologically dependent variables are particularly prominent for any learner and may influence the effort the learner puts into trying to sound native-like.

The data to be discussed here were largely generated from Q1 and Q2 which were administered to the students at the beginning of their studies (2011) and then

again at the end (2014). On the one hand these questionnaires are meant to take account of the demographic variation of the student population in the two groups and on the other hand these variables are also a valuable resource to investigate individual learner beliefs and learner characteristics. Although the parameters found in the questionnaires are expected to provide a revealing insight into the learning background of each individual learner, it is difficult to extrapolate and interpret their relative value for each group.

In the following, these variables are first analysed in an attempt to determine the driving forces behind the development of the phonological competence of all the 55 learners. Then the answers provided by the informants in Q1 are examined with a view to identifying distinguishing features between the two groups. As the factor 'exposure to the target language' is of particular importance for the present project, it will be treated in more detail. Lastly, one learner from the upper and one learner from the lower end of the performance scale will be portrayed in order to provide an insight into the student population and to speculate on the impact these ID factors might have had on the individual student's success or failure.

8.2.1. *Factors accounting for difference in development*

Trying to identify the strongest predictor for the changes in the perceived degree of foreign-accentedness, the biographical data collected in Q1 were matched with the average difference calculated for pronunciation development. Therefore, an ANOVA analysis with the difference in the development as the dependent variable was conducted by the statistical expert and revealed the following results:

Table 6: Factors influencing pronunciation development

Variable	p	Partial eta squared
Motivation to improve pronunciation	0.018	0.964
Motivation to improve English language skills	0.012	0.976
Anxiety	0.022	0.956
Attitude towards English	0.442	0.311
Gender	0.115	0.784
Musicality (singing)	0.026	0.991
English-medium instruction	0.019	0.963
Media exposure	0.128	0.761
Internship abroad	0.613	0.150
Exchange semester abroad	0.058	0.888

What emerges from the data is that no single variable was found to be highly significant ($p < 0.001$). The following factors, however, were detected to be significant ($p < 0.05$):

- motivation to improve pronunciation
- motivation to improve language skills
- anxiety
- musicality
- English-medium instruction (i.e. adherence to group: focus group or control group)

To measure the effects of these independent variables and possible interactions, it was seemed conducive to calculate partial eta squared. Generally speaking, partial eta squared estimates the degree of association for the sample commonly used in analysis of variance (cf. Tolmie & al. 2011). According to Cohen (1988), a value of partial eta squared above .138 can be considered large. In this case, partial eta-squared showed that the influence of the variables was very high with values > 0.9 . Yet no relevant interaction effects were disclosed. Contrary to expectations, the most crucial factor in the present context, 'exposure to the target language' (as in media exposure, internship abroad, and exchange semester abroad) did not yield any statistically significant results.

In a nutshell, the data gathered in the present project suggests that no single factor alone - not even increased exposure to the target language - can be held responsible for the observed pronunciation development, rather a combination of different variables seems to play an influential role in promoting learning. This rather unexpected finding can be seen in light of the Dynamic Systems Theory (DST) proposed by Larsen-Freeman (1997), suggesting that language learning as such is an inherently dynamic process that is largely determined by a set of inter-dependent variables that interact over time (cf. de Bot et al. 2007). Applying a DST approach to second language acquisition is said to capture both social and cognitive aspects and thereby shows how their interaction can lead to development (de Bot et al. 2007: 19). This view is largely supported by the results obtained in this project corroborating the notion that language learning in general and the development of foreign accent in particular are distinctly shaped by an interconnected web of variables. As discussed in detail in Chapter 5.8. these individual factors appear in a number of combinations which are after all unique in every language learner and therefore difficult to generalize.

To gain a better understanding of how these variables then impact on the individual level, it was deemed useful to analyse two learner profiles in more detail thereby seeking to reveal indications of the determining factors that shape a high performer and a low performer.

8.2.2. *Individual learners*

So far, the present study has concerned itself mostly with Austrian learners of English as a group, either the focus group or the control group. Indeed, the project was primarily designed to compare groups rather than individual learners. However, as the discussion of a number of factors related to L2 phonological acquisition has shown, foreign accent is fluid and individual and those individual factors have proven difficult to assign to a particular group. For this reason, it was deemed noteworthy to look at the development of two specific learners' performances and thereby identify contrasting aspects that may have played a role in those particular cases.

The students whose performances were selected for a more detailed description are on the one hand high-achiever informant #61 with the most remarkable

progress regarding the mitigation of the foreign-accentedness of her speech (overall +3.6) and low-achiever informant #49 whose scores showed the lowest development (overall -1.3). In the following, the data gathered in Q1 and Q2 from both informants will be sketched and correlated with the results obtained in the rating to see if any key ID variables can be identified that may have contributed to the development of the respective learner.

8.2.2.1. Informant #61

The following table shows the scores informant #61 received at T1 and T2 respectively:

Table 7: Score obtained for informant #61

	T1	T2	Diff.
Text	4.9	8.4	+3.5
Story	4.4	8.2	+3.8
Average	4.7	8.3	+3.6

As can be seen very clearly, the difference between the scores assigned to the student at T1 and T2 displays a consistent improvement of $M=+3.6$ overall, more specifically +3.5 for the text and a slightly higher score for the story with +3.8. This means that the progress in the speaking task was rated slightly higher than that for the reading of the text. Interestingly, the scores for the text were both times higher than that for the narration of the picture story, which goes against the general trend discussed in the preceding chapter.

In order to gain a more comprehensive picture of this particular student's performance, it seems crucial to look at the ID variables that may have impacted on the development. At the time of T1 informant #61 was a 21 year old female student in the German programme Entrepreneurship at the UAS Vienna. She had started to learn English at the age of 6 (kindergarten). Her parents were both L1 speakers of Austrian German whose only foreign language was English. She did not have relatives or close friends in an English-speaking country with whom she had regular contact. Her level of English was clearly above average as she claimed to have passed Cambridge Business English Certificate BEC Higher in 2010. Apart from English, she also learned Spanish as a foreign language at school.

Regarding exposure to the target language, at T1 she reported to have spent a few days in England, two weeks in the US and three months working in Malta at a hotel reception as part of her secondary school education. As far as media exposure is concerned, she sometimes watched movies or TV programmes in English, read books or newspapers in English and occasionally visited English websites. However, she never listened to English radio stations. Musicality was not a trait she associated with herself, as she neither played a musical instrument nor enjoyed singing.

To account for the attitude the student had towards the English language, a few items from Q1 which were assigned to this particular variable yielded a fairly consistent picture:

Table 8: Informant #61: Attitude

(1= fully agree 7 = do not agree at all)

	1	2	3	4	5	6	7
I like the English language.	x						
I think the English language sounds good.	x						
I enjoy speaking English.	x						
English is an important part of a business degree programme.	x						
Good English skills are important for my future career.	x						
Good pronunciation is more important than grammatical accuracy.	x						

Clearly, this shows that the student holds an overwhelmingly positive attitude towards the English language in general and sees spoken language skills and pronunciation as particularly important. In line with that, the information she provided for the variable 'anxiety' reinforces the statements made above by revealing that she is not afraid to speak English inside and outside class.

In terms of motivation, the answers provided again exhibit an extremely high degree of commitment and dedication, as the following extract details:

Table 9: Informant #61: Motivation

(1= fully agree 7 = do not agree at all)

	1	2	3	4	5	6	7
I would like to do my internship abroad.	x						
I would like to improve my pronunciation.	x						
I would like to sound like a native speaker	x						
I would like to have more classes in English.	x						
I would like to do an exchange semester abroad.	x						
Speaking English well is an important goal in my life.	x						
I would like to learn everything related to the English language and culture.		x					
When I am finished with my studies, I would like to live and work in a foreign country.	x						
I would like to improve my accent.	x						
I would like interlocutors to think that I am a native speaker.		x					

Not only did the student intend to spend some time during her studies abroad (as an exchange student and/or as an intern), she also managed to turn this idea into reality. By the time of Q2 informant #61 had in fact done a four-month internship in San Francisco, after which she took a 2 month holiday in Hawaii. So all in all she spent six months in an English-speaking country in the last year of her studies at the UAS Vienna. When asked what she considered important factors outside class that contributed to the improvement of her English skills, she claimed that friends and holidays had played a major role.

Another interesting aspect that needs to be addressed here is the student's self-perception regarding her English language skills. When she filled in Q1 in 2011, she provided the following answer to the question: How would you rate your English language skills at the moment?

Table 10: Informant '61: Self-assessment of English language skills at T1

(1= excellent, 5 = very poor)

	1	2	3	4	5
Grammar		x			
Vocabulary		x			
Pronunciation		x			
Fluency		x			

At T2 (2014), she was again asked to rate her language skills at the beginning of her studies. This time her answers were different:

Table 11: Informant '61: Self-assessment of English language skills at T1 as reported in Q2

(1= excellent, 5 = very poor)

	1	2	3	4	5
Grammar		x			
Vocabulary			x		
Pronunciation			x		
Fluency		x			

Apparently, looking back to the beginning of her studies, she has become more critical of her own language competence, particularly regarding vocabulary and pronunciation. However, this difference in perception at T2 needs to be seen together with the question: How would you rate your English language skills now? (at T2):

Table 12: Informant '61: Self-assessment of English language skills at T2

(1= excellent, 5 = very poor)

	1	2	3	4	5
Grammar		x			
Vocabulary		x			
Pronunciation		x			
Fluency		x			

It appears that the student at T2 felt that she had improved in the areas of vocabulary and pronunciation, although a comparison of her own perception of the competence in the various skills at the beginning of her studies yielded diverging results. In this context, it is also interesting to note that she rated her own accent as rather Austrian at T1 and then at the end of her studies as more American.

Having speculated on the profile of a high-potential pronunciation learner in Chapter 5.8., let us now re-consider the claims made there:

The individual, (1) who started to learn English before puberty, (2) holds a favourable attitude towards the English language and culture and is ready to integrate into the L2 community, (3) is highly motivated and also concerned about his/her pronunciation, (4) is not afraid to speak the foreign language, (5) has received explicit pronunciation instruction, (6) has spent a semester abroad, (7) is preferably female, (8) has been exposed to a large amount of native speaker English outside the classroom and (8) plays a musical instrument or sings.

By and large, informant #61 as portrayed in this chapter fulfils the majority of the criteria outlined here. The most noticeable deviations, however, are related to the fact that she has not received explicit pronunciation instruction and that she neither plays a musical instrument nor enjoys singing. What clearly stands out in her language learning biography seems the fact that she pursued an internship in the US in the course of her studies at the UAS Vienna.

An international internship typically denotes

[...] a short-term (one month to one year) work experience with an organization abroad that allows participants to apply theoretical classroom knowledge in a real-world setting, and gain a better understanding of a given field in a global context. These international internships may or may not offer academic credit and may or may not be paid (Nolting et al. 2013).

This is an aspect that I believe deserves to be looked into more closely in future SLA research. Conceivably, the experience of working abroad goes beyond studying abroad by making greater demands on the students. I would argue that during an internship, the students are required to engage more deeply in the target culture and use the L2 for a greater variety of purposes. As mentioned in Chapter 7.3.1 many universities of applied sciences include an obligatory internship as an essential cornerstone in their degree programmes. Even more than in a regular

study-abroad context, where learners traditionally continue their education in a different country, in international internships business students are challenged to grow professionally, socio-culturally and linguistically as the placement with a company ideally requires a fair amount of theoretical knowledge of the subject matter (i.e. business concepts) that is put into practice, socio-cultural competence in the daily interaction with colleagues and customers and a high level of linguistic skills necessary to cope with both content and language matters. Without doubt, students gain professional experience through an internship, while at the same time developing global skills through their international stay.

