FOREIGN LANGUAGE PRONUNCIATION, from Theory to Practice

Zdena Kráľová
Katarína Nemčoková
Juraj Datko

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FOREWORD

Intelligible pronunciation in a foreign language is essential for successful communication. It does not only carry the meaning but also conveys something more about the speaker. Oral performance is the most critical aspect of communication, where speakers' knowledge of a foreign language is often evaluated based on their pronunciation. Speakers with good pronunciation are easier to understand even if their grammar is not without mistakes. On the other hand, speakers with excellent grammar might not be understood due to their poor pronunciation. According to Fraser (2001), speakers whose pronunciation is difficult to understand become more anxious, avoid speaking, experience social isolation, or worse employment opportunities. People are often judged based on their appearance and way of speaking, where pronunciation is the initial factor. Unjustly, people with worse pronunciation can be considered incompetent and uneducated. Generally, good pronunciation supports the self-confidence of speakers, makes them more pleasant communicators, and gives them more opportunities.

Pronunciation is the production of sounds which are used to convey meaning. It covers segmentals, which are particular sounds of a language, suprasegmentals, which go beyond the level of individual sounds (word stress, rhythm, sentence stress, intonation), and prosody (pitch, loudness, voice quality). Segmental and suprasegmental features can be analysed separately, but it needs to be remembered that they function in combination in speech, so they need to be integral in learning and practicing speaking. Even though segmental features are usually more focused on, it is suprasegmentals that have more impact on intelligibility. According to Kenworthy (1987, 13), intelligibility is "being understood by a listener at a given time in a given situation." A speaker is intelligible when the listener is able to recognise words and utterances. However, learners of foreign languages benefit from learning and practicing both – segmental and suprasegmental features.

Most languages have differences in segmental and suprasegmental aspects, and that is why teaching pronunciation from the beginning is vital, and the focus should be on these differences. For example, the Slovak language has numerous differences in segmental features, which can be already seen in

the amount, but more importantly, in their quality. The number of English phonemes is 44, and Slovak is 42. The biggest difference is in the amount and quality of vowels. There are 20 English vowel phonemes and 15 Slovak phonemes. The number of English consonant phonemes is 24, and Slovak is 27 (Ološtiak 2007). The different numbers clearly show that there cannot be equivalents in both languages. The different phonemes must be learnt as they are in the target language without looking for equivalents. If we look for equivalents or try to assimilate a foreign phoneme to a phoneme which is more natural to us, we might cause misunderstanding. The meaning of a word can be changed by changing phonemes. Kráľová (2011) researched the issues of contrastive phonology and collected common mistakes which arise from the substitution and assimilation of English phonemes to the Slovak ones. For example, the Slovak language does not have the phoneme /æ/, which is commonly assimilated by a Slovak speaker to /e/. Such assimilation causes that words like pan /pæn/, bad /bæd/ and had /hæd/ are pronounced as pen /pen/, bed /bed/, and head /hed/. It is obvious how this substitution can lead to misunderstanding. There are more monophthongs and all diphthongs that are different and need to be learnt accurately. Similar cases are also found with some consonants, e.g., an absent phoneme in Slovak /w/ is often substituted by /v/. In such cases, words like wet /wet/, whale /weɪl/, and west /west/ are pronounced as vet /vet/, veil /veɪl/, and vest /vest/. Because of such differences in the phonetic repertoire of languages (not only English and Slovak) it is essential to pay attention to teaching and training the correct phonemes with the aim to be intelligible and successful communicators.

However, suprasegmental features are just as important for successful communication, such as stress, rhythm, and intonation. Stress depends on pitch, prominence, loudness, duration, and vowel quality; with stressed syllables being on a higher pitch, louder, longer with full vowels (Roach 2009). English has variable stress, which is less predictable. Slovak (but also Czech, Hungarian, or Icelandic) has stress always on the first syllable of a word. For such speakers, it is difficult to distinguish the pronunciation and meaning of identical words like PREsnt/preSENT, REbel/reBEL, etc. Applying Slovak first-syllable stress pattern to English causes misunderstanding of many words. Lewis and Deterding (2018) emphasise that the quality of vowels (full versus reduced vowel quality) in syllables also contributes to possible misunderstandings. The English language has a stress-timed rhythm, which means that stressed and unstressed syllables alternate in regular intervals. Perception of stressed syllables in the rapid speech of native speakers might be difficult, and native speakers might find

it hard to understand the meaning of words with wrong stress placement. According to Kelly (2000), sentence stress creates a certain pattern in a sentence and provides a listener with important clues (emphasising important words) of the speaker's message. In contrast, Slovak (like Italian, French, or Hungarian) has a syllable-timed rhythm where an equal amount of emphasis is put on each syllable. Rhythm is consequently problematic for speakers of these languages. Stress in English sentences is essential, and incorrect use can cause a breakdown in communication. Intonation functions at the level of content and carries information about mood, attitude and can influence the meaning. Five tones (fall, rise, level, fall-rise, rise-fall) in English can express finality, invitations to continue, routine, boredom, agreement, limited agreement, approval, disapproval, surprise, doubt. Generally, questions have a rising tone, but wh-questions have a falling tone. For non-native speakers of English, this can be misleading, and if they use a rising tone in a wh-question, they might sound rude (Roach 2009). There are also other aspects of connected speech such as weak form words, assimilation, and elision, which are difficult for non-native speakers of English and can cause misunderstanding on either side of communicators.

However, there are many factors influencing successful pronunciation learning. Kenworthy (1987) names the most prominent factors that have a significant impact on pronunciation: native language of the learner, age of the learner, exposure to the target language, phonic ability of the learner, attitude of the learner, and motivation of the learner. Learners' first language can influence (positively and negatively) pronunciation in English. Language learners draw on the patterns of their first language and apply them in the foreign language (Kráľová 2011). Positive interference can be between related languages like Dutch and English, but negative interference appears when the two languages belong to different language families like Slovak and English. Age factor is closely connected to the critical age period (between 2 and 13), which allows children to intuitively pick up articulation, sounds, rhythm, and intonation. That is why the primary school teachers must have excellent pronunciation because they set examples, and their pronunciation is copied by their pupils (Reid 2020). Kráľová (2009) claims that even though the ability to create separate categories for foreign language sounds is decreasing from the age of six, however, even adult learners can create additional phonetic categories for new sounds which do not correspond to their mother tongue. The amount of exposure to the target language is a significant factor influencing pronunciation learning. Exposing learners to authentic spoken language can help in teaching pronunciation. Phonic ability is generally known as having a 'better ear' for

foreign language pronunciation (Kenworthy 1987), and it has been shown that a good phonemic coding ability can influence the ability to acquire a new sound system (Zybert and Stepien 2009). Positive attitude and motivation of learners can determine the learners' development of pronunciation. Students who are more concerned about their pronunciation in the foreign language usually do better in achieving correct pronunciation (Kráľová 2009). The mentioned factors significantly influence pronunciation learning. Foreign language teachers should acknowledge these factors because they allow them to understand issues in learners' pronunciation learning. At the same time, knowing these factors can positively influence their pronunciation teaching.

Only a few examples of misunderstandings caused by incorrect pronunciation have been mentioned here, but they indicate the importance of correct pronunciation and the importance of teaching pronunciation. Tench (1985) emphasises the need to create correct pronunciation habits from the start of foreign language learning because if the pronunciation is learnt badly, corrections at later stages can be frustrating and exhausting. It is problematic to unlearn automatically learnt mispronunciations, as it requires a lot of effort for speakers to focus not only on the content but also on correcting their bad pronunciation habits. Language teachers need to be aware that pronunciation is an inseparable part of English language teaching. Harmer (2005) recommends that pronunciation teaching can help to overcome intelligibility problems which are partially caused by speakers' first language patterns. Pronunciation practicing needs to be integrated into every lesson, and it requires constant attention in language teaching. Even though the native-like pronunciation used to be the goal of learners' pronunciation, nowadays it is generally accepted that the goal is to understand and to be understood. Effective intelligible communication is the goal of pronunciation teaching.

Even though it is generally known that pronunciation plays a vital role in foreign language communication, there is not enough emphasis put on teaching and practicing correct pronunciation. Scrivener (2011) believes that many teachers avoid teaching pronunciation because they are not confident enough about their pronunciation, or they claim that they do not have enough time. Gilbert (2008) agrees that teachers avoid pronunciation practice for various reasons, and if they teach pronunciation, then they usually bring boring and unrelated topics for language learners. According to Derwing (2010), teachers make very little effort in teaching correct pronunciation and limit their attention to pronunciation only when a student

makes a mistake. These findings of teachers avoiding and neglecting pronunciation teaching need to be changed because the importance of correct pronunciation is inevitable. This importance needs to be emphasised to future foreign language teachers in teacher training colleges. As Kelly (2000) says, pronunciation is not a separate skill but influences the communication skills of learners, and mistakes in pronunciation have a significant impact on the effectiveness of communication.

The Common European Framework for Languages (CEFR 2001) also recommends teaching and practicing pronunciation from the initial stages of foreign language learning, especially from an early age. According to CEFR (2001), pronunciation is a key concept of phonological competences. It comprises knowledge of and skills in the perception and production of phonemes of the language, realisation of phonemes in particular contexts, phonetic features distinguishing phonemes, phonetic composition of words (syllables), sentence phonetics, stress and rhythm, intonation, phonetic reduction, strong and weak forms, assimilation and elision (Section 5.2.1.4). Phonological competence is also included in the description of communicative competence (Section 4.5.2), where linguistic competences (including phonological) together with sociolinguistic and pragmatic competences form communicative competences. The communicative language process includes phonological competences in execution and production. In general competences, the ability to learn (Section 5.1.4.2) focuses on general phonetic awareness and skills. It describes that learners of foreign languages need to acquire the ability to distinguish and produce unfamiliar sounds and prosodic patterns, to perceive and link unfamiliar sound sequences, and to clarify a continuous stream of sounds into a meaningful structure. Further recommendations are to expose learners to spoken utterances which are authentic (audio-recorded native speakers, video-recorded native speakers), to encourage learners to imitate teachers and native speakers from the recordings, phonetic drilling, ear training, tongue twisters, explicit teaching, phonetic transcription, reading aloud, etc. (Reid and Debnárová 2020).

It has been mentioned that pronunciation is an inseparable part of foreign language education, but there are several ways how to deal with pronunciation teaching in foreign language lessons. Kelly (2000) classifies lessons into three types. The first type is integrated pronunciation teaching, where pronunciation is a part of regular lessons. The second type is remedial or reactive pronunciation teaching, where pronunciation is taught when the situation requires it. The third type is pronunciation dedicated teaching, where specific features of pronunciation are taught and practiced. Similarly,

Harmer (2005) divides pronunciation teaching into three types. The first type can be described as the whole lesson being dedicated to pronunciation teaching and training; the second type as parts of a lesson focusing on pronunciation (discrete slot); and the third – integrated type, with components of listening and speaking activities and opportunistic teaching happening when the situation requires focusing on pronunciation. Teaching pronunciation with any of the mentioned types, preferably with the combination of all types, would be beneficial for learners of foreign languages.

The issue of age and learning pronunciation has already been mentioned, but it requires closer attention because the education system is organised according to the age of learners. Foreign languages are often taught from the primary school level and are taught throughout the whole schooling. However, many adults want to learn foreign languages, so they attend language schools learning foreign languages from the elementary level up to the advanced level. Pronunciation teaching varies significantly depending on the age of learners. Different teaching techniques, aids, and materials are suitable for individual age groups. Even though the CEFR (2001) proficiency levels are not directly associated with age, they are applied to education levels. Regarding school education, the proficiency levels according to CEFR (2001) are marked by the stages of primary, lower secondary, and secondary education.

The descriptor A1 is often associated with the end of primary education. Primary education generally concerns children between the age of 5/6 and 10/11. The A1 level, according to CEFR, is the "beginner" level, when learners can understand and get familiar with everyday expressions and fundamental phrases. Regarding pronunciation, CEFR (2001) specifies the A1 phonological competences of learners that they "can reproduce sounds in the target language if carefully guided …; can use the prosodic features of a limited repertoire of simple words and phrases intelligibly, in spite of a very strong influence on stress, rhythm, and/or intonation from other language(s) he/she speaks" (CEFR 2001, 136). Pupils of this age belong to the critical age group, which according to the Critical Period Hypothesis (Lenneberg 1967) allowed children up to the age of 13 to achieve native-like proficiency in a foreign language, specifically pronunciation (Loewen and Reiders 2011). Because of this ability, primary school pupils should be exposed to authentic spoken language as much as possible, and should be encouraged to imitate the teacher and native speakers from the recordings. Other suitable teaching techniques are drilling, ear training, tongue twisters,

singing, chants, rhymes, phonics, sound-colour charts, games, etc. (Reid 2016).

The descriptor A2 is connected with the end of lower secondary education, which prototypically begins at the age of 10/11 and ends at the age of 14/15. The A2 level, according to CEFR, is defined as "elementary," and a learner should be able to understand sentences and frequently used expressions, communicate in simple and routine tasks, and exchange information on familiar matters. Pronunciation of a learner in the A2 level "… is generally clear enough to be understood … Pronunciation of familiar words is clear … Pronunciation is generally intelligible when communicating in simple everyday situations … Prosodic features are adequate for familiar, everyday words and simple utterances" (CEFR 2001, 136). Adolescents show more inhibition regarding auditory discrimination and plasticity for language learning (Strevens 1991). They might be shy to produce unfamiliar sounds. However, they can explicitly learn about speech sounds, correct pronunciation, and rules of pronunciation. Suitable teaching techniques are minimal pair drills, ear training, reading aloud, recording learners' pronunciation, teaching sounds, quizzes, etc. (Reid 2016).

Levels B1 and B2 relate to the end of secondary education, which is the age of 18/19. B1 proficiency level is "intermediate," which means that the learner can understand standard conversations encountered at school, work, leisure, etc., and can describe experiences, events, and ambitions, and give explanations on opinions and plans. B2 level is called "upper intermediate," and the learner can understand complex text from concrete and abstract texts, can interact fluently and spontaneously and can explain the advantages and disadvantages of various points of view (CEFR 2001). Pronunciation at the B1 level should be "generally intelligible, can approximate intonation, stress at both utterance and word level" (CEFR 2001, 136). A learner at the B2 level should "use appropriate intonation, place stress correctly and articulate individual sounds clearly" (CEFR 2001, 136). Learners from the age of 14 to 19 are also shy to produce unfamiliar sounds, and their ability to monitor own pronunciation, notice, and correct own errors is weakened (Strevens 1991). Explicit teaching of segmentals and suprasegmentals, phonetic training, sound charts, recording one's own pronunciation, reading aloud, minimal pair drills, lip reading, etc., are suitable teaching techniques for this age group (Reid 2016).

Piccardo (2016) claims that phonology as an aspect of language pedagogy has been an under-researched area. The articulatory phenomena and

difficulties connected with the phonological features of speakers of foreign languages have been researched extensively by phoneticians and linguists, but research focusing on the principles of teaching pronunciation has been neglected. This publication has the ambition to fill the void. The publication *Foreign Language Pronunciation: From Theory to Practice* covers a complex area from native language interference in learning foreign languages, factors influencing pronunciation, research in learning and teaching foreign language pronunciation, and most importantly, foreign language pronunciation pedagogy. The authors of this publication are experienced teachers and researchers in teaching foreign languages, specifically in teaching English pronunciation. Based on numerous own and other research studies, the authors managed to extend the topic and apply all findings to the effective acquisition of foreign language pronunciation. The authors embraced this very complex topic very eloquently, and I strongly recommend this publication to scholars in foreign language pronunciation pedagogy.

Eva Reid

INTRODUCTION

Learning a foreign language significantly contributes to the complexity of human cognitive and social development. Communicative skills are the focus of today's foreign language pedagogy, and pronunciation is among the most important factors in the acoustic-auditive type of communication.

Language pedagogy, though, pays little attention to the acoustic level of language; if pronunciation drills occur, they do so regardless of the communicative importance of individual phenomena. Foreign language is typically learned in conditions of artificial language contact via the mother tongue of the learners. Because of such an indirect method, the mother tongue becomes quite distinctively enforced in foreign language communication.

A generally accepted guiding principle of foreign language acquisition is the recognition of identity. That is why we believe that a functionally adequate comparative analysis of native and foreign language phonic systems (including theoretical prediction of interference phenomena) is essential in teaching foreign language pronunciation. The ultimate pronunciation level reached by non-native speakers demonstrates certain intra-group tendencies despite significant inter-individual differences, which may be effectively applied in language pedagogy.

The intralingual analysis thus becomes a point of departure for interference research. Interference is understood to be a dynamic phenomenon contributing to the process of language development of individuals. That is why relationships within the system and its surroundings – extralingual links of interference – are also taken into consideration; descriptive linguistic methods are accompanied by procedures of other scientific areas (specifically sociolinguistics, psycholinguistics, and language pedagogy).

Both personal experiences as learners and teachers and the results of concerned research studies confirm the fact that most adult learners permanently speak a foreign language with an accent despite changes in other language-level competences; it occurs despite the considerable

interlingual variability of the final phonic performance of non-native speakers.

Foreign language pronunciation is in many aspects a highly specific phenomenon as the element of individuality plays a much more important role than in other language levels. Due to the specificity of the phonic level of language within the whole language system, the theoretical and applied linguistics are linked in an unusually direct manner. The research into foreign language phonic competence variables is thus rather complicated but at the same time extremely fascinating.

Therefore, the main purpose of this book is to give foreign language users a complex knowledge base for the foreign language pronunciation system so that they can approach the pronunciation work with confidence. The book aims to fill the gap in the current literature by focusing on this complex phenomenon from linguistic and pedagogical points of view in both synchronic and diachronic perspectives.

CHAPTER 1

NATIVE AND FOREIGN LANGUAGE PRONUNCIATION

Language Interference

Language interference as a linguistic phenomenon varies in terms of its content. In a broad sense, it is defined as the mutual influence of languages at individual language levels. The theory of foreign language teaching distinguishes positive and negative transfer, and interference in a narrow sense is understood as a negative transfer of **native language** (L1) to the learning of a **foreign language** (L2).

Uriel Weinreich (1953, 1) defines interference as "those instances of deviation from the norms of either language which occur in the speech of bilinguals as a result of their familiarity with more than one language, i.e., as a result of language contact." Einar Haugen (1956) speaks of three various levels of diffusion of one language system into another – from zero to complete integration, with interference positioned inbetween the two extremes.

We understand language interference as a deviation from the synchronic norm of a foreign language under the influence of a native language. We distinguish **interlingual interference** errors due to which two language systems (the native and the foreign one) get into conflict and **intralingual interference** errors originating within the foreign language system itself. It is an individual who is the centre of language contact realization, which is why language interference is a meeting point of two language competences and language performances arising from them.

In the 1950s, the theory of interference became a basis for the *Contrastive Analysis Theory* (Weinreich 1953), which emerged from the *Second Language Acquisition* behaviouristic concepts. *Second Language Acquisition*'s basic premise was that the L1 to L2 interference caused all errors in foreign

language production. However, Eugène Brière (1966) was the first to recognize that the structuralist comparison of L1 and L2 phoneme inventories cannot explain all errors of an L2 non-native speaker. Contrastive analysis is thus often criticised on the following accounts:

a) contrastive analysis predicts but does not explain the errors;
b) it does not explain phenomena that do not belong to the first nor second language system;
c) it does not take into consideration the stylistic variants in communication;
d) it only describes the performance level of a non-native speaker in a static manner.

Later, the contrastive analysis theory branched into two streams. Contrary to the "strong" stream (Lado 1957), the "weak" stream (Wardhaugh 1970) did not attempt to predict problems in a foreign language; it only explained the causes of the recorded errors. Such an approach signals the beginning of analysing speakers' errors in a specific speech situation. It also contributed to a significant finding on interference, which became to be one of the numerous causes of errors in a foreign language performance rather than the only cause.

The combination of two approaches to the research of foreign language production by non-native speakers, specifically the *System Analysis* (Lado 1957) and the *Error Analysis* (Weinreich 1953), compensates for some of their deficiencies. *Error Analysis* is not able to depict the interlingual aspects of generating utterances in L2, while *System Analysis* is not able to disclose correlations between interlanguage on the one hand and source and target languages on the other. We believe it is essential to distinguish between langue and parole since the difference between the two systems does not automatically provide a reason for breaking the norm. Differential description of languages should therefore represent a departing point for research of such a dynamic phenomenon as phonic competence in L2 certainly is. When studying the unique phenomena realized at a speech level, it is necessary to anchor the research in the universal phenomena at a language level.

Fred Eckman (1977) modified the theory of *Contrastive Analysis* and introduced the *Markedness Differential Hypothesis* which is an attempt to explain why some phonemes are easier to acquire than others. He claims that a language phenomenon A is more marked than phenomenon B when

the presence of A in the language implies the presence of B, but the presence of B does not imply the presence of A. Eckman (1977) formulates the basic theses of his theory as follows:

a) A learner will find difficult those L2 phenomena that differ from L1 phenomena and show more markedness than in L1.
b) A relative degree of difficulty of an L2 phenomenon that shows more markedness than in L1 corresponds to the relative degree of its markedness.

Later, the research of language interference elicited the opinion that most errors in foreign languages are caused by intralingual interference. It is the *Markedness Differential Hypothesis* which could eventually signal the solution to the polemic. Typological markedness, which is gradually incorporated into the theory of foreign language learning, is thus justified.

The typology of language interference can be approached from several perspectives, even though strict categorization is often inappropriate. The relationship of individual language systems is the most frequent typological criterion. It differentiates the interference into:

1. interlingual,
2. intralingual,
3. combined (intralingual-interlingual).

The intervention at individual language levels categorizes interference into:

1. acoustic,
2. morphological,
3. lexico-semantic,
4. syntactic,
5. ortographic.

Some authors (e.g., Veselý 1986) differentiate evident interference, which is an obvious violation of foreign language norms, and latent interference, characterized as using expressions which are analogical in native as well as foreign languages instead of expressions which are L2 specific. In such cases, the norm is not violated; the result of such use is the loss of discourse idiomaticity.

A specific interference category within language systems is cultural interference. It is manifested especially at the lexical level because of poor knowledge of the country's language and characteristics; the user knows only one cultural context and uses it to code and decode the foreign languages as well.

The questions of interference are also frequently dealt with in psycholinguistics. From the point of view of interference acting mechanisms, psycholinguistics understands it as a proactive process – material acquired earlier negatively influences the material acquired later – or as a retroactive process – phenomena acquired later negatively influence the usage of similar phenomena which the individual acquired earlier.

A psycholinguistic view of learning a foreign language (e.g., Jakobovits 1970) operates with the terms of stimulus (s) and reaction (r), or with the concept of convergent structures ($s1 \neq s2 \rightarrow r1 = r2$), divergent structures ($s1 = s2 \rightarrow r1 \neq r2$) and unrelated structures ($s1 \neq s2 \rightarrow r1 \neq r2$). Opinions on the impact and extent of positive and negative transfer within these structures are not homogeneous, and we must keep in mind that two different language systems will never have identical stimuli and reactions.