To the best of my knowledge, no empirical investigation so far has looked into the linguistic gains to be derived from an internship abroad. What has been researched, however, is the study abroad context. As pointed out in Chapter 5.7 some learners display impressive gains in foreign language competence scores after a stay abroad whereas others do not. The mere fact that SA learners are supposedly surrounded by a constant stream of “high quality, contextualized exposure” (Isabelli 2007: 333) to language does not automatically translate into increased FL proficiency. This mystery has prompted some SLA researchers to argue that SA has to be seen in correlation with other ID variables. For instance, Kinginger (2008) in her seminal case study of students’ language gains while studying abroad (2008) suggests that the coherent integration of the study abroad experience into a student’s long-term development path might increase linguistic gains. In addition, she emphasizes the important correlation between improved language skills and the creation of “durable contacts with local inhabitants,” noting in particular that *internships* [my emphasis], along with hobbies, service learning, and other activities facilitate these deeper social connections that are predictors of language gains (Kinger 2008: 110). Without doubt, an internship abroad as an inherent part of an academic degree programme may be a distinct asset in the learners’ curriculum vitae and therefore a crucial step in their long-term career. As Taft (2015) notes, international internships are clearly on the rise as students are beginning to realize that studying abroad may not be enough to enhance their employability.

With a view to the nature of the language learning process, one might argue that an internship abroad is perhaps the most advanced form of content and language integrated learning that a student can possibly experience (i.e. temporary full

immersion in L2 community and context, ideally with both language learning and content learning goals pursued by the learner). Still, we need to bear in mind that linguistic gains to be had from this experience have not been validated empirically and always need to be seen in the context of all the other ID factors that were discussed in Chapter 5. Therefore further research is necessary to substantiate the effects of an internship abroad on the language competence of the university students.

8.2.2.2. Informant #49

The second learner to be portrayed here is informant #49 who was chosen for closer scrutiny as the scores he received for T1 and T2 showed the most noticeable decline in pronunciation skills. More specifically, he was the student for whom the comparison of the ratings obtained at the beginning of his studies and at the end showed the steepest drop of all the students recorded. This means that of all the 55 informants, the development of his FA was rated by the listeners as the least favourable of all the participants. His pronunciation was clearly considered to be more heavily accented at T2 than at T1. To relate this negative development to potential factors that may have played a role, it is crucial to analyse the information the learner provided in Q1 and Q2.

Informant #49 is a male student from the German control group who was 20 years old at the time of the first recording. As the following table illustrates, the student's scores for each category (text, picture story and average) display a considerable decline.

Table 13: Scores obtained for informant #49

	T1	T2	Diff.
Text	3.2	1.5	-1.7
Story	2.9	2.0	-0.9
Average	3.0	1.7	-1.3

He started to learn English at the age of 10 when he entered secondary school. His parents are both L1 speakers of Austrian German. His father also speaks English and his mother does not speak any foreign languages at all. The student claims to have no relatives or friends with whom he speaks English in his freetime. In addition to English, he also learnt French at school.

Regarding exposure to the English language, he spent 3 weeks in the US in 2008 and then again in 2009. In addition, he reported that he never watched films in English, never read English books or newspapers/magazines, and never listened to English radio stations. Only occasionally he watched English TV and visited English websites. The student did not consider himself a musically talented person as he neither liked singing nor played a musical instrument.

At the beginning of his academic career at the UAS, he reported that he would like to improve his vocabulary, pronunciation and fluency and generally considered pronunciation as the most important skill in a foreign language as opposed to grammar, vocabulary or fluency (cf. Q1/item 37 in the appendix).

Table 14: Informant #49: Attitude

(1= fully agree 7 = do not agree at all)

	1	2	3	4	5	6	7
I like the English language.		x					
I think the English language sounds good.		x					
I enjoy speaking English.		x					
English is an important part of a business degree programme.	x						
Good English skills are important for my future career.		x					
Good pronunciation is more important than grammatical accuracy.	x						

The information provided here shows that the student generally held a very positive attitude towards the English language and saw spoken language skills and pronunciation as particularly important. This information was further reinforced when looking at the variable 'anxiety' which revealed that the student was not afraid of speaking English either in the classroom or outside and at that time had not made any negative experiences with the language.

In terms of motivation, the answers provided show a diverse picture, as the following items detail:

Table 15: Informant #49: Motivation

(1= fully agree 7 = do not agree at all)

	1	2	3	4	5	6	7
I would like to do my internship abroad.	x						
I would like to improve my pronunciation.	x						
I would like to sound like a native speaker				x			
I would like to have more classes in English.					x		
I would like to do an exchange semester abroad.	x						
Speaking English well is an important goal in my life.	x						
I would like to learn everything related to the English language and culture.					x		
When I am finished with my studies, I would like to live and work in a foreign country.				x			
I would like to improve my accent.	x						
I would like interlocutors to think that I am a native speaker.							x

Despite the fact that the learner exhibits a high degree of motivation to go abroad during his studies, either in the form of an internship or an exchange semester, he seems rather undecided as far as his long-term future career abroad is concerned. Similarly, he sees good English language skills as an important goal in his life, but he does not appear to be very interested in indulging further in the English language and culture. What is particularly striking is the fact that he shows a low level of concern about his own pronunciation. Although he claims that he would like to improve this particular skill, he does not feel the need to sound like a native speaker and definitely does not want others to think that he is in fact one.

When asked about his own assessment of his English language skills, the learner was rather careful and rated his grammar skills as good, pronunciation as average but his vocabulary and fluency as rather weak:

Table 16: Informant #49: Self-assessment of English language skills at T1

(1= excellent, 5 = very poor)

	1	2	3	4	5
Grammar		x			
Vocabulary				x	
Pronunciation			x		
Fluency				x	

When comparing the answers he gave at T1 and the answers to the same question at T2, the following scores can be made out:

Table 17: Informant #49: Self-assessment of English language skills at T1 as reported in Q2

(1= excellent, 5 = very poor)

	1	2	3	4	5
Grammar		x			
Vocabulary			x		
Pronunciation			x		
Fluency			x		

Retrospectively, he now rates his vocabulary and fluency as higher at the beginning of his studies than three years previously. Overall he feels that apart from grammar (which stayed the same), he improved in all three areas vocabulary, pronunciation and fluency in the course of his studies:

Table 18: Informant #49: Self-assessment of English language skills at T2

(1= excellent, 5 = very poor)

	1	2	3	4	5
Grammar		x			
Vocabulary		x			
Pronunciation		x			
Fluency		x			

The data gathered in Q2 revealed that the student had spent a semester at a South Korean university where he spoke predominantly English. Of course, this may also have influenced the perception of his own language skills.

8.2.2.3. Observed differences between informant #61 and informant #49

Drawing on the information presented above sketching the high achiever #61 and the low achiever #49, it appears that the main distinguishing features are the following:

- Slight difference in AOL: 6 versus 8 years
- concern about own pronunciation
- interest in English language and culture
- study abroad in South Korea vs internship in the US
- gender
- amount of media exposure
- perception of own English language skills

This clearly goes to show that the two learners compared here differ regarding a number of variables that are undoubtedly interrelated and combine to create a vague picture of a high-potential (HP) learner and a low-potential (LP) learner. Whereas it could be argued that (slightly) earlier AOL, a positive attitude and higher motivation to be observed in the HP learner have reinforced the experience the student made in the course of an internship in the States, a later onset of learning together with a lower interest in the English language and culture paired with a lower degree of concern about his own accent resulted in the LP learner's negative development after a stay in a Korean university. Of course, great care

needs to be taken to generalize the claims made here based on the analysis of only two admittedly opposing learner profiles. However, it is fascinating to see that the qualitative analysis of these two learners greatly supports the findings discussed in the previous chapter according to which it is difficult if not impossible to identify the most important factor which is responsible for the success or failure of a language learner. Instead, it is more appropriate to see these ID variables as part of an intricate and complex web of factors that are unique in every single learner.

A further interesting observation concerns the fact that both the learner with the highest development (informant #61) and the learner with the lowest development (informant #49) are members of the control group and not the EMI group. This clearly lends support to the finding presented above according to which the control group is much more heterogeneous in its linguistic abilities than the focus group.

8.2.3. *Factors accounting for group differences*

Although one of the main concerns of this project was to identify those variables that play a key role in the pronunciation development of the individual learners, it was also considered a worthwhile endeavour to compare the two groups with regard to the mean values of the variables under consideration. In order to discover whether there are any significant group differences, the factors that were discussed in detail in Chapter 5, most notably motivation, attitude, musicality and exposure were statistically evaluated based on group affiliation.

As some of the variables were represented in the form of an ordinal scale and others on a nominal scale and due to the fact that normal distribution was not given, the consulted statistician suggested carrying out a Mann-Whitney-U-test to see to what extent the mean values of the variables in the two groups differ. Table 19 provides the statistical analysis of ID variables according to groups.

Table 19: ID variables according to groups

Mann-Whitney- U-Test		Focus group	Control group	p
	Variable	mean		
	Motivation to improve pronunciation	1.24	1.88	0.001
	Motivation to improve English	1.62	2.58	0.000
	Anxiety	5.67	4.97	0.029
	Attitude	1.77	2.27	0.003
	Musicality	4.00	4.10	0.884

As can be seen, there is overwhelming evidence corroborating the notion that the two groups are profoundly different with regard to the variables investigated. Accordingly, the learners in the focus group are significantly more motivated, generally have a more positive attitude towards the English language and culture and they are also less inhibited by anxiety to speak the language. The variable that has yielded the most noticeable differences ($p=0.000$) is motivation to improve their English language skills. The only variable that has not produced any significant results is musicality which seems to be similar in both groups.

This result is further substantiated by empirical studies in the secondary school context which compared CLIL and EFL classes. In the majority of the cases, a clear superiority of CLIL groups over non-CLIL groups was revealed. More specifically, it has been claimed that CLIL students hold more positive attitudes towards language learning (Lasagabaster & Sierra 2009, Seikkula-Leino 2007) and they also report lower anxiety levels (Maillat 2010, Dalton-Puffer 2009, Nikula 2007) and a higher degree of motivation to improve their English language skills (Lasagabaster 2011, Seikkula-Leino 2007).

As far as I know, very few contrastive studies so far have taken account of the university context, which could be traced back to the fact that there are hardly any EMI degree programmes which are in parallel offered in English and in the L1. Therefore finding comparable groups is undoubtedly difficult. One exception in this respect is a study conducted by Dafouz et al. in 2014 at the University of Madrid. In an attempt to measure the impact of EMI on the students' academic performance, they compared an EMI group with a group of students studying the same content in Spanish. Their findings show that both cohorts obtained similar results, which leads the authors to conclude that the language of instruction does not appear to compromise the learning of academic content. To the best of my

knowledge, no study to date has looked at the linguistic gains of tertiary English-medium instruction from a contrastive point of view.

8.2.4. The factor 'exposure to the target language'

Despite the fact that 'exposure to the L2' has not been identified as the most reliable predictor in the language learning process, it is still interesting to explore it in more detail in order to capture any possible implications that might otherwise be overlooked in the present context. As discussed in Chapter 5.7., this variable is commonly researched in the form of different sub-variables. For the current project it seemed sensible to investigate four sub-variables, namely exchange semester abroad, internship abroad, media exposure, and exposure to the English language in the English-medium classroom. In the following, data derived from Q1 and Q2 exploring these sub-variables will be presented to provide an informed view of the differences that can be discerned between the two groups.