Phonic Interference

Weinreich (1953) distinguishes three categories of interference within the phonic level: phonic, phonotactile, and suprasegmental. At the level of phonic segments, he differentiates four basic interference types:

1. **under-differentiation of phonemes** – blending of foreign language phones, the parallels of which are not distinguished in the native language;
2. **over-differentiation of phonemes** – layering of phonological distinctions of the native languages onto the foreign language phones where they do not belong;
3. **reinterpretation of distinctions** – differentiation of foreign language phonemes on the basis of features which are secondary in the foreign language but primary in the native language;
4. **phone substitution** – replacing foreign language phonemes with native language phonemes which are identified as the same, but differences exist in their realization.

The first three types of interference concern characteristics relevant to both L1 and L2, while the fourth type, phone substitution, also concerns synchronically redundant features which become relevant when switching the phonologic system. This categorization corresponds to the terms of dephonemisation, phonemisation, and transphonemisation (Haugen 1956).

William Moulton (1962) distinguishes the following errors according to the level of abstraction:

1. phonological mistakes (concerning solely phoneme substitution),
2. phonetic mistakes,
3. allophonic mistakes,
4. distribution mistakes.

Evelyn Altenberg and Robert Vago (1983) step beyond la langue; they define four basic types of pronunciation problems based on a joined contrastive analysis of two language systems and error analysis:

1. interference mistakes – on the differentiation between phonetic and phonological transfer. The first type corresponds to Weinreich's (1953) phone substitution, the second one to the reinterpretation of distinctions;
2. the application of the so-called unmarkedness rule which exists neither in L1 nor L2. This case is viewed as the influence of the "inborn" language structure rules or of natural phonological processes;
3. mistakes arising from the so-called letter pronunciation;
4. idiosyncratic mistakes, including, e.g., an incorrect generalization of the phone equivalent of an orthographic symbol.

Vladimir Mach (1971) distinguishes mistakes of perception and reproduction. Within the reproduction category, he recognizes two levels of communicative error, with the first one observed in mistakes that cause an inauthentic phonic form of the utterance, while the second one identified when mistakes change the meaning of the utterance. He classifies the causes of pronunciation mistakes according to their origin:

1. differences in phonological oppositions (correlation in L2 has no equivalent in L1):
   a) the result is phone under-differentiation in L2,
   b) the result is the identification of L1 and L2 phonemes;

2. differences in phoneme combinations;
3. differences in neutralizing rules:
   a) the result is over-differentiation,
   b) the result is under-differentiation;
4. differences in phonic realization of allophones;
5. differences in suprasegmental features;
6. differences in graphic representation of phonemes.

Zdena Kráľová (2011) classifies pronunciation mistakes according to two basic criteria: the cause of occurrence and the language level affected. The cause of occurrence distinguishes the mistakes into:

1. interference mistakes:
   a) interlingual,
   b) intralingual;
2. non-interference mistakes.

According to the language level affected by the mistakes, Kráľová further distinguishes:

1. lingual mistakes – affecting some of the language levels:
   a) phonic – affecting phonic language level:
      aa) paradigmatic – arising from the associative relations of phonemes within the language, including under-differentiation and over-differentiation of phonemes (Appendix A), reinterpretation of distinctions, and phone substitution.
      ab) syntagmatic (or plurisegmental) – concerning linear (phonotactile) relations of phone segments (Appendix B);
      ac) suprasegmental errors – affecting the prosodic language phenomena;
      ad) idiosyncratic errors – caused by the graphic system impact on the phonic realization of elements;
      ae) combined errors – caused by the simultaneous impact of several phonic factors.
   b) extraphonic – affecting other than phonic language level:
      ba) lexico-semantic errors,
      bb) morphological-syntactic errors,
      bc) orthographic errors,
      bd) combined errors.

2. extralingual errors – arising from extralingual reality.
   a) physiological errors – linked to anatomical features of the speaker or the listener, such as speech disorders;
   b) psycholingual errors – arising from personality features of the speaker or listener, such as their emotional states, internal motivational factors, etc.;
   c) sociolingual errors – influenced by the type of communication situation, relationships, or social characteristics of the communication participants;
   d) combined errors – originating from the effect of several extralingual factors simultaneously;
   e) accidental errors – caused predominantly by a speaker's accidental slip of the tongue.

There is no clear conclusion in today's linguistics as to what is more difficult for a language learner in the foreign language: L2 phenomena that have no equivalent in L1 or phenomena that are similar in L1 and L2. Two opposing opinions exist:

a) differences are easier than similarities;
b) similarities are easier than differences.

Many authors do not think the source of significant interference errors is to be found in a situation where L1 phenomenon does not have an L2 equivalent. Hans Wolff (1950) claims it is easier to acquire a phoneme non-existent in L1 as the similarity supports negative transfer. He supposes that new L2 elements become acquired gradually as L1 elements have been acquired. Similar elements thus undergo interference (specifically phonic substitution) most frequently.

These claims are confirmed by the experimental results of Altenberg and Vago (1983), who assert that the dominant role in the phonic substitution is taken by the phonic similarity of elements. On the other hand, many linguists (e.g., Brière 1966) maintain a stance that the more an L1 phenomenon resembles an L2 phenomenon, the easier it is for the learner. According to the varied markedness hypothesis, only the L2 phenomena that have higher phonological markedness than analogous L1 phenomena are difficult (Eckman 1977). Robert Stockwell and Donald Bowen (1965) add a pragmatic aspect to the theoretical analysis: they also consider the functional load of the phenomena.

The analysis of systemic (intralinguistic) factors has been the focus of significant attention within linguistics. Distinguishing interference from the point of view of langue and parole is found to be unimportant by some authors as they find the difference of systems to be an inherent reason for breaking the norm. In our opinion, a differential description of language should only function as a point of departure for the research of interference, which is a highly dynamic phenomenon. Nevertheless, when researching a unique phenomenon manifested at the level of speech, it is vital to rely on the general phenomena found at the level of language.

Theoretical prediction of interference phenomena is unavoidable when analysing specific foreign language discourse. However, not all potential forms of interference become obvious in speech, and not all errors are necessarily interference errors. The speaker confronts a foreign language through a prism of their own system in the same way as acoustic information travels through the filter of the articulatory experience of the hearer. Kráľ and Sabol (1989, 184) claim a successful communication presupposes only a slight deviation from the pronunciation experience of the decoder.

Information can be qualified as comprehensible when decoded by a recipient in the same manner as it was coded by the sender. Factors disturbing communication can be present in all its components. Pekarovičová (1996) distinguishes four types of communication barriers in foreign language interaction:

1. physical (noises),
2. knowledge-based (information and code),
3. interactive (social and psychical),
4. transcultural.

Kamiš (1996) considers two categories of code barriers:

1. inherent (linguistic),
2. adherent (biological and psycho-social).

When studying phonic interference elements in an acoustic-auditive type of foreign language communication, the barriers concerning the sender's communicative code are most relevant as they cause a disturbance in communication on the side of the recipient.

Errors arising because of interference (**interferemes**) do not share an identical communication value. Veselý (1986) distinguishes the degrees of interference errors according to what extent they disturb the communication process:

1. first-degree interferemes are in direct conflict with the language norm but do not inhibit understanding;
2. second-degree interferemes complicate the understanding of the message;
3. third-degree interferemes lead to misunderstanding.

Olsson (1977) distinguishes two levels of message mediation between a non-native speaker and a native speaker:

1. ambiguity or complete loss of understanding on the recipient's side;
2. "foreign-sounding" pronunciation in more or less understandable communication.

Kráľová (2011) classifies communication errors into four functional degrees:

1. the recipient decodes the information correctly, but a possibility of incorrect coding exists;
2. the recipient is unable to decode the information immediately, but semantic reconstruction is enabled by the preceding or following context;
3. the recipient decodes different information than that coded by a sender;
4. the recipient is unable to decode any information.

Within his four types of interference, Weinreich (1953) considers the degree of communication risk. He claims phoneme over-differentiation is irrelevant to the native speaker. Similarly, phone substitution poses minimal risk to communication. The reinterpretation of differences can but does not have to cause misunderstanding; to the contrary, insufficient phoneme differentiation almost always causes disorientation in communication.

Analyses of non-native speakers' foreign language production (Kráľová 2011) confirm that communication misunderstandings are attributed more to **phonological errors** (e.g., phoneme substitution, loss, or addition) rather than **phonetic errors** (e.g., enforcing the mother tongue articulation basis).

Phonological errors often interfere in the word distinction, which is why the contextual or situational reconstruction of the utterance is less probable.

Despite the high real frequency of interlingual interference errors in a non-native speaker's foreign language utterance, there is a significant influence of intralingual interference errors on creating communication noise. At the same time, suprasegmental phenomena appear to be more relevant in communication than segmental ones (Kráľová 2011).

Kráľ and Sabol (1989, 54) maintain that "when listening to normal (non-pathological) speech, the listener does not perceive phones, sounds, or allophones. It is phonemes only that are perceived. However, when a speech act deviates from neutral ("normal") speech, the phonic system becomes deformed, i.e., orthoepic norms are disturbed, and the listener perceives these peculiarities, perceives some phones, or rather allophones or speech sounds after their reclassification."

The language instinct of a native speaker interprets from the obtained acoustic material what their language system finds significant. A native speaker, however, is also able to understand other forms of language than their own. Signal redundancy, a situational and linguistic context that can work well on words, sentences, or even on a higher level, enables sufficient understanding even if speech is deformed.

Perception is often supported by **the phonotactile structure** of a word, i.e., the native speaker's knowledge of possible sound combinations in specific locations within words and a general tendency of the listener to systemic and reconstructive processing. Communication failures arise when signal information cannot be reconstructed (and supplemented) by such mechanisms (Kráľ and Sabol 1989, 37).

Not every error that arises in a foreign language utterance is an error of interference. Not all potential errors are manifested in a specific utterance. Not all errors made are perceived by the listener, and not all disturb communication with the same intensity. An analysis needs to uncover not only linguistic but also extralinguistic links focusing specifically on the events endangering the success of communication. Pronunciation errors are of various magnitudes and degrees of deviation between the outgoing and incoming information. An inventory of recorded errors, regardless of their relevance to understandability and acceptability of the discourse, thus cannot be taken as a reliable indicator of foreign language performance quality.

CHAPTER 2

FOREIGN LANGUAGE PRONUNCIATION FACTORS

Attention of substantial size has been paid within the fields of linguistics and language pedagogy to the analysis of systemic (lingual) as well as nonsystemic (extra-lingual) factors of foreign language competence. Beginning with the classic study by James Asher and Ramiro García (1969), a plethora of papers studying the variables influencing the process of acquiring the phonic system of a foreign language have been published within the past five decades.

Human beings possess potencies for acquiring a foreign language; these are determined by physiological and psychical functions as well as by the influence of the linguistic and extra-linguistic environments. Segalowitz (1997) considers three basic preconditions of individual differences in foreign language competence:

1. flexibility in operating the language system;
2. sensitivity to conditions in the process of communication;
3. coping with interference influences on language systems.

Most probably, there is no discrete set of factors representing a variety of specific performances. Countless determinants of foreign language competence and the causes of their variability play roles. In individuals, these variables may combine in various ways and with varying effects. On the other hand, individuals may show certain consistencies. Measurement, quantification, diagnostics, and prediction of influences create essential sources for developing strategies of ability or skill development.

The componential analysis of foreign language phonic competence and performance can be approached from the experience of learning and teaching a foreign language, from the scientific analysis of the phonic system, and from the activity itself. A difference between the two basic

terms needs to be stressed at this point: for various reasons, language acquisition and language learning are frequently interchanged or are not distinguished in publications and in teaching practice. Language acquisition is a natural and spontaneous process of acquiring knowledge and skills in the natural environment, while language learning is a conscious and intentional process of gaining knowledge and skills in an artificial environment.

Apart from the influence of individual and supra-individual attributes, the individual differences in the effectiveness of foreign language acquisition are also influenced by special foreign language abilities. Unquestionably, the so-called language-gifted person is characterised by many dependent and independent language skills and abilities. According to Malíková (1993), the core of foreign language abilities comprises:

1. phonematic hearing;
2. verbal memory;
3. grammar thinking.

The identification and evaluation of these features has a significant impact on the process of teaching and learning foreign languages. Because there is a substantial number of individual variables, it is highly problematic to define a finite correlation. Language development of an individual comprises lingual as well as extra-lingual factors that enrich the system with subjectivity and variability, yet they cannot be ignored and avoided in a real language existence.

A communicant (a multi-lingual individual) is at the centre of language contact, which is why researching foreign language competence cannot be limited to a contrastive analysis of two language systems. Individual factors influence one another and condition the communication effect to a smaller or larger extent. When comparing the effect of factors on individual layers of the phonic level, Kráľová (2010) found out that segmental errors were mostly caused by interlingual factors, while the existence of suprasegmental errors was conditioned by extra-lingual factors. This is confirmed by the fact that suprasegments are universal human-wise phenomena more significantly influenced by the extra-lingual environment than segments.

It is to a certain extent paradoxical that the stated research subject is mostly L2 competence while the practical focus is on the L2 performance. It is a

well-known fact that “input” does not have to be identical with “intake”; this disproportion is predominantly caused by the multifactorial character of the process of acquiring foreign language phonic competence.

The given factors can be empirically and theoretically classified according to several criteria even though they must be understood as permeable and influencing one another. A detailed study is needed which would map in detail the level of influence and mutual relations of all factors. No such cohesive and complex classification of factors influencing foreign language (phonic) competence and performance has been found in the specialized literature yet.

When considering the classification, it is necessary to take into consideration the mutual influence of all factors arising from the system of language up to the specific communicative act. The contact within the native and foreign language systems does not happen in isolation – intralingually – in the form of language interference, but against a broad background of linguistic and extra-linguistic context (Sabol 1993).

Various authors classify the factors of influence based on a range of approaches:

According to the link to the research subject (e.g., Piske, MacKay, and Flege 2001):

1. subject-specific, or subject-dependent factors – inherent to the subject (speaker), experimentally non-manipulatable;
2. supplementary factors – non-inherent to the subject, experimentally manipulatable.

According to the link to the language system (e.g., Kamiš 1996; Kráľová 2009):

1. structural (objective, inherent, lingual, linguistic) – arising from the language systems contact;
2. nonstructural (subjective, adherent, extralingual, extra-linguistic) – arising from the communication process;

or in detail (Fig. 1):

1. **internolingual** (langue) **factors** – bound to the language system or the language sign (Sabol 1993, 89) on the vertical axis:
   a) **intralingual factors** (I_L) – bound to the language system;
   b) **paralingual factors** (P_L) – temporal events partially bound to the language system;
   c) **extralingual factors** (E_L) – permanent events not bound to the language system;
2. **externolingual** (communication/parole) **factors** – bound to communication on the horizontal axis:
   a) **intracommunication factors** (I_C)– bound to language communication;
   b) **paracommunication factors** (P_C) – temporal events partially bound to language communication;
   c) **extracommunication factors** (E_C)– permanent events not bound to language communication.

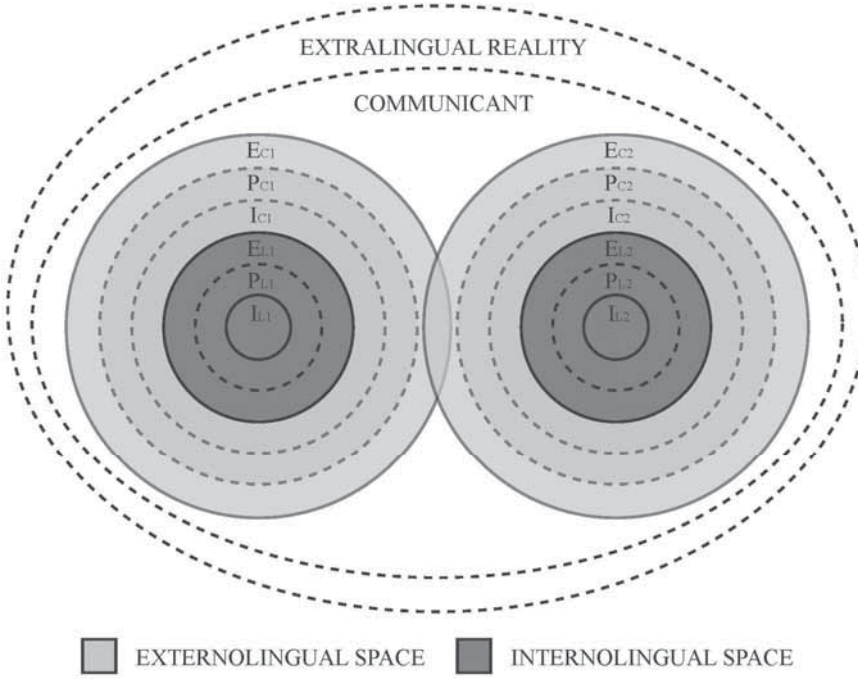


Fig. 1 Structure of language contact

Internolingual Factors

Against the background of the theory of language sign as an oscillation of individual and social features, the internolingual factors can be understood as those phonologically relevant events that are demonstrated mostly as language interference of the secondary language system into the primary one. Within the internolingual or trans-lingual space, the interference pressure of the primary phonic system begins to act in the externolingual space of the secondary system, and it can become apparent at any given spot. Sabol (1993) considers the overreach into the intralingual zone of the foreign language to be the culmination of the interference process.

Within the phonic level, Weinreich (1957) considers syntagmatic and paradigmatic factors or their combinations. At the level of paradigmatic factors, he departs from the analysis of system potentialities at the level of allophones or distinctive marks, and he categorizes the four mentioned types of interference (over-differentiation, under-differentiation, reinterpretation, and substitution). With syntagmatic factors, he primarily outlines the relationships of sounds within speech – total and position-known and position-unknown sequences. Understanding interference in the suprasegmental subsystem is analogous.

According to Haugen (1956, 45), the contacts occur primarily among mutual diaphones, i.e., phonetic elements that feature similar acoustic characters in both L1 and L2. He classifies the interlingual equivalencies of allophones as follows:

1. simple diaphones;
2. complex diaphones:
   a) convergent,
   b) divergent.

In Haugen's view, the process of foreign language acquisition is thus a process of phonemisation of diaphones – a gradual reduction of complex diaphones into simple ones, followed by a deletion of phonemic relationships and the creation of two independent phonic systems.

From the point of view of L1, James Flege (1987) divides L2 phones into identical, similar, and new. He also mentions some hypotheses for unauthentic pronunciation. Nikolai Trubetzkoy (1939) was the first to assume the cause for unauthentic pronunciation to be the incorrect

perception of L2 sounds through the L1 filter; this hypothesis was later disputed. Another considered cause was the inability to transform the sensory perception of L2 phones into stable articulatory habits.

A hypothesis which is still insufficiently verified is the so-called *Equivalence Classification Hypothesis* (Flege 1987), according to which the mechanism prevents creating the phonetic category for a similar L2 phone, but not for a new one. Another hypothesis, the *Upper Limit Hypothesis* (Flege and Hillenbrand 1984), describes the non-native speakers reaching the limit when approximating the L2 phone pronunciation, while they mix the L1 and L2 phone quality yet do not reach the complete authenticity of L2 phones. Weinreich (1957) even creates a system of prediction of interference errors according to the occurrence of the given feature in the L1 and L2 phonic systems.

Within L2 language element	**Within L2 language element**		
	Always	**Sometimes**	**Never**
Always	+	Unpredictable errors	Predictable errors
Sometimes	+	+	+
Never	Predictable errors	Unpredictable errors	+

Table 1 The system of interference error prediction (Weinreich 1957, 7)
+ adequate realization

Even though hypotheses stressing the L1 influence on the accuracy with which learners realize sounds are typically labelled as alternative hypotheses to the *Critical Period Hypothesis* (Lenneberg 1967), we believe they correspond significantly. L2 phone production is to a considerable degree dependent on internalization of L1 phonic system structure. The existence of already formed phonic categories in L1 may inhibit the formation of analogous categories in L2. The more fixed the L1 system is at the beginning of the learning process, the higher probability of L2 pronunciation being marked by a foreign accent.

Except for the interlingual substitutions, the research has also focused on substitutions that could not be explained based on interference; these substitutions were linked to the language development of an individual. The

point of departure for the research was the assumption that in both L1 and L2 the process is analogous. The interaction between the processes of interference and development was closely researched within the fields of morphology and syntax. In phonology, it was Barbara Hecht and Randa Mulford (1982) who dealt with the issue and claimed that substitutions arising from the conflict of the two processes belong among the most probable and most persistent.

Externolingual Factors

Sabol (1993) understands interference in phonic systems not only as a phenomenon linked with the language sign but as a dynamic process occurring against the background of extralingual and externolingual links. From the point of view of foreign language competence acquisition, the relevant phenomena are not only the ones of intralingual space, manifested in its general extreme as the integration of foreign language elements into the language system, but also the phenomena and factors of externolingual space. In this research area, the link between applied and theoretical linguistics is very direct. However, there are so many individual variables that stating the definitive correlation of features of a multilingual individual and individual cases of interference is, for the time being, improbable; it would require longer and wider-ranged research as there are uncountable determinants of foreign language competence and performance reaching each individual.

Intra-communication factors are variables bound to language communication comprised within intra-, para- and extralingual factors. Typical examples of this category are the knowledge of other foreign languages (typologically related or unrelated to the target language, the order of their acquisition); lexical and grammatical (morpho-syntactic) competence in L2, metaphonetic competence related to the phonic system, the so-called language instinct or language awareness, and factors linked to the L2 learning process – the quality, duration, intensity of learning, quality of phonic input, teaching methods, etc.

Para-communication factors (temporal phenomena partly bound to language communication which operate more or less synchronically) can be divided from the point of view of the subject and the environment into:

a) psycho-para-communication factors (e.g., memory for coding phonic materials, attitude to foreign languages, motivation for

foreign language acquisition, intelligence, and verbal intelligence in both native and foreign languages);

b) socio-para-communication factors (e.g., age when foreign language learning began, environment, conditions for the foreign language learning process, stay in a foreign language environment, contact with native speakers).

Extra-communication factors (permanent phenomena not bound to language communication) operate at the edges of what is individual (e.g., "an ear for music," sound imitation ability, personality type from the point of view of extroversion, sociability, fear of making mistakes and ridicule, refusal sensitivity, the degree of self-evaluation, etc.).

The published research focusing on the analysis of factors of foreign language phonic competence or performance varies in several dimensions: research subjects, objects, methods, or procedures. It is these differences that probably cause the contradictory results. Most attention in research has been paid so far to the factors linked to the process of language learning, among which we can find age, environment, conditions, manner of learning, contact with native speakers, mastering other foreign languages, the order of their learning, activities performed in the language, etc. When discussing foreign language learning, the most often mentioned factor is age. The proponents of the *Critical Period Hypothesis* (Lenneberg 1967) claim that it is impossible to reach a native speaker level of a foreign language beyond a certain age. Some claim the critical age is six years, others talk of one's teens. A possible explanation may lie in the fact that foreign language learning is slower and less successful after the brain lateralization process is over.