8.2.4.1. Exchange semester abroad

As explained in Chapter 7, students at the UAS Vienna are generally encouraged to study abroad. In the case of the degree programme Entrepreneurship this is the third semester (i.e. the winter term 2012/13). In this endeavour they are largely supported by the CIEM (Center for International Education and Mobility) located at the UAS campus. The information in the following figure is based on data gathered in Q2 and contrasts the two groups in relation to the number of students who decided to study for one semester in a foreign country:

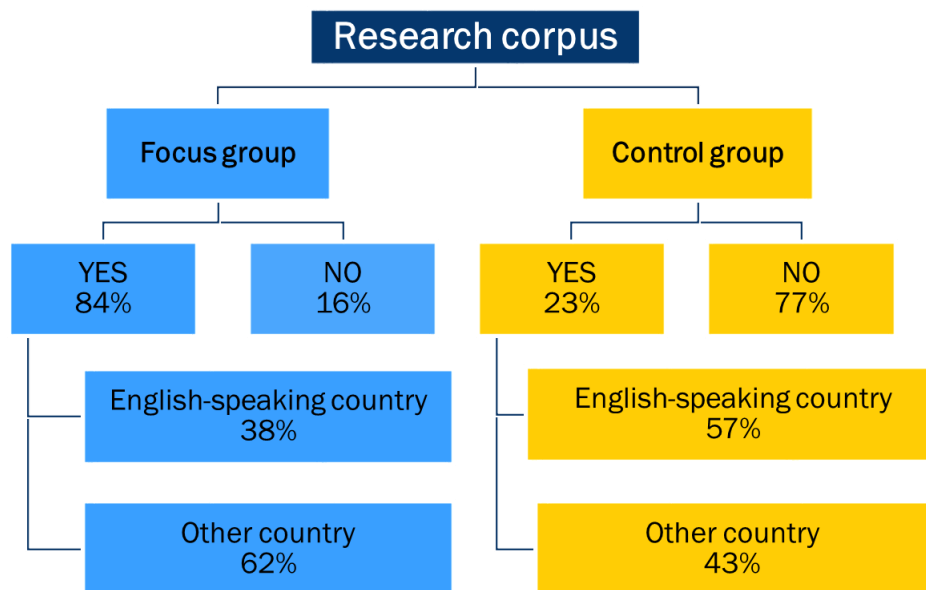


Figure 36: Exchange semester abroad

The English-speaking countries where the students studied were the US, Canada, Australia, New Zealand, South Africa, Ireland and the non-English speaking countries France, Spain, Estonia, South Korea, Netherlands, Argentina, Chile, and Romania. Clearly, the students in the focus show a considerably greater willingness to study abroad. The following figure visualizes the striking difference between the two groups:

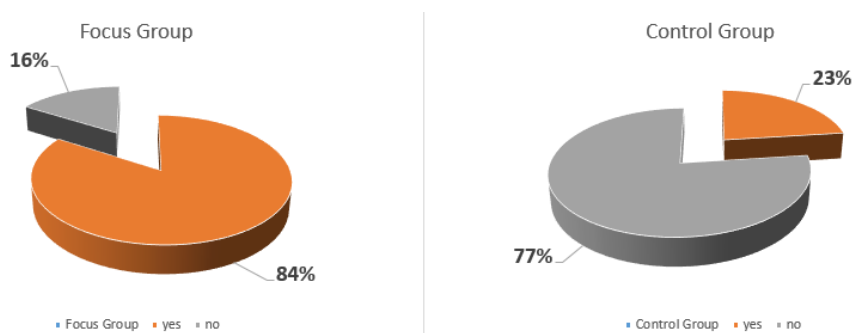


Figure 37: Exchange semester winter term 2013/14 - comparison

As can be seen above, at T2 it turned out that of the 25 informants in the bilingual programme, 84% had studied abroad for one semester, and only 16% had not. For the 30 students in the control group, the ratio is almost reversed with 23%

going abroad and 77% staying. Interestingly, in Q1 100% of the focus group said they were considering a stay abroad, whereas in the control group this number was significantly lower at only 66%. In both cases the desire to go abroad at the beginning of their studies was considerably higher than what later turned out to be reality.

8.2.4.2. Internship abroad

Most UAS degree programmes in Austria include an obligatory internship at a company of the student's choice, either in Austria or abroad. As opposed to the exchange semester, the students themselves need to find and suggest suitable placements and in this endeavour they enjoy great freedom. However, what needs to be approved by the university is that the position provides the students with an opportunity to put the theoretical knowledge acquired in the course of their studies into practice, i.e. the industrial sector and the position have to be related to and relevant for the chosen degree programme. For students studying Entrepreneurship at the UAS Vienna, this practical training was scheduled for the fifth semester (i.e. in this case the winter term 2013).

The following figure presents information collected in Q2 and shows the extent to which the two groups differ regarding their internship abroad:

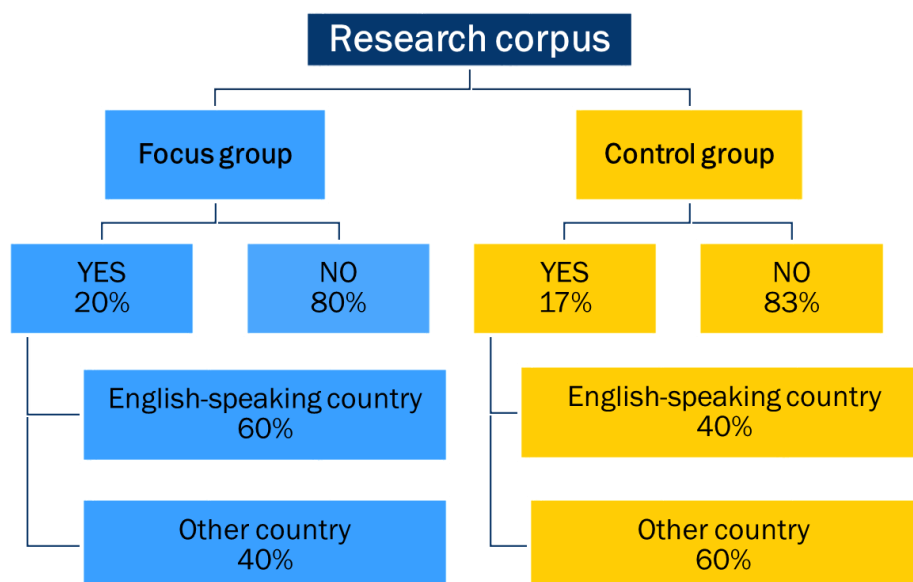


Figure 38: Internship abroad

The English speaking countries the students selected were the US and the UK; the non-English speaking countries Mexico, Italy, Germany and Spain. In contrast to the exchange semester, the figures for 'internship abroad' show a much less diverse picture:

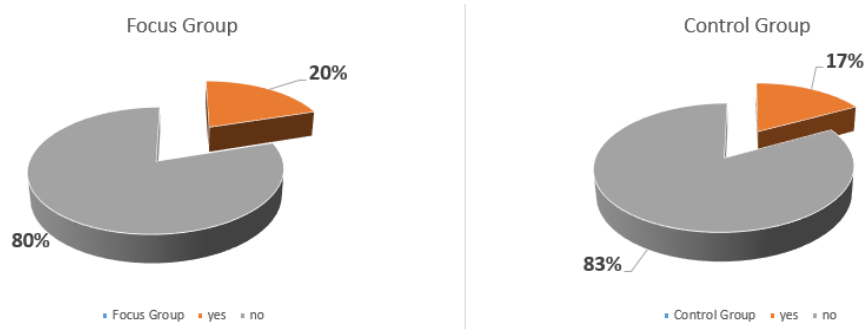


Figure 39: Internship abroad winter term 2013/14 - comparison

Accordingly, 20% of the students in the focus group and 17% of the students in the control group did their internship abroad. When looking at the information provided in Q1, 72% of the learners in the focus group had stated that they were considering an internship abroad. In the control group this figure is much lower at only 47%. Again, for both groups it can be said that a lot more students had initially expressed the wish to work abroad and two years later only a small percentage of them actually realized this plan.

8.2.4.3. Media exposure

The third sub-variable to be examined here is media exposure to English in the form of watching movies or TV programmes, reading books or newspapers, listening to English radio stations, or visiting English internet pages.

Table 20: Media exposure – focus group

How often do you...	often %	sometimes %	never %
... watch movies in English?	60	36	4
... read English books?	40	40	20
... read English newspapers or magazines?	20	52	28
... watch English TV programmes?	60	28	12
... listen to English radio stations?	12	32	56
... visit English internet pages?	68	32	0

As can be seen in Table 20, the most popular and most frequent source of exposure to the English language in the media is visiting English internet pages (68%). An impressive 100% of the students in the bilingual programme reported that they often (68%) or at least sometimes (32%) encountered English on the internet. This is closely followed by watching movies (60%) or TV programmes (60%) in English. The item with the lowest response rate was listening to English radio stations with only 12% claiming that they often and 32% sometimes tuned in. Interestingly, more than half of the learners in this group said they never listened to English radio stations.

The rates for the control group, however, yielded a diverging picture which is largely shaped by a general shift of student answers towards the right of the scale. This means that those items that were overwhelmingly ticked as 'often' by the focus group, were rated as 'sometimes' by the control group and those items that were classified as 'sometimes' turned out to be 'never'. The following table shows the results of the control group in more detail:

Table 21: Media exposure - control group

How often do you...	often %	sometimes %	never %
... watch movies in English?	7	67	26
... read English books?	0	63	37
... read English newspapers or magazines?	7	33	60
... watch English TV programmes?	13	67	20
... listen to English radio stations?	0	23	77
... visit English internet pages?	33	60	7

Clearly, the most popular source by far is again the internet with the students from the control group reporting that 33% of them often and 60% sometimes visited English internet pages. 7% of them said that they never looked at English websites. The least popular medium is again the radio. 23% of the respondents claimed that they sometimes and 77% that they never listened to English radio stations. A similar trend, although less drastic can be seen when it comes to reading books in English. Two thirds (67%) sometimes read a book in the English language, one third (37%) never did.

8.2.3.4. Media exposure and group affiliation

The investigation of the sub-variable media exposure has shown that the students in the bilingual programme are clearly exposed to a larger amount of English through the media than the control group. The most popular source in both groups appears to be the internet and the least frequently used is English radio stations.

In order to find out whether the differences between the groups as reported above are significant, the data were subjected to appropriate statistical methods. As some of the variables were coded with yes/no (i.e. exchange semester abroad and internship abroad), a Chi-square test was carried out which is particularly suitable for nominal data. For ordinal variables, however, the Mann-Whitney-U-test was considered more suitable. Both tests use frequency data from a sample in order to test hypotheses about population proportions (cf. Carver & Gradwohl Nash 2012).

The following table shows the results obtained from those two statistical methods.

Table 22: Exposure according to groups

Mann-Whitney-U-Test		Frequency (often) mean		p
		Focus group	Control group	
	Cinema	60.0%	6.7%	0.000
	Books	40.0%	0.0%	0.003
	Newspapers	20.0%	6.7%	0.014
	TV	60.0%	13.3%	0.002
	Radio	12.0%	0.0%	0.070
	Internet	68.0%	33.3%	0.008
Chi2-Test		Frequency (yes/no)		p
	Exchange semester abroad	84.0%	23.3%	0.000
	Internship abroad	20.0%	20.0%	1.000

Again, in the majority of cases, the differences between the two test groups are statistically significant (books, TV, newspapers, internet) or even highly significant (cinema, exchange semester abroad). One might therefore argue that the factor 'exposure to the target language' has been substantiated as a differentiating factor that sets the EMI group clearly apart from the control group. The only factor that seems to be fairly similar across both groups is internship abroad where differences could not be observed.