However, more recent experiments suggest that age is probably just one of the supplementary factors correlating with the others. Integrative motivation is considered more significant. Some other research suggests other factors play important roles, among them empathy, social pressure, or the loss of neuromuscular plasticity with rising age. Another argument casting doubt on the *Critical Period Hypothesis* is the claim that the level of pronunciation tolerance is lower in adults compared to children; adults thus can register their own deviations from the pronunciation norms which can discourage them. Children are more interested in the form of communication, while adults engaged in foreign language communication put more emphasis on the contents. Furthermore, children frequently learn foreign languages along

with acquiring skills of physical moves, while adults are in a situation in which the kinaesthetic system is inactive.

The factor of age is closely connected to the manner of foreign language learning, where the opposition is created between successive and simultaneous learning or between coordinated and subordinated learning. The quality and intensity of learning are also significant; the length of the learning process is not a factor of such dominance. A frequent contact with native speakers or a stay in a foreign language environment, including its length and focus, are other variables significantly influencing the level of foreign language pronunciation of an individual. Another considered factor is the level of knowledge of the foreign language, which influences the dynamics of interference. The more advanced students are believed to be influenced more by intralingual interference rather than the interlingual one. Others claim that gradual foreign language learning intensifies the L1 interference.

An overview of the findings of relevant studies in the research area was first compiled by Roy Major (1987b). He identified two basic variables related to foreign language pronunciation: the starting age of foreign language learning and interlingual interference of the native language. Piske, MacKay, and Flege (2001) offered a more detailed analysis of the research subject, which, in agreement with the *Critical Period Hypothesis*, identifies the starting age of foreign language pronunciation learning as the main determinant of the actual level of foreign language pronunciation (similarly in Asher and García 1969; Oyama 1976; Tahta, Wood, and Loewenthal 1981; Piper and Cansin 1988; Thompson 1991; Flege and Fletcher 1992; Flege, Munro, and MacKay 1995; Moyer 1999; Piske, MacKay, and Flege 2001).

A relatively strong influence was uncovered in the length of stay in a foreign language country (e.g., Asher and García 1969; Seliger, Krashen, and Ladefoged 1975; Flege and Fletcher 1992; Flege, Munro, and MacKay 1995; Flege, Bohn, and Jang 1997; Flege and Liu 2001). However, most of the studies focused on migrants' communities. A significant influence of the length of stay is disputed, mainly by studies focusing on standard learners (e.g., Oyama 1979; Tahta, Wood, and Loewenthal 1981; Piper and Cansin 1988; Elliott 1995; Moyer 1999).

Focused phonetic training is by many authors considered as significant for acquiring foreign language pronunciation (e.g., Bongaerts et al. 1997;

Moyer 1999). In this context, the most researched factors were those related to the learning and teaching processes of foreign languages – the length of foreign language study, the overall level reached in the foreign language, the methods used in foreign language teaching, the context of foreign language use and structural differences between the primary and secondary language systems (e.g., Levi, Winters, and Pisoni 2007).

Social and affective factors are generally considered potential predictors of foreign language phonic performance quality (Flege 1987). Some research studies confirmed the positive influence of intensive communicative interaction with native speakers on the level of foreign language pronunciation (e.g., Suter 1976; Purcell and Suter 1980; Thompson 1991). The influence of attitudinal and motivational factors has not yet been unambiguously documented (Thompson 1991; Moyer 1999), even though an integrative orientation focused on acquiring authentic foreign language pronunciation has shown a positive correlation (Purcell and Suter 1980).

It is not only the pronunciation, but the process of foreign language acquisition that can be influenced by the personality traits of an individual: sociability, the degree of extroversion, fear of making mistakes and being ridiculed, rejection sensitivity, and self-evaluation level. In this context, Flege (1986, 170) develops the idea that pronunciation models of a foreign language become manifestations of an individual's language identity; modifications of these already existing pronunciation models are perceived as endangering the individual's language ego. This is possibly also why children, who are less psychologically inhibited than adults, pronounce more authentically in a foreign language.

The emotional relation plays a crucial role in foreign language acquisition even though its influence is hardly documentable. Pronunciation is especially sensitive to the relationship of the subject and object. An individual imitates the pronunciation of another person when they identify with them in a positive way. The connection of emotions and thinking increases sound perception and production quality; that is why a positive attitude to the foreign language speakers and/or to the country is undoubtedly stimulating.

Motivation – the need to learn foreign languages – and the learner's attitude toward the foreign language or the foreign language community are nowadays considered more positive factors than the recently preferred factor of age. Integrative (personal, inner, relational) motivation is typically

stronger than the instrumental motivation observed when the speaker wants to reach certain professional or social benefits through using a foreign language.

Several experiments testing the influence of intelligence on foreign language acquisition have occurred. Most of them never confirmed the direct proportion of IQ and foreign language competence. At the beginning of its research, bilingualism (multilingualism) was attributed a rather negative influence, which eventually led to another extreme – the persuasion of a solely positive influence. Even though intelligence is not the only reliable indicator of foreign language competence, a certain cognitive experience in connection with motivation in adult learners can compensate or even exceed subconscious and spontaneous foreign language learning in children.

Among the special factors that are believed to contribute to foreign language pronunciation belong the ability to imitate, the so-called language sense or language awareness, memory for coding of phonic material, the ability to switch from one language to another, verbal skills, and verbal intelligence in both foreign and native languages. Only children at a young age acquire foreign language pronunciation in an intuitive-imitative way. Despite the age limit for the critical period of foreign language learning eliciting a variety of opinions, it has been proven that adults (except one in a hundred thousand) learn foreign languages cognitively. It has been supported by numerous cases of people living in a foreign language environment for a more extended period yet having a significant influence of mother tongue interference on their foreign language pronunciation.

Among the extra-communication factors, the ones most often analysed in this context were the sound-imitating ability, often linked to the quality of musical hearing (Suter 1976; Purcell and Suter 1980; Thompson 1991) and the personality type from the point of view of extroversion (Suter 1976); none brought conclusive results. In connection to the quality of foreign language phonic performance, the authors often focused on gender differences (e.g., Asher and García 1969; Flege, Munro, and MacKay 1995; Thompson 1991), with equally contradictory findings. Speech production of female subjects was often evaluated as better by the listeners than the production of male subjects (e.g., Tahta, Wood, and Loewenthal 1981). To the contrary, Elliott (1995), Snow and Hoefnagel-Höhle (1977; 1979) find gender differences irrelevant in connection to foreign language pronunciation.

Factors of anatomy and physiology comprise, among others, the quality of receptors and the sensitivity of the hearing analyser, i.e., the speech (or phonematic) hearing. Malíková (1993) claims that excellent speech hearing enables the individual to sensitively perceive, discriminate, transform, and decode foreign language material, both segmental and suprasegmental. Such a person has an excellent reactivity and agility of articulators and can adequately code the phonetic and phonological elements of a foreign language. Their kinaesthetic sensations are also at a very high level.

As foreign language learning inevitably requires learners to experience constant change or reconstruction, learners with the capability to overcome such a "cognitive inconsistency" (Bennett 1998) are considered successful foreign language learners. Risk-taking (Horwitz 1996) and tolerance of ambiguity (Dewaele and Shan Ip 2013; Dörnyei 2005) thus may well shape the success in mastering a foreign language.

Extraversion is another personality feature that has received attention in foreign language learning research over the past several decades (e.g., Dewaele and Furnham 2000; Dewaele 2005; Ehrman, Leaver, and Oxford 2003; Ellis 1994). It is believed to be an advantage for foreign language speech production because extraverts tend to be outgoing, sociable, lively, impulsive, carefree, and risk-taking; they like parties, change, have many friends, seek novelty and change (Eysenck and Eysenck 1964). Another potential cause of extraverts' better performance in foreign language oral production might be a superior capacity for short-term memory, allowing them to maintain automatic speech production in stressful situations, while introverts tend to suffer more from communicative anxiety (Dewaele and Furnham 2000).

Other personality traits studied in foreign language learning were emotional stability (Dewaele and Al-Saraj 2015; MacIntyre and Charos 1996), perfectionism (Gregersen and Horwitz 2002), neuroticism (Dewaele 2013), emotional intelligence (Dewaele, Petrides, and Furnham 2008), verbal intelligence (Fahim and Pishghadam 2007), integrativeness (Gardner and MacIntyre 1993), confidence (Stankov et al. 2012) and empathy (Guiora, Brannon, and Dull 1972). The relationship between foreign language pronunciation, achievement, and personality can thus be rather significant. Several scholars investigated the effect of personality on foreign language oral production, trying to determine predictors of foreign language pronunciation quality (e.g., Baran-Łucarz 2010, 2012; Dewaele and Furnham 2000; Flege 1988; Flege, Munro, and MacKay 1995; Hu and

Reiterer 2009; Hu et al. 2011; Hu et al. 2013; Piper and Cansin 1988; Piske, MacKay, and Flege 2001; Purcell and Suter 1980; Suter 1976).

Following a large-scale study into a range of aptitudinal and affective factors influencing foreign language pronunciation, Hu and Reiterer (2009) reported that general personality traits per se do not have a great influence on pronunciation ability. Hu et al. (2011; 2013) further aimed at clarifying the neuro-psychological origins of individual differences in foreign language pronunciation aptitude, finding empathy a significant predictor of foreign language pronunciation aptitude.

Concerning the level of foreign language pronunciation, Kráľová (2012) detected a significant positive relationship between sensitivity and openness to change and a significant negative relationship between tough-mindedness and anxiety, while Hinton (2014) concluded that boldness positively influences foreign language phonic mimicry ability. On the other hand, Baran-Łucarz (2010; 2012) reported no systematic relationship between the level of ambiguity tolerance, the thickness of ego boundaries, and attainment in foreign language pronunciation.

The trait theories of personality identify personality features as relatively stable, long-term, and consistent (e.g., Alport 1961; Eysenck 1981; Kerry 1990) and consider them biologically determined and inherited. However, many researchers believe that this traditional conception "does not do justice to the dynamic, fluid and continuously fluctuating nature of learner factors. Neither does it account for the complex internal and external interactions that we can observe" (Dörneyi 2010, 253).

Seemingly few studies have examined the relation of personality variables and **foreign language anxiety** in a longitudinal design applying any kind of intervention. Tracy-Ventura et al. (2016) demonstrated significant changes in the emotional stability of participants after a year spent in a foreign language country. The effect of affective strategy instruction (relaxation, music, visualization, humour, positive self-talk, risk-taking, and monitoring emotions) on foreign language oral tasks has also been examined (Rossiter 2003). Ganesan and Kulkarni (2016) attempted to reduce English language anxiety through a combination of behaviour modification techniques (reduction of rate of breathing, laughter technique, development of alternate emotional responses to the threatening stimulus, and fun of failing technique) in a one-month intervention. Both studies recognized the positive influence of the applied affective strategies on oral performance and anxiety

levels, yet they did not examine the effect of any intervention on personality factors.

The links between foreign language anxiety and personality traits have been underresearched (Dewaele 2013). There is a continuing need for more intervention studies to determine the effects of affective strategies on foreign language learning. While the research of factors of foreign language (phonic) performance first covered subject-dependent factors, later research focused on subject-independent factors. However, the findings of numerous studies could not be consistently replicated, which is why confirming the validity and reliability or proclaiming strong convincing claims in many cases required further quantitative and qualitative relevant studies.

CHAPTER 3

FOREIGN LANGUAGE PRONUNCIATION RESEARCH

Learning Pronunciation

The research of foreign language acquisition or learning intensified in the 1960s and initially focused on the morphological and syntactic aspects of a target language. The last fifty years saw a plethora of published works dealing with the phenomenon of foreign language pronunciation acquisition/learning.