8.2.4.4. Conclusion

In summary, it can be said that although the ID variable 'exposure to the target language' has not yielded a significant influence on the learners' pronunciation development, major differences between the two groups could be confirmed. A close examination of the sub-variables 'exchange semester abroad', 'internship abroad', and 'media exposure' has shown that the students in the focus group are more likely to study abroad than their peers in the control group (84% as opposed to 23%). The ratio regarding an internship abroad, however, is very similar with 20% and 17% respectively. In terms of media exposure it was found that the learners in the bilingual programme were considerably more exposed to the English language with the internet being the most frequently mentioned source reported by both groups.

For the University of Applied Sciences Vienna, several far-reaching implications arise from these trends. Firstly, the extremely high number of students in the bilingual programme who study abroad for one semester necessitates organizational, financial and staff-related re-considerations of existing practices. In order to deal with the temporary but drastic reduction of student numbers (from 25 to 4 in the case of the participants in the present project), the UAS decided to fill the class with incoming exchange students from all over the world. If the current trend continues and more students from this programme go abroad, the management will have to contemplate extensive adaptations to the existing BA curriculum. This could, for instance, mean introducing an obligatory stay abroad with no classes offered in the third semester.

Secondly, the increasing popularity of internships abroad is bound to impact on the UAS' commitment to internationalization and globalisation processes (www.fh-

wien.ac.at/international). At the moment, the most important task of the Centre for International Education and Mobility (CIEM) at the UAS Vienna is to extend the network of partnerships with universities worldwide in an attempt to provide their students with placements abroad. Recognizing the growing interest of their students not only to study abroad but also to do their internship in a foreign country, the CIEM might want to consider expanding its services and networks and also provide assistance in finding adequate work placements abroad. Attempts in this direction have already been undertaken in the form of small cross-cultural projects.

A third and final implication arising from the exploration of the variable 'exposure to the target language' concerns media exposure. As has been seen in the figures presented above, all the learners in the focus group (100%) and the overwhelming majority of the learners in the control group (93%) visit English internet pages either often or sometimes. More precisely, of all the 55 participants in this project, only *one* learner stated that he/she never encountered English on the internet. This largely confirms what the management has already suspected and therefore further measures will have to be taken to integrate the learning of content and language with the help of e-learning tools and educational software in English, not only in the bilingual but also in the German programme. Thereby it is hoped that the students are encouraged to use English through a medium they are familiar with and enjoy.

8.3. Features of the Austrian accent in English

As formulated in Chapter 1.2., research question 3 goes beyond the quantitative evaluation of the data by adding a qualitative aspect to the study. Thereby an attempt is made to identify and describe the most frequent segmental and supra-segmental markers of Austrian-accented English that are least likely to change over time. By markers of foreign accent, those features of the English phonological system are referred to which are perceived as deviant from the standard variant of English (GA or RP).

To this end, the sound files of those ten informants who were perceived by the raters as having made the most noticeable progress in the development of their

FA were selected for further scrutiny. The decision to focus on those ten students was prompted by the assumption that a repeated acoustic analysis of two sound files collected from each informant (one at T1 and one at T2) would reveal developmental patterns of speech sounds that tend to be more salient in high performers than in low performers.

The following table gives an overview of the informants chosen for a detailed acoustic analysis:

Table 23: Informant for analysis of Austrian-accented English

Rank	#	Group	Gender	Average score overall at T1	Average score at T1	Difference
1.	61	CG	f	4.7	8.2	+3.5
2.	50	CG	f	5.4	8.3	+2.9
3.	15	FG	m	5.2	8.0	+2.8
4.	40	CG	m	5.2	7.6	+2.4
4.	12	FG	f	6.3	8.7	+2.4
6.	1	FG	m	5.9	8.0	+2.1
6.	29	FG	f	6.9	9.0	+2.1
6.	35	FG	f	4.8	6.9	+2.1
9.	48	CG	m	3.1	5.1	+2
10.	31	FG	m	7.4	9.3	+1.9

As can be seen, 5 female and 5 male speakers of whom 6 came from the focus group (FG) and 4 from the control group (CG) were chosen. The difference in terms of their development over the given time period ranged from an average of +3.5 to +1.9.

The detailed phonetic specification of the recordings of those learners was expected to reveal potential markers of the Austrian accent. For the close qualitative scrutiny of the sound files, the tables compiled in Chapter 6.4. for segmental and supra-segmental features of the Austrian accent as described in the literature were drawn upon. For each phoneme one representative word or item from "The North Wind and the Sun" containing this particular feature was selected and subjected to repeated acoustic analysis. One of the crucial advantages of this short text is that it features all the most important phonemes of the English language and therefore output can be controlled (cf. Chapter 6.4.). However, due to the text's brevity, there is in some cases only one instance of a particular phoneme. In order to guarantee a balanced approach to the data, it was decided to select merely one item even if the text contained a second or third one. For suprasegmentals, on the other hand, at least two examples of the production of the respective category could be identified and subsequently analysed.

8.3.1. *Segmental features of the Austrian accent in English*

As outlined in Chapter 7.4.1.3., the students in this project were asked to read the fable "The North Wind and the Sun" and to narrate a picture story by Gary Larson. For the qualitative part of this thesis, it was decided to focus only on the reading of the text and not on the narration of the cartoon as output produced in the reading was considerably more controllable and hence did not bear the risk of respondents consciously avoiding or not producing the features that I was interested in.

The following two tables show the results of the acoustic analysis of the realisations of those phonemes that were considered relevant for the present study (see Chapter 6.4.). Further detailed information is provided as to whether correct productions are considered to be closer to GA (i.e. GA-like) or RP (i.e. RP-like).

Table 24: Segmental features of the Austrian accent in English at T1

Category	Phoneme	Item(s)	Production			
			Flawed %	Correct %	GA-like %	RP-like %
Vowels & diphthongs	/æ/	tr <u>a</u> veller	-	100	60	40
	/ɜ:/	f <u>i</u> rst	20	80	70	10
	/ə/	travell <u>e</u> r	-	100		
	/ɔ:/	m <u>o</u> re	20	80	50	30
	/əʊ/	f <u>o</u> ld	20	80	60	20
	/ei/	m <u>a</u> king	80	20		
Consonants	/w/	<u>w</u> ind	70	30		
	/v/	gav <u>e</u> up	80	20		
	/ð/	<u>t</u> hey	100	-		
	/ə/	N <u>o</u> th	20	80		
	/z/	a <u>s</u> hard a <u>s</u>	90	10		
	/dʒ/	obl <u>i</u> ged	90	10		
	/ʒ/					
	/p/	wrapp <u>e</u> d	10	90		
	/t/	<u>t</u> ake	-	100		
		disput <u>i</u> ng	-	100		
	/k/	<u>c</u> oat	-	100	30	70
	/r/	h <u>a</u> rd	-	100	80	20
	/t/	f <u>o</u> ld	20	80		

As can be seen, the most problematic phonemes at T1 were the consonant /ð/ (0% correct) and the diphthong /ei/ (20% correct). At the other end of the scale /æ/ and /ə/ for vowels and /t/, /k/ and /r/ for consonants are located with 100% correct realisations.

Table 25: Segmental features of the Austrian accent in English at T2

Category	Phoneme	Word item	Production			
			Flawed %	Correct %	GA-like %	RP-like %
Vowels & diphthongs	/æ/	traveller	-	100	70	30
	/ɜ:/	f <u>i</u> rst	-	100	90	10
	/ə/	traveller	-	100		
	/ɔ:/	m <u>o</u> re	-	100	80	20
	/əʊ/	f <u>o</u> ld	20	80	40	40
	/ei/	m <u>a</u> king	50	50		
Consonants	/w/	<u>w</u> ind	60	40		
	/v/	g <u>a</u> ve up	50	50		
	/ð/	<u>th</u> ey	100	-		
	/θ/	N <u>o</u> th	-	100		
	/z/	a <u>s</u> hard a <u>s</u>	80	20		
	/dʒ/	obl <u>i</u> ged	60	40		
	/ʒ/					
	/p/	wr <u>a</u> pped	-	100		
	/t/	t <u>a</u> ke	-	100		
		disput <u>i</u> ng	-	100	80	20
	/k/	c <u>o</u> at	-	100		
	/r/	h <u>a</u> rd	-	100	90	10
	/t/	fo <u>l</u> d	-	100		

Three years later, all instances of /æ/, /ɜ:/, /ə/ and /ɔ:/ were produced correctly, as were /θ/, /p/, /t/, /k/, /r/, and /t/. The phonemes which seemed to be most difficult were again /ei/ (50% correct) and /ð/ (0% correct).

The results detailed above lead to the following ranking of the vowels and diphthongs at T1 and T2 respectively:

Table 26: Frequencies of vowels and diphthongs ranked

Vowels & diphthongs		
Correct %	T1	T2
100	/æ/	/æ/
	/ə/	/ə/
		/ɜ:/
		/ɔ:/
80	/ɜ:/	/əu/
	/ɔ:/	
	/əu/	
50		/ei/
20	/ei/	

Generally speaking, more correct pronunciations for all the phonemes investigated were found at T2 than at T1 which support the results of the sound file ratings by expert raters as presented in Chapter 8.3. according to which both groups managed to ameliorate their foreign accent. Clearly, the most problematic sounds in this category are the diphthongs /ei/ and /əu/ which were frequently monophthongized. Particularly /ei/ as in *making* proved to be problematic, even for those who otherwise showed a remarkable improvement in many areas. At T2 only 50% of the respondents managed to produce the diphthong correctly, which has to be seen in contrast to an initial failure rate of 80%.

For consonants, the following findings were observed:

Table 27: Frequencies of consonants ranked

Consonants		
Correct %	T1	T2
100	/t/	/t/
	/k/	/k/
	/r/	/p/
		/θ/
		/t̪/
90	/p/	/r/
80	/t̪/	
	/θ/	
50		/v/
40		/w/
		/dʒ/
30	/w/	
20	/v/	/z/
10	/z/	
	/dʒ/	
0	/ð/	/ð/

Here again, a general tendency to produce consonants more accurately at T2 can be detected as almost every single phoneme saw a gradual progression towards a more standardized variety.

What clearly stands out as the phoneme which is least susceptible to change is the lenis dental fricative /ð/. In this case, no change could be observed. In all the recorded instances of the item *they* both at T1 and T2 the informants consistently produced /d/ instead of /ð/.

Despite the fact that many English language teachers see /ð/ and /θ/ as typical features of the pronunciation of English, the two dental fricatives are not part of

the sound system of certain native speaker varieties of English, such as Irish English or Jamaican English (cf. Walker 2010: 29). What is even more, these two phonemes are not part of the sound system of a large number of languages in the world, including German, which renders their target-like production a great challenge for many learners. It has also been found that L1 English-speaking children seem to struggle in this respect as studies suggest that the last phonemes to acquire in childhood are in fact /ð/ and /θ/ (e.g. Jackson & Stockwell 2011: 138). This notable difficulty in the learning of the English phonological system as experienced by both L1 and L2 speakers together with the frequent absence of the two sounds in a great number of languages often result in the learners substituting the phonemes with similar sounds “they find easier” (cf. Walker 2010: 30).

What seems striking in this context is that in the sample analyzed in the present study, the fortis variant /θ/ reached 100% correctness in the second rating with an increase between T1 and T2 of +20%, whereas its lenis counterpart did not experience any development at all (0% correct at T1 and 0% correct at T2). A possible explanation for the difficulty observed with the production of lenis /ð/ can be related to the distribution of the phoneme. As a matter of fact, the lenis dental fricative most frequently occurs in word-initial position in *function words* such as pronouns (e.g. *they*), articles (e.g. *the*), or conjunctions (e.g. *than*) rather than in *content words* such as nouns, verbs, or adjectives (cf. Collins & Mees 2013: 92) where /θ/ (as in *threat*, *think*, or *thirsty*) is more common. As these function words do not carry lexical meaning, it could be argued that learners in their attempt to construct meaning seemingly focus more on content words and thereby neglect function words. In other words, an L2 learner who pays more attention to the accurate production of content words in the target language is likely to disregard features of function words of which the /ð/ is a crucial phonological component. This disregard can be assumed to take place on the level of production but also on the level of perception, which can be seen in relation to Flege’s Speech Learning Model (as discussed in Chapter 4.2.2.1), according to which accurate L2 production cannot take place unless there is accurate L2 perception.

As can be seen in Table 27, a further difficulty for the participants in the present project appeared to be the realisation of the lenis alveolar fricative /z/ (+10% change between T1 and T2) and the palato-alveolar fricative /dʒ/ (+20% change between T1 and T2) where little progress could be noted as the learners tended to

produce fortis sounds instead. /v/ and /w/ also seemed difficult.: /v/ as in <give up> was realised as /f/ and /w/ often showed no or too little lip-rounding resulting in /v/. This shows again that those sounds that have no equivalent counterpart in German appear to be troublesome for the learners.

By and large, the findings presented here confirm the results discussed in the review of empirical research into the pronunciation of Austrian English in Chapter 6.3. With the exception of Tatzl (2011), all other scholars agreed that the lenis consonants /ð/, /z/, /dʒ/, /v/ were bound to cause difficulties. This observation also largely confirms the tenets made by the Contrastive Analysis Hypothesis discussed in Chapter 4.2.2. which purports that an L2 sound which does not exist in the L1 (such as /ð/, /z/, or /dʒ/) or is used differently (such as /v/) will be difficult for a learner.

A final - and rather unexpected - finding in the course of the careful acoustic analysis of the sound files concerns the increasing tendency of the learners to produce General American variants of a number of phonemes. This development seems to result in the overall impression that the Austrian accent in English is highly influenced by General American. In this regard, the table below provides an overview of a few selected segmental features with a focus on the difference in choice regarding GA or RP at T1 and T2.

Table 28: Development of GA phonemes

GA phoneme	word item	T1 %	T2 %	Difference %
/æ/	tr <u>a</u> veller	60	70	+10
/ɜr/	f <u>ir</u> st	70	90	+20
/ɔ:/	m <u>o</u> re	50	80	+30
/ou/	f <u>o</u> ld	60	40	-20
/ɪ/	disput <u>i</u> ng	30	80	+50
/ɪ/	h <u>a</u> rd	80	90	+10

Accordingly, the most popular GA phoneme is /ɪ/ with 90% of the items produced at T2, particularly in combination with the vowel /ɜr/ as in *first* but also /ɔ:/ as in *more*. Also quite remarkable is the production of the flapped /ɪ/ as in <*disputing*>, which saw an increase of 50%.

Based on these observations, two questions arise:

- 1) Where does this influence come from?
- 2) Are the students aware of the GA features in their accent?

Whereas the latter question can be addressed by retrieving information gathered in the questionnaires of this study, the former calls for a different project which would certainly be worth pertaining to. The fact that the overwhelming majority of the EMI lecturers at the UAS Vienna spoke with an American accent can only be assumed to have played a role. Data confirming this suspicion is unfortunately not available.

Putting this general tendency to opt for GA variants into a broader perspective, it would be interesting to see whether this is a context-specific and regional phenomenon or whether there are similar trends to be observed in other European countries. Very recently a study conducted by Brekelmans (2015) in the Netherlands supports the view that the influence of GA phonemes on learners of English appears to be on the rise. Although the author was mainly interested in the effects of the discontinuation of explicit pronunciation instruction on undergraduate students, she also found that the L1 Dutch learners of English preferred General American allophones to those of RP. She claims that this could possibly be explained by the students' "seeking out more American media and even wanting to sound more American" (Brekelmans 2015: 88). Clearly, further empirical data is necessary to explore what seems to be an emerging trend not only among learners at the UAS Vienna but possibly also in other European educational institutions.

As far as learner awareness is concerned, in Q1 and Q2 the respondents were asked to rate their own accent. The table below shows the answers provided at T1 and T2.

Table 29: How would you rate your own accent?

	Focus group %		Control group %	
	T1	T2	T1	T2
more British	24	20	7	13
more American	36	36	13	27
more Austrian	12	12	53	37
other	8	4	0	0
I don't know	20	28	27	23

Interestingly, the figures displayed above do not support the view that the students themselves feel that their own accent has moved towards GA. When looking at the focus group, very few changes can be observed with the exception that at T2 more learners (+8%) felt that they could not place their accent any longer. One possible explanation for this might be that of those students who studied abroad for a semester more than two thirds (62%) were located in a non-English speaking country and of those who did an internship abroad almost half (40%) were posted in a country where English was not spoken as an L1. In the control group, however, a clearer tendency to rate their own accent as “more American” (from 13% at T1 to 27% at T2) could be observed together with the fact that the number of students judging their own accent as “more Austrian” decreased remarkably from 53% at T1 to 37% at T2. Overall, the most frequently provided answer was “more American” in the focus group and “more Austrian” in the control group both at T1 and T2.

8.3.2. Suprasegmental features of the Austrian accent in English

The following table presents the findings derived from the phonetic analysis of the suprasegmental features of the Austrian accent in English at T1 and T2 respectively. For each category, two representative items were selected from the text “The North Wind and the Sun”.

Table 30: Suprasegmental features of Austrian-accented English at T1 and T2

		T1		T2	
Problem	Item(s)/chunks	Flawed %	Correct %	Flawed %	Correct %
Word stress and vowel reduction	• 'traveller	0	100	0	100
	• a'round	20	80	0	100
Sentence stress	And so the North <u>Wind</u> was <u>obliged</u> to <u>confess</u> that the <u>Sun</u> was the <u>stronger</u> of the two.	30	70	0	100
Weak forms	• <u>as</u> hard <u>as</u>	70	30	40	60
	• stronger <u>of</u> <u>the</u> two	90	10	80	20
Linking	• when_a traveller	10	90	0	100
	• took_off his coat	70	30	40	60

Accordingly, the aspect that was found to be least difficult at T1 with an accuracy rate of 100% was word stress and vowel reduction as in *traveller*, followed by linking in *when_a traveller* with 90%. At the end we find weak forms in a sequence of two as in *stronger of the two* with 10%, followed by linking as in *took_off his coat* (30%). Three years later, at T2, it is still those two features that seem to cause most problems. The correct production of the weak form in *as hard as* only increased by 10% and the scores for linking in *took_off* even saw a deterioration of 10%. In contrast, the production of linking in the item *when_a traveller* reached 100% correctness at T2. It appears that for the suprasegmental features of

Austrian English investigated in this project, the correct pronunciation of weak forms seems to be least susceptible to change over time. Both items *as hard as* and *stronger of the two* were found to be most problematic.

Two possible reasons behind this phenomenon can be assumed, which largely correspond to what has been said above about the lenis dental fricative being the most challenging phoneme for the Austrian learners in the present project. Firstly, as discussed in Chapter 6.1.3. weak forms are not part of Standard German (cf. Scherer & Wollmann 1986: 229). This is further enforced by the fact that German pronunciation dictionaries generally do not feature weak forms. Secondly, weak forms are mostly associated with function words such as articles, pronouns, or auxiliaries. By nature, these function words play a minor role in conveying lexical meaning (as opposed to content words) and thus they are given less attention by the learners. This lack of attention may also be responsible for the potential link between inaccurate production as a consequence of insufficient perception. Those learners who do not perceive the difference between the marked (i.e. strong form) and the unmarked form (i.e. weak form) will struggle with accurate production. In addition, the pronunciation of function words is often neglected in many Austrian EFL classrooms. These aspects taken together - the practical non-existence of weak forms in the L1, their subordinated role in constructing meaning and their general negligence on the part of FL teachers - tend to result in Austrian learners of English producing strong rather than weak forms.

Clearly, these findings support the view expressed by Hasenberger (2012: 38) that suprasegmental features should not be left aside in English language teaching in Austria. Rather than focussing on individual vowels and consonants from the start of the learning process, supra-segmental aspects such as weak forms and linking also need to be considered.

I would like to add here that the features which have been identified as the most prominent aspects of Austrian-accented English in the present study can of course only reflect a tendency that is based on a clearly defined sample. Naturally, this does not mean that all Austrian learners of English share the same characteristics. A much larger sample would in fact be necessary to generalize the findings and describe the Austrian accent in more detail.

9. Synthesis and Outlook

This chapter provides a synthesis of the main results and observations obtained in the course of this longitudinal project. In addition, potential limitations are addressed and subsequently suggestions for further research made. The concluding statement rounds off this thesis by discussing the wider implications and significance of the study.

9.1. Synopsis

This case study set out to provide an answer to the overarching research question as to how English-medium instruction affects the pronunciation of Austrian business students at the UAS Vienna over a period of three years. More specifically, the following sub-questions were addressed:

RQ 1) How does the degree of foreign accent develop longitudinally under EMI instruction as opposed to ESP instruction?

RQ 2) Which factors contribute to the changes in the students' pronunciation observed in the two groups?

RQ 3) What are the most prominent segmental and supra-segmental features of the Austrian accent that are least susceptible to change?

In order to tackle these research questions, a mixed-methods case-study approach embracing both quantitative and qualitative methods was considered to be most appropriate. Two groups of adult students from the BA programme Entrepreneurship at the University of Applied Sciences Vienna were selected: firstly, a focus group from the bilingual programme (with up to 50% of the content classes taught in English by native speakers of the language) and secondly, a control group from the German programme. To track the development of the learners' pronunciation (RQ 1), the participants were recorded twice, once at the beginning of their studies (in 2011) and then again at the end (in 2014). The elicitation techniques that have been utilized consisted of two different tasks, the reading of the text "The North Wind and the Sun" and the narration of a picture story by Gary Larson. In addition, questionnaires were given to the participants

with the aim to gather data regarding factors (RQ 2) that are commonly associated with the level of pronunciation mastery (e.g. attitude, motivation, anxiety, exposure to the L2, etc.). With the help of an online rating tool, these sound files were then rated by expert listeners. For a closer investigation of those features of the Austrian accent that appear to be least likely to change over time (RQ 3), a selected number of sound files were subjected to repeated acoustic analysis.

The results obtained in this study have shown that the foreign accent of the learners as rated by pronunciation experts from the University of Vienna in both the focus group and the control group improved considerably. However, the difference in the degree of development of the two groups is highly significant as the EMI students decidedly outperformed their peers in the control group at the beginning of their studies as well as at the end. Over a period of almost three academic years (2011-2014), the focus group ameliorated their foreign accent by an average of 1.1 points, whereas the control group in the German programme scored significantly lower at 0.6 points. The initial superiority of the learners in the focus group gives rise to the assumption that those students from the UAS Vienna who are accepted into the bilingual programme already possess better pronunciation skills than the students in the German programme. This head start is then further re-enforced in the course of their studies and leads to a clear edge towards the time of graduation.