Krashen's *Monitor Hypothesis* (Krashen 1985) distinguishes two antagonistic approaches to adults' gaining an L2: first, **language acquisition**, i.e., an unintentional, implicit process focused on contents and utterance meaning; and **language learning**, i.e., a conscious, explicit process focused on form and the knowledge of the system. Today, the idea of incompatibility of both systems is rather obsolete (e.g., Germain and Lamarre 1993) with the communicative method as a practically applied symbiosis of both systems in today's language pedagogy. In publications, there is a tendency to interconnect the terms of "foreign language learning" and "foreign language acquisition," which is why we prefer the term "gaining the (specific, e.g., phonic, grammatical or communicative) foreign language competence" within the field of foreign language pedagogy.

Along with the dominant behaviouristic and structuralist opinion streams within the Second Language Acquisition research, the later 1960s brought a new approach to the L2 code acquisition: the *Interlanguage Theory* (Corder 1967; Selinker 1969; 1972; Nemser 1971; Richards 1971). The literature also operates with other terms denoting the **interlanguage**, e.g., the approximative system (Nemser 1971), transitive competence (Corder 1967), idiosyncratic dialect (Corder 1971), multicompetence (Cook 1991), and the mediatory or third system (Hrdlička 2004).

The *Interlanguage Theory* understands obtaining the foreign language competence as a process of creating an autonomous language code, which gradually approximates the native-like level of the foreign language in a successive or continuous way (Flege 1979). In the diachronic process of L2 acquisition/learning, understood as the process of creative construction, the interlanguage becomes its synchronic cross-section. The interlanguage (the actual language competence of an individual) is of idiolectic nature and a dynamic character which enables it to perceive the language mistake as a part of the individual's language development. Ideally, the number of native language elements drops in time, and the number of foreign language elements increases. The transitional intercode, according to Hrdlička (2004, 42), should reflect the potential quality of foreign language competence, graded within the full range of percentage points. In reality, however, cases of stagnation, fossilization, or regression are frequent, even prevailing.

Grading the foreign language competence by the full range of percentage points seems to us to be too idealistic and simplistic. Not even native speakers, whose performance is taken as a comparative standard in similar research works, show a hundred per cent competence level in all situations in every moment. In that regard, the question arises of realistic goals in teaching foreign language pronunciation: should it be the orthoepic norm of the given language, the native speaker level, or should enabling a noiseless L2 communication suffice? Early streams of *Second Language Acquisition* research understood mistakes as unwanted events and graded L2 sounds produced by a non-native speaker as correctly or incorrectly realized discrete entities. Today's view is of a continuum of approximations towards the L2 sounds, the realization of which is influenced by the actual level of the interlanguage rather than the interlingual interference.

In connection with the communicative turn in the second half of the 20th century and with the orientation to parole linguistics, the foreign language pedagogy (specifically foreign language phonetics) stressed the sound event adequacy in the given communicative situation rather than its exactness of realization. Even though the name given to one of the traditional research methods of language interference – error analysis – has acquired the characteristics of a term in linguistics, it would be more appropriate to replace "error" with "deviation" when used for description of pronunciation mistakes.

Prominent scientists of the 1980s, Patricia Kuhl, Catherine Best, and James Flege established productive research programs dealing with interlingual research of sound systems. Flege's research, especially his *Speech Learning*

Model (1995), is one of the three theories having the most significant influence on further research of interlingual perception and production. Together with the other two theories, the *Perceptual Assimilation Model* (Best 1995) and the *Native Language Magnet Model* (Kuhl 1993), its focus is rather on phonetics. Other influential theories are of rather phonological focus, such as the *Phonological Interference Model* (Brown 1998) and *Ontogeny Phylogeny Model* (Major 2001).

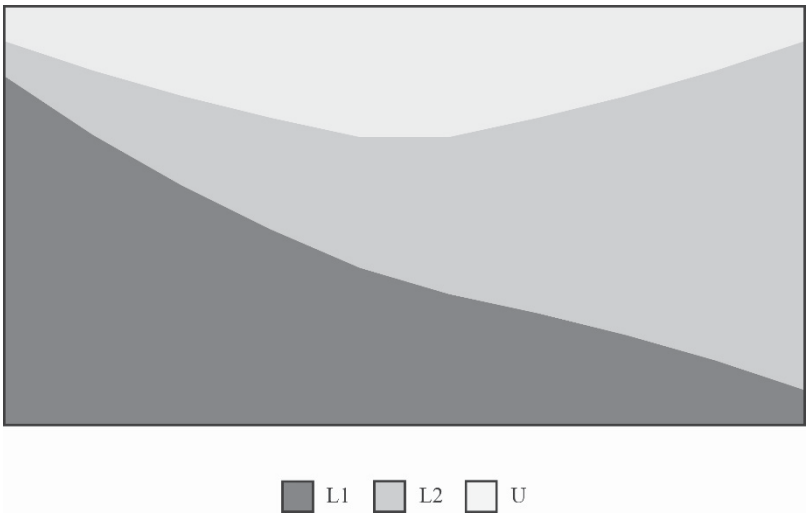
Speech Learning Model (Flege 1995) assumes a shared L1 and L2 phonological space. It presupposes that learning new phonetic categories (sounds) occurs via phonetic categorical assimilation (L2 elements similar to L1 elements) and dissimilation (new L2 elements). Creating a separate category for a segment similar to L1 and L2 is blocked by a mechanism of equivalential classification (Flege 1987, 49). Within *Speech Learning Model*, we can thus assume that the learner of any age is able to create additional phonetic categories for new L2 sounds which do not have a phonetic counterpart in L1 (they do not correspond with L1 sounds). The ability to create separate categories for L2 sounds similar to the existing L1 sounds decreases with rising age, from the age of six.

In contrast to the *Speech Learning Model*'s dominant articulatory focus, a related model of foreign language sound learning – *Perceptual Assimilation Model* (Best 1995) – prefers an auditory view, according to which the perception of L2 sounds is likewise determined by the internalized L1 sound system. The triplet of the most essential theories is completed by Kuhl's *Native Language Magnet Model* (1993), focusing on L2 sound perception during childhood. All three models converge around the basic premise – similar L1 and L2 sounds are harder to perceive and produce than L2 sounds not found in the system of the mother tongue. All three models consider phonetic practice in an authentic context to be essential for foreign language pronunciation improvement by an adult learner.

Phonological Interference Model (Brown 1998) derives from the principles of Weinreich's *Language Interference Theory* (1953) with the following basic premise: the leading cause for errors in foreign language production is the difference between L1 and L2 language systems. Based on the *Ontogeny Model*, Roy C. Major (1987b) distinguishes interference and developmental processes in foreign language acquisition. Interference processes weaken in time, while developmental processes (analogical with L1 acquisition processes) intensify first and weaken later. He claims there is a parallel between the errors that originate in L1 and L2 acquisition: more complicated phenomena develop later in both systems.

Major (2001) later broadened his understanding of interlanguage as a combination of elements of native language, foreign language, and language universals. Interlanguage is identified as containing two types of errors – transfer errors and development errors, which are represented differently in the evolving interlanguage of an individual. L1 phenomena are gradually less represented in the interlanguage while the representation of the L2 phenomena rises. Language universals (U) first have a rising tendency, and at a certain level of L2 language competence they decrease (Fig. 2).

Fig. 2 Structure of interlanguage



Richard Wojcik (1980) interprets the L2 phonology from the perspective of "inborn" *Natural Phonology*, and he compares the incorrect pronunciation of a foreigner to speech errors. He claims that the causes for both phenomena originate in the speaker's failure to suppress specific processes.

The given models of L2 sound level acquisition operate on a basic premise of the significance of L1 and L2 interlanguage phonetic correspondence for the prediction of perception and production quality in L2. They are also alternative theories to the *Critical Period Hypothesis* (Lenneberg 1967). The persisting presence of a foreign accent in L2 production of post-puberty speakers is typically linked to the process of neurophysiological maturation and the formation of brain lateralization (Lenneberg 1967).

Equivalence Classification Hypothesis (Flege 1987, 49) limits the range of approximation to the L2 phonetic norm to segments similar in L1 and L2. The mechanism of equivalence classification prevents the creation of a phonetic category for a similar L2 phone, but not for a new one. In this regard, Flege (1987, 48) distinguishes three types of foreign language phonemes: identical, similar, and new.

Phonological Translation Hypothesis (Flege 1981, 448–451) states in a similar mode that the dominance of the mother language sound system is more probably the cause for nonauthentic pronunciation in a foreign language than limits arising from the neurophysiological maturity of an individual.

A hypothesis with a similar basis is the *Upper Limit/Level Hypothesis* (Flege and Hillenbrand 1984, 708), stating that there is a maximum limit of approximation of similar L1 and L2 sounds; the speakers mix the L1 and L2 phone qualities (*Merger Hypothesis* by Flege 1987, 51) but typically do not reach the authentic pronunciation of a native speaker.

Despite the assumption of every non-native speaker having a specific upper limit of approximation to the target pronunciation level (Flege and Hillenbrand 1984, 709), numerous research works (e.g., Asher and García 1969; Dickerson 1974; Riney and Flege 1988) confirm the possibility of continuous improvement of non-native speaker pronunciation. In the process of L1 and L2 sound acquisition, phonetic categories should be gradually optimised and formed before the corresponding phonological categories.

According to Dickerson (1974), the first features eliminated in this process are the most significant pronunciation deviations, while the closer approximations are typically preserved for a longer time. In Weinreich's understanding of language interference (1953), a factor significantly contributing to the creation of the approximation's upper limit is the interlingual identification of elements.

One of the crucial (and so far, unanswered) questions is what is more difficult in foreign language acquisition – events with or without counterparts in L1. None of the existing opinions – not the original "different is difficult" (e.g., Brière 1966), nor the alternative "similar is difficult" (e.g., Flege 1984) – have satisfactorily solved the problem of

objective definition and quantification of identical, similar, and new elements in L2 from the point of view of L1.

L2 segments are filtered by automated strategies, which classify the phonetically identical or similar sounds as L1 sounds (Best 1995; Flege 1995). Both Best and Flege agree that the comparison of L1 and L2 categories should not derive from abstract, phonologically distinct features but rather from their actual phonetic realizations perceived by the listener. The reason is the interlingual similarity presupposes three constituents of elements' correspondence: articulatory, acoustic, and auditory.

We believe it is crucial to take into consideration the different approach from the point of view of speech or communication. Theory and empirical evidence (more details in Kráľová 2011) suggest that the pronunciation mistakes most frequently detected in foreign language communication by native speakers are phenomena of phoneme under-differentiation, i.e., incorrect realizations of L2 sounds which do not exist in L1.

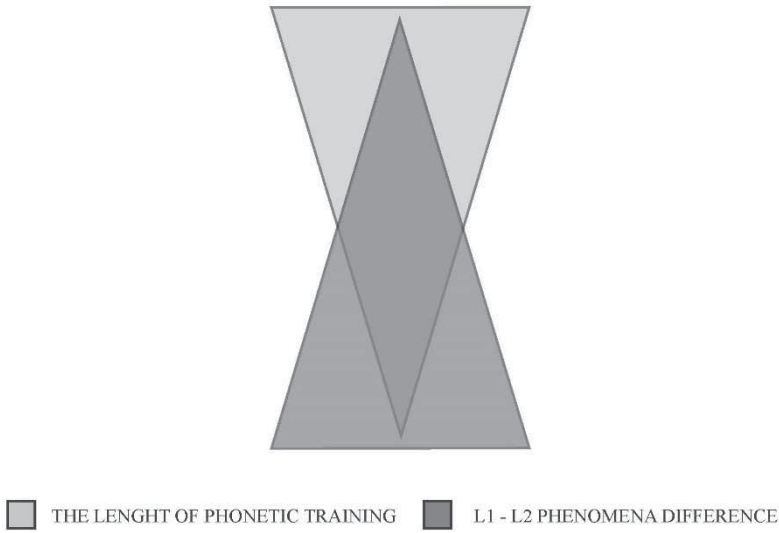
It seems rather unclear whether new elements, phonetic categories of which the learner can build according to *Speech Learning Model*, have permanent retention after targeted phonetic training (Kráľová 2011). At the same time, it is beyond doubt that most non-native speakers continually use the corresponding L1 sounds in L2 speech performance. Substitutions of equivalent sounds are not too relevant from the point of view of the disruption of communication even though it is an L2 norm breach from the point of view of the system.