Regarding the factors which may have contributed to the changes in the students' pronunciation, no single variable could be identified as the driving force in the language learning process. Although the most outstanding feature of the EMI programme Entrepreneurship is the increased amount of exposure of the learners to native speaker input, the success of the focus group could not be traced to this factor alone. Instead, it appears that a dynamic combination of interrelated factors like motivation to learn the language and to improve one's pronunciation, musicality, anxiety as well as exposure can have a positive effect on the development of the students' foreign accent.

This study has also explored those features of the Austrian accent that are least susceptible to change over time. A close phonetic specification of the recordings of a selected number of learners revealed that on the segmental level, the production of the lenis consonant /ð/ together with the diphthongs /ei/ and /əu/ showed no or little change. As far as supra-segmental features are concerned, the informants in

the present project struggled most with the accurate pronunciation of weak forms and linking. In addition, a general tendency of the learners to produce GA phonemes rather than RP phonemes was detected. This development seems to result in the overall impression that the Austrian accent in English is increasingly influenced by General American phonology.

All in all it can be said that this empirical study is the first of its kind to demonstrate that in the long run English-medium instruction can have a measurable effect on the learners' phonological development. The degree programme described and analysed here clearly sets favourable conditions for advancing the learners' pronunciation skills and thereby rejects the widely held view that the language learning process of adult students is barred with the almost unsurmountable barrier of a critical period for phonological acquisition.

9.2. Limitations of the study

The findings presented in this thesis naturally have to be seen in the light of a number of limitations, which can be assigned to three main categories namely contextual, conceptual and methodological.

As far as contextual parameters are concerned, perhaps the most important limitation refers to the setting. Here, a very specific EMI classroom at an Austrian university of applied sciences is described, analysed and interpreted. Whereas this educational institution provides the perfect context for a longitudinal research project in terms of comparability of the two cohorts and also trackability of the changes in the learners' pronunciation, it also has to be noted that the findings are closely tied to the peculiarities of this type of tertiary education. As outlined in Chapter 7.3.2. at a UAS, student groups are considerably smaller and there is in general more interaction between lecturers and teachers than at a regular university. This also means that the learners engage in the target language more actively than at a university that is characterized largely by teacher-fronted classrooms. Consequently, care should be taken to transfer the findings to other, less student-centred tertiary educational institutions where different situational factors shape the learning experience of the students. Thus, generalizing the findings beyond this small sample should only be done with great care. Yet, it

would of course be interesting to scrutinize the impact EMI has on the learners' pronunciation development in other academic environments.

In terms of conceptual considerations, perhaps the most important limitation refers to the nature of the degree of foreign accent reflected in this study. As has been pointed out by a number of scholars, defining foreign accent is no easy task as it encompasses the notion of inherent variability. Moyer (2014), for instance, postulates that no two members of a speech community sound exactly the same, nor does a learner speak in acoustically identical ways across a number of different situations, even if the words are the same. Without doubt, we continuously adjust our pronunciation to changing circumstances rendering it a context-related expression of our personal and social identity. It therefore has to be taken into account that the ratings gathered here in this study can only capture two moments in time of a student's language learning process. Keeping in mind that the major aim here was to track the development of the learners' degree of foreign accent over a period of three years, the methodology employed was indeed able to determine the extent to which the foreign accent in the learner utterances changed. Further complicating this conceptual limitation, the results presented here rest on the raters' subjective perceptions of foreign accent. For this study, utmost care was taken to ensure that all the raters shared a homogeneous view of what exactly constitutes the notion of foreign accent. This implicitly shared knowledge is grounded in many years of assessing the pronunciation of Austrian learners of English. Although it is reasonable to assume that the linguistic features of foreign accented speech are transferable, different groups of raters (expert and non-expert) are bound to define and judge pronunciation skills in diverging ways. As a consequence, the ratings are likely to yield different results if carried out by different judges.

This study also presents a number of limitations in terms of its methodological approach. One of the major cautions that must be taken refers to sample size both in terms of listeners and speakers. The group of listeners was by nature very small. The closely defined requirements for the judges to act as listeners meant that only a select few could be considered suitable. In total, I was very fortunate to recruit seven raters with the necessary pedagogical background and long-standing experience as pronunciation teachers and examiners who committed themselves to spending several hours of their valuable time rating as many as 300 sound files.

The same is naturally true of the fact that there was only one expert judging the productions of the learners in the qualitative segment of the study. Needless to say that a larger sample of listeners could have produced more accurate results. It has to be noted, however, that the high degree of intra-rater reliability inherent in the repeated acoustic analysis carried out by one researcher also adds to the validity of the categorization.

Not only more listeners could have been employed, also more informants could have been used. As there is no clear-cut suggestion as to how large a sample size should be, it can be assumed that the larger the sample, the better. Although at the beginning of the project, each cohort consisted of more than 30 participants, the final number of speakers to be used in the analytical stage saw a moderate decline which is of course due to the longitudinal nature of the research and an inherent disadvantage of any long-term study. Clearly, the scarcity of longitudinal studies in language learning is often associated with high attrition rates related to the need to test and re-test the same individuals over an extended period of time. Therefore, the longer the follow-up period, the higher the chances are for drop-out and the lower statistical power. In the present project, however, this attrition rate could be kept to a minimum, a fortunate circumstance that can be attributed to the fact that in Austria Universities of Applied Sciences are organized in a school-like manner with fixed time schedules and a rigidly set curriculum which makes it easier for a researcher to procure participants, to keep track of the progress they make, and to compare parallel groups.

These potential imprecisions and limitations clearly open up room for further discussion and empirical research to refine and improve the conceptual understanding of how pronunciation is learnt in the EMI classroom.

9.3. Suggestions for further research

The suggestions for further research can be deduced from the limitations of the study identified above.

The rather unexpected finding showing the large extent of positive development in the advanced learners' pronunciation skills, which could not be anticipated, can definitely lead to entirely new avenues to explore in future studies. Although the

results presented in this case study have to be seen within the given context, namely a business degree programme at an Austrian university of applied sciences, it would certainly be worth re-visiting the research questions in a different setting. A replication of this study involving EMI courses in other European tertiary educational settings would not only be desirable but are essentially needed to provide further support for the generalizability of the findings. In particular, investigating potential differences in teaching styles and learning experiences between a University of Applied Sciences and a regular university seems to be a promising path to take when looking into linguistic gains of EMI students. No matter what specifics L1 future studies with a similar design might investigate, the results will contribute to the exploration of a scientific field that deserves tribute and due attention. It is therefore hoped that researchers with a keen interest in pronunciation learning and teaching will shift their focus away from initial learning stages in children towards a more advanced and more experienced age group of learners.

This study has shown that increased exposure to the target language in the form of exchange semesters abroad, internships abroad and media exposure can play a crucial role in the development of the learners' pronunciation. These days an increasing number of undergraduate as well as post-graduate degree programmes are building an optional or obligatory internship abroad (cf. Taft 2015) into their courses to prepare their students for the global workplace. As this type of practical training in a foreign country is often seen as a distinct asset in the learners' curriculum vitae that greatly enhances his/her employability, it could also be assumed that this variable has a potential impact on the students' language competence. So far, research has predominately focused on the linguistic gains of *studying abroad* and thereby leaving aside that spending a semester *working abroad* may be worth exploring as a separate variable. Future researchers might thus want to gain greater insights into this aspect, in particular by exploring the precise differences in linguistic gains between working abroad and studying abroad.

Another question certainly worth investigating pertains to the effects of Austrian-accented speech on intelligibility or comprehensibility. Empirical studies actually measuring intelligibility are rare and do not seem to provide evidence that NNS speech is generally less intelligible than NS speech. Especially with regard to the

role of English as a Lingua Franca the question of how these features impact on the communicative aims in conversation needs to be explored further. For the present project, this means that an empirical study into how intelligible the speakers in the present project are would probably yield enlightening results that could trigger new ideas in pronunciation teaching and learning.

Lastly, a further exploration of the reasons behind the general tendency of the learners to resort to General American rather than British phonological variants can be suggested. Follow-up projects could, for example, elaborate on the subject of media exposure in the Austrian context that could further help our understanding of what causes this preference and what this might eventually entail for the EFL classroom.

9.4. Concluding statement

Despite the fact that further research is both necessary and desirable to substantiate the results presented here, the study breaks new ground in pronunciation research and forges ahead into English-medium instruction, a teaching approach that is currently sweeping European higher education institutions.

Having defined the main objective of the present study as the exploration of a specific EMI setting with regard to the development of the students' pronunciation skills, the most outstanding finding that could be discerned was the overwhelmingly beneficial effect of tertiary EMI on the adult learners' spoken language production. The data gathered in the study provide strong evidence that in this particular context vital factors affecting L2 phonological acquisition come to the fore as they largely shape and positively influence the learning process. Most notably it was increased exposure to the target language that seems to have made a substantial difference between the EMI group and the control group.

For the UAS Vienna, the results presented in this study can be interpreted as a clear sign that the bilingual BA degree programme Entrepreneurship is a highly attractive offer amidst the myriad of business-oriented undergraduate programmes that the Viennese tertiary landscape presents. In this respect, important implications arise in relation to student population and quality

assurance. Firstly, the data gathered here clearly revealed that the group of learners in the bilingual programme differ considerably from that in the German programme, not only regarding their English language competence but also concerning affective variables like attitude, motivation or desire to spend a semester abroad (either in the form of an internship or a study abroad) that seem to impact favourably on the learning process. In fact, this largely confirms what department heads and teachers have already suspected but never had empirical proof of. Secondly, the fact that not only the EMI group but also the German group managed to ameliorate their foreign accent speaks in favour of the programme/curriculum designers as well as all the content and language teachers involved in the running of the whole programme. Despite the fact that the phonological gains as recorded in the focus group are of central concern in this thesis, the improvements noted in the control group need not be overlooked. It appears that the learning environment created by the UAS fosters and promotes incidental pronunciation acquisition although the focus of the EMI and the ESP courses lies elsewhere.

Moreover, English language teachers in Austria will also benefit from the findings presented here in that they are now provided with a list of features of the Austrian accent in English that most learners, including those who are experienced and high achievers, seem to struggle with. I would argue that particularly in teacher training, as for example provided by the English department at the University of Vienna, pronunciation specialists should draw upon this list as a highly useful resource in order to provide prospective teachers with a descriptive account of what constitutes the Austrian accent in the 21st century. It will be upon future research, however, to take up this notion and shift the focus from the speaker to the listener in order to determine out how these features are actually perceived in terms of comprehensibility and intelligibility.

This study may also be significant beyond the UAS context, not least because it addresses the issue of pronunciation acquisition in adult learners as a research area that is both under-represented and under-researched. Never before have empirical investigations yielded such convincing and clear results that point to the phonological gains to be had by adults in the English-medium classroom. Thus the potential beneficiaries also include researchers exploring the linguistic outcomes

of English-medium instruction in higher education as well as those seeking to unravel the puzzle of how pronunciation is learnt.

In conclusion I would like to reaffirm my sincere hope that the insight into pronunciation learning in a bilingual programme as granted in this thesis will give new impetus to the advance of English-medium teaching in European higher education.

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11. Appendix

11.1. Questionnaire 1

Liebe Studierende!

Wien, im Oktober 2011

Dieser Fragebogen ist Teil eines wissenschaftlichen Projekts des Studiengangs Unternehmensführung zum Thema **Sprachbegabung** und **Entwicklung der englischen Sprachkompetenz** im Laufe des 3jährigen Studiums.

Ich ersuche Sie nun, diesen Fragebogen **nach bestem Wissen und Gewissen** auszufüllen. Ich kann Ihnen versichern, dass Ihre Angaben **anonymisiert** und nur für **wissenschaftliche Zwecke** verarbeitet werden.

Für Fragen stehe ich Ihnen selbstverständlich jederzeit gerne zur Verfügung!

Vielen Dank für Ihre Teilnahme!

Karin Richter
(karin.richter@fh-wien.ac.at)

Um eine leichtere Lesbarkeit zu gewährleisten, wurde auf geschlechtsspezifische Endungen („-Innen“) verzichtet. Es sind an allen Textstellen, wo natürliche Personen bzw. Personengruppen erwähnt werden, immer Menschen beiderlei Geschlechts angesprochen.

Einverstanden:

Ort, Datum

Unterschrift

Teil 1 – Persönliche Daten

1. Name: _____

2. Geschlecht:

M	W
☐	☐

1. Geburtsdatum: _____

2. Wann haben Sie begonnen Englisch zu lernen?

☐ ab meiner Geburt

☐ Kindergarten Alter: ca. _____

☐ Volksschule Alter: ca. _____

☐ Unterstufe Gymnasium/Hauptschule Alter: ca. _____

☐ Sonstiges: _____ Alter: ca. _____

3. Welche Muttersprache(n) sprechen Ihre Eltern?

Mutter: _____

Vater: _____

4. Welche Fremdsprachen sprechen Ihre Eltern?

Mutter: _____

Vater: _____

5. Welche Sprache/n wird/werden bei Ihnen zu Hause/in ihrem privaten Umfeld gesprochen?

6. Haben Sie Freunde/Verwandte mit englischer Muttersprache, mit denen Sie regelmäßig (mindestens 3 x pro Jahr) Kontakt haben?

Ja	Nein
☐	☐

7. Welche anderen Fremdsprachen sprechen Sie? (bitte in der Reihenfolge des Beherrschungsgrades angeben):

1) _____

2) _____

3) _____

4) _____

8. Wie viele und welche Dialekte sprechen Sie?

Wie viele Dialekte?		Welche?
keine	☐	
1	☐	
2 oder mehr	☐	

9. Höchste bisher abgeschlossene Schulausbildung

(bitte kreuzen Sie an bzw. geben Sie das Jahr des Abschlusses an):

Institution		Jahr des Abschlusses
Lehre/Fachschule	☐	
Matura	☐	
Universität, FH	☐	

10. Haben Sie in Ihrer bisherigen Schullaufbahn eine rein englischsprachige Schule besucht?

Ja	Nein
☐	☐

Wenn nein, bitte weiter zu Frage 11.

Wenn ja:

Schultyp/Ort: _____

Wie lange? _____

11. Haben Sie in Ihrer bisherigen Schullaufbahn eine bilinguale Schule besucht?

Ja	Nein
☐	☐

Wenn nein, bitte weiter zu Frage 12.

Wenn ja:

Schultyp/Ort: _____

Wie lange? _____

Wie viele Fächer wurden auf Englisch unterrichtet?

☐ 1 – 2 Fächer pro Jahr

☐ 3 – 4 Fächer pro Jahr

☐ bis 50 %

☐ mehr als 50 %

12. Waren Sie schon einmal in einem englischsprachigen Land?

Ja	Nein
☐	☐

Wenn nein, bitte weiter zu Frage 13.

Wenn ja, bitte geben Sie Details an:

	Großbritannien/ Irland	USA/Kanada	Australien/ Neuseeland	Südafrika
Wo?	☐	☐	☐	☐
Wann?				
Wie lange?				

13. Hatten Sie beruflich schon mit Englisch zu tun?

Ja	Nein
☐	☐

Wenn nein, bitte weiter zu Frage 14.

Wenn ja, bitte kreuzen Sie an:

Schriftlich	Mündlich
☐	☐

Teil 2 – Englisch in der Freizeit

Wie oft ...

	oft	manch -mal	nie
16. ... sehen Sie sich Kinofilme auf Englisch an?	☐	☐	☐
17. ... lesen Sie englischsprachige Bücher?	☐	☐	☐
18. ... lesen Sie englischsprachige Zeitungen/ Zeitschriften?	☐	☐	☐
19. ... sehen Sie englischsprachiges Fernsehen?	☐	☐	☐
20. ... hören Sie englischsprachige Radiosender?	☐	☐	☐
21. ... besuchen Sie englischsprachige Internetseiten?	☐	☐	☐

Teil 3 – Begabungen

Bitte kreuzen Sie an.

1 = **sehr** gerne 7 = **überhaupt nicht** gerne

	1	2	3	4	5	6	7
22. Singen Sie gerne?	☐	☐	☐	☐	☐	☐	☐
23. Schauspielen Sie gerne?	☐	☐	☐	☐	☐	☐	☐
24. Imitieren Sie gerne Stimmen?	☐	☐	☐	☐	☐	☐	☐
25. Imitieren Sie gerne Dialekte?	☐	☐	☐	☐	☐	☐	☐

26. Spielen Sie ein Musikinstrument?

Ja	Nein
☐	☐

Wenn nein, bitte weiter zu Frage 27.

Wenn ja, welche/s: _____

Wie lange schon? _____

	ja	eher ja	weder /noch	eher nein	nein
27. Halten Sie gerne Präsentationen in Ihrer Muttersprache?	☐	☐	☐	☐	☐
28. Sind Sie ein guter Redner (in Ihrer Muttersprache)?	☐	☐	☐	☐	☐
29. Hören Sie manchmal von Ihren Freunden, dass Sie viel reden?	☐	☐	☐	☐	☐
30. Hören Sie manchmal von Ihren Freunden, dass Sie gut Dialekte und Akzente nachmachen können?	☐	☐	☐	☐	☐
31. Haben Sie generell ein gutes Gehör?	☐	☐	☐	☐	☐
32. Passen Sie sich beim Sprechen mit anderen Menschen Ihrer Muttersprache leicht dem Akzent/Dialekt an?	☐	☐	☐	☐	☐
33. Fühlen Sie sich als Sprachtalent?	☐	☐	☐	☐	☐

Teil 4 – Sprachenlernen/Sprachkompetenz

34. Wie schätzen Sie Ihre Englischkenntnisse ein?

(Schulnotensystem 1 = Sehr gut, 5 = Nicht genügend)

	1	2	3	4	5
Grammatik	☐	☐	☐	☐	☐
Vokabular/Ausdruck	☐	☐	☐	☐	☐
Aussprache	☐	☐	☐	☐	☐
Flüssiges Sprechen	☐	☐	☐	☐	☐

35. Wie schätzen Sie Ihre Deutschkenntnisse ein?

(Schulnotensystem 1 = Sehr gut, 5 = Nicht genügend)

	1	2	3	4	5
Grammatik	☐	☐	☐	☐	☐
Vokabular/Ausdruck	☐	☐	☐	☐	☐
Aussprache	☐	☐	☐	☐	☐
Flüssiges Sprechen	☐	☐	☐	☐	☐

36. Was würden Sie gerne an Ihrem Englisch verbessern?

(Bitte ankreuzen. Mehrfachantworten möglich).

- ☐ Grammatik
- ☐ Vokabular/Ausdruck
- ☐ Aussprache
- ☐ Flüssiges Sprechen
- ☐ Eigentlich gar nichts
- ☐ Sonstiges: _____

37. Was ist für Sie an einer Fremdsprache das Wichtigste?

	sehr wichtig	eher wichtig	weder/ noch	eher nicht wichtig	nicht wichtig
Grammatik	☐	☐	☐	☐	☐
Vokabular/Ausdruck	☐	☐	☐	☐	☐
Aussprache	☐	☐	☐	☐	☐
Flüssiges Sprechen	☐	☐	☐	☐	☐

38. Wenn Sie Englisch sprechen, ist Ihr Akzent Ihrer Einschätzung nach eher

- ☐ britisch
- ☐ amerikanisch
- ☐ österreichisch
- ☐ sonstige: _____
- ☐ weiß ich nicht

Teil 5 – Ihre Meinung/Erfahrungen zum Thema Sprachen/Sprachenlernen

Inwieweit stimmen Sie folgenden Aussagen zu?

1 = stimme **völlig** zu

7 = stimme **überhaupt nicht** zu

	1	2	3	4	5	6	7
39. Ich würde gerne mehrere Fremdsprachen fließend sprechen	☐	☐	☐	☐	☐	☐	☐
40. Ich würde gerne so klingen wie ein Native Speaker.	☐	☐	☐	☐	☐	☐	☐
41. Ich mag die englische Sprache	☐	☐	☐	☐	☐	☐	☐
42. Ich lerne sehr gerne Fremdsprachen	☐	☐	☐	☐	☐	☐	☐
43. Wenn ich englische Musik höre, versuche ich den Text zu verstehen.	☐	☐	☐	☐	☐	☐	☐
44. Ich finde, die englische Sprache klingt gut.	☐	☐	☐	☐	☐	☐	☐
45. Ich möchte gerne alles, was mit der englischen Sprache und Kultur zu tun hat kennenlernen.	☐	☐	☐	☐	☐	☐	☐
46. Ehrlich gesagt ist der Englischunterricht für mich Zeitverschwendung.	☐	☐	☐	☐	☐	☐	☐
47. Ich werde nervös, wenn mich ein Tourist auf Englisch anspricht.	☐	☐	☐	☐	☐	☐	☐
48. Ich fühle mich unsicher, wenn ich in der Klasse Englisch sprechen muss.	☐	☐	☐	☐	☐	☐	☐
49. Gut Englisch zu sprechen ist ein wichtiges Ziel in meinem Leben.	☐	☐	☐	☐	☐	☐	☐
50. Ich spreche sehr gerne Englisch.	☐	☐	☐	☐	☐	☐	☐
51. Ich hätte gerne mehr Englisch/mehr englischsprachige Lehrveranstaltungen auf der FH.	☐	☐	☐	☐	☐	☐	☐
52. Meine Eltern glauben, dass es wichtig für mich ist Englisch zu lernen.	☐	☐	☐	☐	☐	☐	☐
53. Ich bin sehr ehrgeizig.	☐	☐	☐	☐	☐	☐	☐