Despite the unequivocal interlingual differentiation of language elements into identical, similar, and new (Flege 1987, 48), frequently not being fully adequate or feasible, it is possible to observe certain general tendencies in the process of L2 acquisition (Fig. 3). An inverse proportion possibly becomes evident in the longitudinal cross-section: the more significant the difference between L1 and L2, the earlier and easier it can be eliminated by training (e.g., sound substitution). Flege and Hillenbrand (1984) in their study positively answer the question whether interlingual identification recedes under the influence of rising cognition on L1 and L2 sound system comparison.

Based on several longitudinal experiments (e.g., Meador, Flege, and MacKay 2000), it became clear that the most significant deviations in foreign language segment pronunciation were eliminated by phonetic

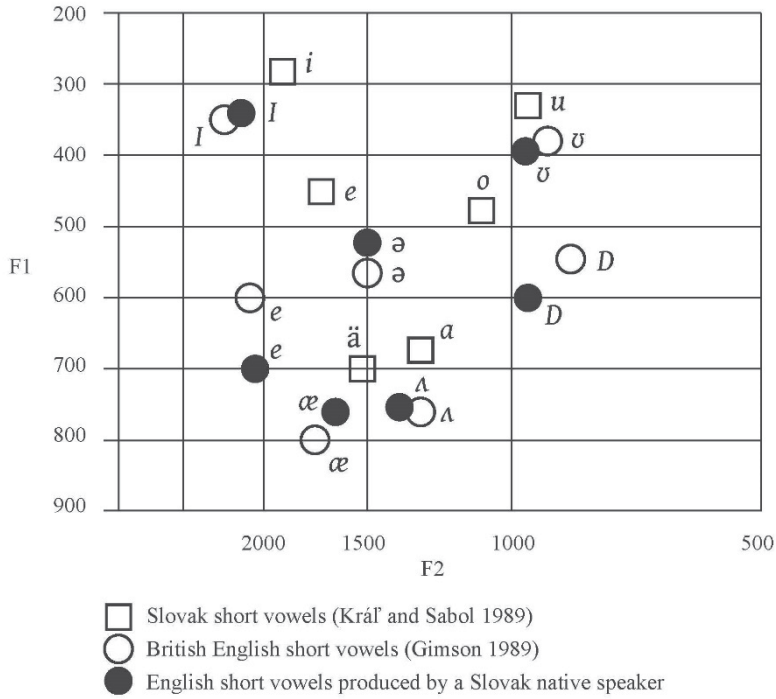
training as first, while closer (yet phonetically still not exact) approximations of L2 sounds tended to persist for a longer time. Research suggests that the retention of these events is preserved at quite a high level. Smaller differences have a more substantial persistence even though they are less relevant from the point of view of communicative value (more details in Kráľová 2011).

Fig. 3 Foreign language pronunciation training



Phonological differences between L1 and L2 are not the only (nor the most significant) determinant of sound quality of the non-native speaker production in L2. The learner must acquire a new complex of articulatory gestures and modify the existing phonetic patterns, while at the same time they often produce a range of sound variants for one L2 phoneme – a continuum of approximations to the prototypical L2 sound (Fig. 4). The sound interference retards the approximation towards the target system based on the similarity and difference of the events. It is one of the phenomena of the interlanguage and one of the (not the only one) causes of nonauthentic L2 pronunciation.

Fig. 4 The example of approximation to L2 sounds



The situation is not necessarily obvious in all cases. The quantification of the extent of difference and similarity together with the linked quantification of the degree of difficulty is not quite appropriate when only based on the matrix of distinct features. With acoustic-auditory type of communication, it is also necessary to consider the articulatory peculiarities of phonemes. For example, a new phoneme can be acquired as a grouping of new features but also as a regrouping of features already known from L1.

William Ritchie (1968) considers classical phonology to be insufficient for a proper research of interference, since not all features are equally relevant in the given phonological system. The more important features during perception are their phonetic correlates, which are placed higher in the hierarchy of the given system. The adequate field, according to Ritchie, is generative phonology, which considers a feature of a segment to be

distinctive (phonological) when it is not predictable on the basis of a phonological rule.

Currently, the previous language competence is understood to be facilitative rather than inhibitive, especially regarding the emphasized language universals compared with the *Markedness Differential Hypothesis* by Eckman, according to which the only difficult L2 phenomena are those with higher phonological markedness than the analogous L1 phenomena (Eckman 1977, 318). Stockwell and Bowen (1965) add a pragmatic aspect to the theoretical analysis – they also consider the functional load of the phenomena.

Weinreich (1953) was the first to presume that a bilingual individual cannot fully isolate L1 and L2 systems, which necessarily influence each other (Peltola et al. 2007, 1867). Experiment results suggest it is probable that both language systems are, to some extent, permanently activated in bilinguals (Mägiste 1979; Grosjean 1982). Other authors, however, are convinced of the existence of two separate systems which get activated automatically as a reaction to a certain language context (Winkler et al. 2003). According to Alvin Liberman (1957), the ability to discriminate speech sounds is not linear. Sensitivity is the highest at the border of the L1 category and the lowest at the category prototype, which can be linked to the *Phoneme Boundary Effect* or the *Perceptual Magnet Effect* (Iverson and Kuhl 2000).

Neurophysiological research confirms the existence of dual phonological systems as well as the existence of the system interconnection. According to Jessica Maye (2007, 63), the L1 and L2 sound processing has various neural representations; other scientists claim the areas of neural activation of L1 and L2 sounds mutually overlap (Hernandez et al. 2001). We believe the solution could be in different levels of bilingualism – the more advanced knowledge of foreign language presumes activation of identical cortex areas, while a less advanced level of language competence separates the L1 and L2 areas of neural activation to a larger extent.

According to the *Constant Dual Activation Hypothesis* (Grosjean 1989), the interlingual sound interference is constantly present in L2 pronunciation of non-native speakers. Grosjean (1989, 6) claims that L2 pronunciation is fossilized to such an extent that after reaching an ultimate level, its further improvement is not probable. He maintains that the best improvement is possible during the first year of L2 acquisition/learning (compare Bachi's

1956 *Linear Development Hypothesis*) up to reaching the ultimate plateau in L2 pronunciation, which typically cannot be further modified. If the modification can occur, special circumstances are required, and the modification is not significant.

Numerous and often contradicting conclusions have been reached in connection with the sound systems existing in bilinguals' consciousness. Hernandez et al. (2001, 514) contend that languages of a bilingual are activated by overlapping neural areas, while foreign language acquisition may (Winkler et al. 1999) but does not have to (Peltola et al. 2007) lead to the formation of new memory traces. Peltola et al. (2007) have investigated whether advanced bilinguals operate in L2 with two separate phonological systems activated in connection with the language context. Their results suggest that it is rather a combined phonological system containing neural representations of phonological categories of both languages. They state that an adult learner can reach the level of an advanced bilingual if they learn L2 in an authentic context.

Teaching Pronunciation

The role of teaching foreign language pronunciation, according to Sergej I. Bernstein (1975), is to make students aware of the functioning of articulators and automatize articulatory movements by training. During the process, the auditory notions must associate with motor notions. However, the only possibility of how to coordinate one's own articulation with the imitated model is by the connection between the acoustic and articulatory analysers. The L2 learner must acquire and automatize a complex range of articulatory gestures or modify the preexisting articulatory models; each learner uses their own strategies to do so. A high level of L2 pronunciation automation is inevitable for an effective and economical acoustic-auditory communication because, among other reasons, it is the **carrying (signal) information** (Kráľ and Sabol 1989) which secures the transfer of the **target (content) information**.

An assumption which is essential for foreign language pedagogy is that the speech zones of the cerebral cortex seem to be multisensoric areas integrating the impulses of various analysers and speech impulses of varying modalities (auditory, visual, kinaesthetic) (Kráľ 1974). It is also essential in L2 pronunciation teaching to understand that auditory-articulatory links (sign imprints, engrams) are not innate and that only one way exists by which links can be created and memory engrams (both

receptive and productive) stored in the human brain: a repeated reception and production (Malíková 1993). Once the learners realize the differences between their own actual output and an authentic output in L2, they try to modify their articulatory strategy. Phonetic L2 sound specification is thus more a product of interlanguage rather than L1 and L2 interference, even though it is necessary to take the dynamics of both phenomena into consideration.

Methodological principles and procedures of foreign language pronunciation training in a native language environment should derive from generally valid methodological and pedagogical theories and take into consideration the specificity of the process in the given circumstances at the same time. A Behaviourism-preferred direct method of imitative training does not yield such effect in adult age as the analytical method of cognitive training, which follows a related theoretical explanation. An important step that should precede the articulatory training is a modification of foreign language perception basis and a phonemic hearing training (Chebenová 2001). Based on the principles of language ontogeny and phylogeny, the receptive phase of the training should be followed by a productive phase focused on training, fixation, and automation of articulation and by the creation of dynamic articulatory stereotypes.

It is useful at the same time to have learners realize the difference between phonetic-phonological norms of the native language and the target language. It is first necessary to practice phenomena that tend to disrupt foreign language communication. Conscious training is with no doubt more effective than the intuitive-imitative one as several research works (e.g., Kráľová 2011) confirm the success of the practical phonetic training linked with adequate theoretical information.

Notional and abstract memories intensively develop with age and intentional memory of older pupils becomes more effective. That is why the process of acquisition of new habits and skills should derive from knowing the relevant activity from a theoretical perspective. In the case of adult learners, the analytical (cognitive) type of pronunciation training is considered more effective than imitative training (Chebenová 2001). Realization of differences, similarities, and possibilities of pronunciation mistakes (or deviations) derived from differences of native and foreign language sound systems can thus significantly contribute to improving the foreign language phonic performance of an individual.

New temporary links from a kinaesthetic analyser created because of one's own activities subsequently become integrated into the system of theoretical knowledge and they get practised by repetition in the following phase. Repka (1997) distinguishes methods of language teaching which draw from paradigmatic structural relationships and in which the foreign language is often compared to the native language. On the other hand, he claims that there are methods accenting the communicative aspect and the meaning of utterances. Nevertheless, the given methods are just the extremes of a broad spectrum of methodological procedures found in the controlled – free continuum.

Conscious and declarative (explicit) knowledge in foreign language learning is of importance, especially in learning a foreign language in school environments when school is typically the only place where students communicate in the foreign language. During the stage of knowledge acquisition and proceduralization, explicit knowledge turns into implicit and procedural. Students must be cognitively mature for the explicit type of learning, which is thus a significant type, especially for adults whose cognitive thinking is fully developed. Having explicit knowledge critically fastens the whole process of learning and encourages implicit knowledge acquisition. Explicit teaching is thus necessary, but it is not sufficient; further proceduralization must follow in which decontextualized practice is not sufficient, and students must be given a chance to use target structures in communicative activities (Gondová 2009).