1 = stimme **völlig** zu

7 = stimme **überhaupt nicht** zu

	1	2	3	4	5	6	7
54. Ich habe kein Problem damit im Unterricht Englisch zu sprechen.	☐	☐	☐	☐	☐	☐	☐
55. Mich interessieren Fremdsprachen einfach nicht.	☐	☐	☐	☐	☐	☐	☐
56. Ich versuche jeden Tag mein Englisch zu verbessern.	☐	☐	☐	☐	☐	☐	☐
57. Ich würde gerne ein Austauschsemester in einem anderen Land machen.	☐	☐	☐	☐	☐	☐	☐
58. Ich hatte bisher sehr kompetente Englischlehrer.	☐	☐	☐	☐	☐	☐	☐
59. Englisch ist ein wichtiger Teil eines Wirtschaftsstudiums.	☐	☐	☐	☐	☐	☐	☐
60. Ich habe Angst davor ein Telefonat auf Englisch zu führen.	☐	☐	☐	☐	☐	☐	☐
61. Es beunruhigt mich, dass andere Studierende meiner Klasse besser Englisch können als ich.	☐	☐	☐	☐	☐	☐	☐
62. Meine bisherigen Englischlehrer haben Aussprachefehler ausgebessert.	☐	☐	☐	☐	☐	☐	☐
63. Wenn jemand einen starken fremdsprachlichen Akzent hat, dann glaubt man automatisch, dass er schlecht Englisch spricht, auch wenn er kaum Grammatikfehler macht.	☐	☐	☐	☐	☐	☐	☐
64. Um seine Aussprache zu verbessern, muss man in einem englischsprachigen Land leben.	☐	☐	☐	☐	☐	☐	☐
65. Ich würde gerne mein Praktikum im Ausland machen.	☐	☐	☐	☐	☐	☐	☐
66. Ich freue mich schon auf die nächste Englischstunde/englischsprachige Lehrveranstaltung.	☐	☐	☐	☐	☐	☐	☐
67. Ich würde gerne meine englische Aussprache verbessern.	☐	☐	☐	☐	☐	☐	☐
68. Sehr gute Englischkenntnisse sind wichtig für meine berufliche Zukunft.	☐	☐	☐	☐	☐	☐	☐
69. Ich habe nie einen Zugang zu Englisch gefunden, weil ich Probleme mit meinem/meinen Englischlehrer/n hatte.	☐	☐	☐	☐	☐	☐	☐
70. Eine gute Aussprache in einer Fremdsprache ist grundsätzlich wichtiger als grammatikalische Korrektheit.	☐	☐	☐	☐	☐	☐	☐
71. Gutes Englisch gehört zur Allgemeinbildung.	☐	☐	☐	☐	☐	☐	☐

1 = stimme **völlig** zu

7 = stimme **überhaupt nicht** zu

	1	2	3	4	5	6	7
72. Es macht mir nichts aus, wenn man sofort hört, dass ich kein Native Speaker bin.	☐	☐	☐	☐	☐	☐	☐
73. Ich hoffe, dass ich nach dem Studium einen Job bekomme, in dem ich möglichst viel Englisch sprechen kann.	☐	☐	☐	☐	☐	☐	☐
74. Ich unterhalte mich gerne mit anderen Menschen.	☐	☐	☐	☐	☐	☐	☐
75. Ich habe vor, nach meinem Studium eine gewisse Zeit in einem anderen Land zu leben und zu arbeiten.	☐	☐	☐	☐	☐	☐	☐

Vielen Dank für Ihre Mitarbeit!

11.2. Questionnaire 2

Liebe Studierende!

Wien, im März 2014

Dieser Fragebogen ist der **2. Teil** eines wissenschaftlichen Projekts des Studiengangs Unternehmensführung zum Thema **Sprachbegabung** und **Entwicklung der englischen Sprachkompetenz** im Laufe des 3jährigen Studiums.

Ich ersuche Sie nun, auch diesen Teil **nach bestem Wissen und Gewissen** auszufüllen. Ich kann Ihnen versichern, dass Ihre Angaben **anonymisiert** und nur für **wissenschaftliche Zwecke** verarbeitet werden.

Für Fragen stehe ich Ihnen selbstverständlich jederzeit gerne zur Verfügung!

Vielen Dank für Ihre Teilnahme!

Karin Richter

(karin.richter@fh-

wien.ac.at)

Um eine leichtere Lesbarkeit zu gewährleisten, wurde auf geschlechtsspezifische Endungen („-Innen“) verzichtet. Es sind an allen Textstellen, wo natürliche Personen bzw. Personengruppen erwähnt werden, immer Menschen beiderlei Geschlechts angesprochen.

Einverstanden:

Ort, Datum

Unterschrift

1. Name: _____

2. Während Ihres Studiums hier an der FH, haben Sie

ein **Auslandssemester** gemacht

Ja	Nein
☐	☐

Wenn nein, bitte weiter zu Frage 3.

Wenn ja:

Wo? _____

Welche **Sprache(n)** haben Sie dort überwiegend gesprochen?

3. Während Ihres Studiums hier an der FH, haben Sie das **Berufspraktikum im Ausland** gemacht

Ja	Nein
☐	☐

Wenn nein, bitte weiter zu Frage 4.

Wenn ja:

Wo? _____

Wie lange? _____

Welche Sprache(n) haben Sie dort überwiegend gesprochen?

4. Gab es andere **Auslandsaufenthalte** (länger als 1 Woche) während Ihres Studiums:

Ja	Nein
☐	☐

Wenn nein, bitte weiter zu Frage 5.

Wenn ja:

Wann? Wo? Wie lange? _____

Welche Sprache(n) haben Sie dort überwiegend gesprochen:

5. Fällt Ihnen noch etwas ein, das während Ihres Studiums außerhalb des Unterrichts zur Verbesserung Ihrer Englischkenntnisse beigetragen hat?

6. Rückblickend, wie schätzen Sie Ihre **Englischkenntnisse im 1. Semester** (2011) Ihres Studiums ein:

(Schulnotensystem 1 = Sehr gut, 5 = Nicht genügend)

	1	2	3	4	5
Grammatik	☐	☐	☐	☐	☐
Vokabular/Ausdruck	☐	☐	☐	☐	☐
Aussprache	☐	☐	☐	☐	☐
Flüssiges Sprechen	☐	☐	☐	☐	☐

7. Wie schätzen Sie Ihre **Englischkenntnisse jetzt (2014)** am Ende Ihres Studiums ein:

(Schulnotensystem 1 = Sehr gut, 5 = Nicht genügend)

	1	2	3	4	5
Grammatik	☐	☐	☐	☐	☐
Vokabular/Ausdruck	☐	☐	☐	☐	☐
Aussprache	☐	☐	☐	☐	☐
Flüssiges Sprechen	☐	☐	☐	☐	☐

8. Wenn Sie jetzt Englisch sprechen, ist Ihr **Akzent** Ihrer Einschätzung nach eher

- ☐ britisch
- ☐ amerikanisch
- ☐ österreichisch
- ☐ sonstige: _____
- ☐ weiß ich nicht

9. Würden Sie sich wieder für das bilinguale Programm entscheiden?

Ja	Nein
☐	☐

Warum? _____

10. Was könnte man am bilingualen Programm verbessern?

Vielen Dank!

Zusammenfassung

Um der fortschreitenden Internationalisierung und Globalisierung Rechnung zu tragen, bieten immer mehr Universitäten und Hochschulen weltweit Studiengprogramme an, die teilweise auf sogar vollständig auf Englisch abgehalten werden. Dieser Ansatz wird oft als Antwort auf wirtschaftliche, politische und bildungsrelevante Umwälzungen gesehen, die besonders Europa in den letzten 10 Jahre stark geprägt haben. Allgemein wird angenommen, dass durch diese englischsprachige Lehrveranstaltungen die Studierenden einen zweifachen Nutzen ziehen können, nämlich sowohl was die Vermittlung von Inhalten als auch die Vermittlung von Sprachkompetenz anlangt. Allerdings ist bis jetzt kaum bekannt, welche Auswirkungen die Implementierung dieser Programme auf die Fremdsprachenkompetenz der Lernenden tatsächlich hat. Diese Arbeit geht genau dieser Frage nach und versucht herauszufinden ob diese Lehrmethode, die sich seit mehreren Jahren wie ein Lauffeuer verbreitet, eine Veränderung der Aussprache der Studierenden mit sich bringt. Um diesen Aspekt des Sprachlernens näher zu beleuchten wurde eine Langzeitstudie entwickelt, die am Studiengang Unternehmensführung der FH Wien durchgeführt wurde. In diesem Studiengang wird eine Klasse des Bachelorprogramms zweisprachig geführt, d.h. bis zu 50 % der Lehrveranstaltung werden in englischer Sprache angeboten. Da die Lehrenden in diesem Programm hauptsächlich Muttersprachler sind, stellt sich die Frage, ob sich diese Tatsache auf die Aussprache der Studierenden auswirkt. Genauer gesagt, wurde untersucht, ob und wie sich der österreichische Akzent der Lernenden im Laufe ihres Studiums verändert. Zu diesem Zweck wurden Sprachaufnahmen der bilingualen Kohorte verglichen mit denen der deutschen Kohorte, die nur einen ESP Kurs pro Semester hat. Diese Aufnahmen wurden zu Beginn des Studiums (2011) gemacht und dann 3 Jahre später am Ende des Studiums (2014) wiederholt. In der Folge wurden die Tonaufnahmen von ausgewählten facheinschlägigen AussprachelektorInnen der Universität Wien bewertet und anschließend analysiert. Die Resultate ergaben eindeutig, dass sich bei beiden Gruppen grundsätzlich eine Verminderung des österreichischen Akzents feststellen ließ, diese Verbesserung war aber bei der bililingualen Gruppe signifikant höher als bei der Kontrollgruppe. Die Ergebnisse legen daher nahe, dass sich in diesem Fall die Critical Period Hypothesis nicht nachweisen lässt und dass auch bei erwachsenen Lernenden deutliche Veränderungen im Bereich der

Aussprache messbar sind. Zusätzlich wurden noch individuelle Faktoren analysiert, die in der Literatur immer wieder als ausschlaggebend für den Erwerb der Aussprache in der Zweit- oder Fremdsprache genannt werden. Im vorliegenden Fall scheint keiner dieser Aspekte hauptverantwortlich für die gemessenen Veränderungen der beiden Gruppen zu sein. Viel mehr scheint es, dass diese Faktoren zusammenspielen und ein einzigartiges Konstrukt darstellen, das den einzelnen Lerner in seinem Lernerfolg maßgeblich beeinflusst, nicht aber verallgemeinert und auf eine Gruppe umgelegt werden kann. Eine genauere Analyse der Tonaufnahmen der österreichischen Lerner hat weiters gezeigt, dass auf segmentaler Ebene die Konsonanten /ð/, /z/, and /dʒ/ sowie die Diphthonge /ei/ und /əu/ und auf supra-segmentaler Ebene die Weak Forms und das Linking eine besondere Herausforderung darstellen. Diese Merkmale der Phonologie der englischen Sprache sind es auch, die sich über einen größeren Zeitraum hinweg am wenigsten verändern. Allgemein gesehen leisten die Ergebnisse dieser Studie einen wichtigen Beitrag zur Erforschung von englischsprachigen Programmen im tertiären Bildungsbereich.

Curriculum Vitae

Karin Richter

University education:

2011-2015	University of Vienna. PhD programme at the Department of English and American Studies
1996-2001	University of Vienna: Teaching degree programme English and German

Teaching experience:

Currently	Senior Lecturer at the Department of English and American Studies, University of Vienna.
2002-2014	Department Head for Business English, lecturer & research associate at the University of Applied Sciences Vienna, FH Wien.
2002-2014	External lecturer at the Department of English and American Studies, University of Vienna.
2001-2002	Teacher of English and German at a secondary school in Vienna (Marianum RG & ORG)
1998-2001	Adult education trainer at Dolphin Language School, Vienna.
1998-2001	Language lab tutor for British English, Department of English and American Studies, University of Vienna.

Conference presentations:

09/2015	"EMI and pronunciation. A longitudinal case study." 4 th ICLHE conference. Université libre de Bruxelles/Belgium.
04/2013	"EMI and pronunciation. Outline of a longitudinal case study." 3 rd ICLHE conference. University of Maastricht/The Netherlands.

Book chapter:

Richter, K. (2015) "English Medium Instruction and pronunciation. Outline of a longitudinal case study." In R. Wilkinson & M Walsh (eds.). *Integrating Content and Language in Higher Education: From Theory to Practice Selected Papers from the 2013 ICLHE Conference*. Frankfurt: Peter Language International Academic Publishers, 275 290.