However, some authors (e.g., Peltola et al. 2007) presume that the automatic processing of language phenomena does not require metalinguistic knowledge of the system. From our perspective, the case of an adult learner is specific and contrary to the intuitive-imitative means of L2 acquisition by a child in an authentic context it requires specific cognitive experience. Research of direct sound imitation (e.g., Carmichael 2000) has identified various degrees of imitative ability in the experimental group (which obtained metaphonetic information) and the control group (without metaphonetic information). This result suggests that the metalanguage context has a facilitative effect in adults' learning of a foreign language. However, detailed comparative studies of these phenomena within the unified concept are not yet available.

Clifford Prator (1968) divided the methodical procedures used in foreign language teaching into manipulative and communicative. Manipulative procedures are those in which the learners obtain the language to be used by

the teacher, sound recording, or a book. On the other hand, communicative procedures enable the learners to use words or structures that they themselves have chosen, and thus they must control the utterance meaning by themselves. It needs to be mentioned that during the training of new structures, the teacher cannot cope without controlled teaching procedures even in advanced classes. To "try out" a new language structure (grammar, pronunciation, and vocabulary) in a safe environment is of strong affective meaning.

Only several research works are available today that study the effectiveness of explicit phonetic-phonological instructions on L2 pronunciation acquisition. Almost all of them confirm their positive correlation (MacDonald, Yule, and Powers 1994; Derwing and Munro 1997; Bradlow et al. 1997; Bongaerts et al. 1997; Moyer 1999; Couper-Kuhlen 1993; Derwing and Munro 2005). Despite the undoubted effectiveness of the theory and practical training combination, we are not aware of the experimental comparison of the effectiveness of contrastive metaphonetic inputs with the effectiveness of non-contrastive metaphonetic inputs.

Kráľová (2010) was the only one who experimentally confirmed the higher effectiveness of contrastively focused metaphonetic input reflected by a perceived level of English pronunciation of the respondents and a degree of sound approximation to the target formant values. She confirmed a generally accepted rule of learning psychology, that building awareness of the phenomena leads to the dramatic refinement of the resolution capacity of the analyser. A better-quality input will more probably lead to the acceleration of forming the respective dynamic stereotype and an engram in the memory.

On the contrary, some research studies dealing with the influence of teaching (the impact of training modality) on L2 pronunciation failed to identify formal instructions (**metaphonetic input**) as a significant factor for L2 pronunciation quality (Thompson 1991; Elliott 1995; Flege, Munro, and Mackay 1995; 1999). Suter (1976) even ascertains their indirect dependence. Results of research focusing on the effectiveness of various types of L2 phonetic training are contradictory, similar to many other *Second Language Acquisition* research results. Research studies either confirm (e.g., Olson and Samuels 1973; Bongaerts et al. 1997; Mildner and Horga 1999; Mildner and Bakran 2001; Sheppard, Hayashi, and Ohmori 2007) or failed to confirm the positive impact of phonetic training on pronunciation (e.g., Suter 1976; Thompson 1991; Elliott 1995; Flege et al. 1999). We believe

the primary cause of the contradictory statements is the methodological incompatibility of individual experiments, which is why their results cannot be accurately compared.

The contemporary trend in teaching foreign language pronunciation is the so-called **top-down approach**, i.e., from events of higher order (suprasegments) to events of lower order (segments). Oliverius (1970) also suggests preserving the gradation from easier to more challenging (suprasegments to segments), and within the segmental subsystem, the gradation from distinct elements in the native language to similar elements in the native language. In the process of native language acquisition, suprasegmental events also begin to appear before phonemes, and some authors claim the critical period for prosody ends before the critical period for segmental components of the language (Carmichael 2000; Guillaume, Bonneau, and Colotte 2007).

In the university practice of language pedagogy, the most frequently applied order corresponding to the used teaching materials is (according to available information) from segmental to suprasegmental events. The opinions on the effectiveness of the top-down approach (e.g., Avery and Ehrlich 1992) and the **bottom-up approach** (from segments to suprasegmens, e.g., Riney, Takada, and Ota 2000; Levis 2005) are balanced and undoubtedly justified. The present-day preference for suprasegments-to-segments order may be linked to certain necessary globality of L2 pronunciation textbooks published abroad and the fact that suprasegments (as more universal human phenomena) do not require the level of local approach as segments do.
The research of the mentioned issues first focused on the segmental and articulatory levels. It was not until the mid-1970s, the time of the shift towards communicative methods in L2 education when prosody became the focus of researchers' attention. So far, empirical observations have not clearly quantified the ratio of segmental to suprasegmental events in foreign accent detection; the results are thus inconclusive. The L2 pronunciation research shows a tendency to proceed from segments to suprasegments while simultaneously preferring the respective level from the point of view of its share on the L2 foreign accent.

Internationally, the authors mostly dealt with observing the training modality on L2 foreign accent reduction (mainly in the migrant group with English as a target language). Our approach targets the other side of the imaginary hourglass – L2 pronunciation improvement. Nevertheless, this is clearly (inversely) linked to the foreign accent reduction.

The primary task of segments in the L2 pronunciation is stressed in many studies dealing with the research of training effectiveness of binary oppositions in the discriminatory or identification format (e.g., Brennan and Brennan 1981; Strange and Dittman 1984; Jamieson and Morosan 1986; Major 1986; Strange 1989; Flege and Wang 1989; Flege 1989; 1991; Pruitt et al. 1990; Kuhl 1991; Logan, Lively, and Pisoni 1991; Polka 1991; 1992; Anderson-Hsieh, Johnson, and Koehler 1992; Lively, Logan, and Pisoni 1995; Flege, Munro, and MacKay 1995; Flege, Bohn, and Jang 1997; Pallier, Bosch, and Sebastián-Gallés 1997; Pisoni 1997; Walley and Flege 1998; Mildner and Horga 1999; Riney and Takagi 1999; Tsukada et al. 2004; Lambacher et al. 2005; Tsukada 2005).

Flege, Munro, and MacKay (1995, 3132) claim the sound interference is manifested mainly in the vowels. Consonantal production is, according to many authors, much less significant in L2 foreign accent creation (e.g., Kuhl 1991; Flege, Bohn, and Jang 1997; Pallier, Bosch, and Sebastián-Gallés 1997; Walley and Flege 1998; Mildner and Horga 1999). On the contrary, other studies stress the dominant role of consonantal elements (e.g., Flege 1991; Riney and Takagi 1999; Tsukada et al. 2004; Tsukada 2005). Many research works confirm the fact that the correct position of vowels in the L2 formant scheme highly positively correlates with the overall level of L2 phonic competence (e.g., Mildner and Horga 1999; Munro, Derwing, and Flege 1999). The research on interference and the influence of the native language on the second (foreign) one also revealed the fact (more details in Kráľová 2011) that interference is most intensively manifested with vowels and the production of consonants plays a less significant role in the L2 foreign accent creation.

Vowels are perceived rather as continuants, while consonants are more categorial (Strange 1995, 38). Within the perception evaluation of pronunciation, the method of transcription identification (Best, McRoberts, and Goodell 2001, 776) is more justified with consonants than with vowels; it is not, in any case, the expression of approximation to the target segment. Vowels are relatively invariant, which is why some authors (e.g., Bohn and Munro 2007) consider vocalic errors to have more influence on utterance misunderstanding than consonantal ones.

Bent, Bradlow and Smith (2008) found out that the errors of segment production in initial positions have more influence on L2 speech understandability than errors in the realization of segments in other positions within words. Most experiments investigated the segmental

aspects of L2 pronunciation, focusing mainly on the perception and production training of "demanding" segmental oppositions; their results to a great extent confirm the basic *Speech Learning Model* thesis (Flege 1995) that the degree of successful L2 sound acquisition significantly depends on the phonetic similarity between L1 and L2 elements.

In this regard, many researchers have studied the influence of individual sound characteristics (e.g., voice onset time) on the overall evaluation of foreign language pronunciation. The majority never confirmed the relevant correlation with the L2 phonic competence level (Major 1987a; Riney and Flege 1988; Riney and Takagi 1999; Munro, Derwing, and Flege 1999; Riney, Takada, and Ota 2000).

Some studies (e.g., Flege 1981; Kráľová 2011) proved that the amount of sound substitution of foreign language phonemes not present in the system of the native language significantly correlates with the evaluation of a speech as non-native. This, however, does not mean that substitutions are the only criterion. Most probably, they are easy to be identified when listening and the listener creates the overall impression of foreign language speech based on the combination of subsegmental, segmental, and suprasegmental factors.

From the point of view of the sound subsystem at which the training was aimed, based on the available research results, many authors consider the training of suprasegmental events to be more effective as it has a much more positive effect on the overall improvement of foreign language pronunciation, or a higher share of a positive evaluation of a foreign language pronunciation (e.g., Johansson 1973; James 1976; Grover 1995; de Bot 1983; Pennington and Richards 1986; Major 1987; Anderson-Hsieh and Koehler 1988; Leather 1990; Munro and Derwing 1994; Munro 1995; Bongaerts et al. 1997; Magen 1998; Kondo 1999; Marcus and Bond 1999; Missaglia 1999; Moyer 1999; Nunan 1999; Carmichael 2000; Jilka 2000; Pennington and Ellis 2000; Wennerstrom 2001; Derwing and Rossiter 2003; Wayland and Guion 2004). Except for the overall intonation, what gets highlighted is rhythm (Munro 1995; Tajima, Port, and Dalby. 1997; Munro and Derwing 2001), syllable structure, and word stress (Magen 1998).

Although findings emphasizing segments or suprasegments as more distinct L2 pronunciation quality predictors are both equally compelling, more research and pedagogical efforts have so far focused on segmental events. Segments also hold majority status in the mentioned L2 acquisition models

(*Speech Learning Model*, *Perceptual Assimilation Model*, and *Native Language Magnet Model*), which highlight the interference aspect of segmental sound subsystem acquisition. We believe that, for example, the *Speech Learning Model* can be analogously applied to L2 prosodic features.

Several experiments tried to verify the effectiveness of individually focused L2 phonetic training (Mildner 1993; Mildner and Bakran 2001). Their results confirmed the higher effectiveness of the individual approach compared to group training. Individual approach is partially applied in pedagogical practice, specifically in the form of practically oriented face-to-face pronunciation consultations. The fact that speakers of the same native language manifest certain common features in sound production of the foreign language is quite well applicable in the conditions of present-day teaching practice via group learning.

Even though pronunciation errors linked to segmental level are widespread in the English-language speech of non-native speakers, schools typically do not pay much attention to the error elimination. However, as the research results have shown (more details in Kráľová 2011, 87−91), suprasegmental phenomena are equally important to ensure failure-free communication. We must keep in mind that the segmental, plurisegmental and suprasegmental subsystems of the language sound system are by no means isolated and influence one another quite significantly. A holistic evaluation of pronunciation thus must take into consideration the communicative value at individual phenomena of the phonic level, or the relationship of the pronunciation deviations (whether they are segmental, plurisegmental or suprasegmental) to the final communicative effect and the auditive impression.

Present-day linguistic pedagogy features three major approaches to evaluating L2 pronunciation (Poesová 2007):

1. **holistic evaluation**: evaluation of the overall efficiency of the speaker;
- advantage: analysing the pronunciation of a great number of subjects in a short time;
- disadvantage: subjectivity, inexactness of evaluation criteria arising from the difficulties of their definition;
2. **atomistic** (analytical) **evaluation**:
- advantage: exactly the specified part of the evaluation, the higher objectivity;

- disadvantage: time-consuming;

3. **combined** (holistic-atomistic) **evaluation**: links the advantages and eliminates the disadvantages of both approaches.

In holistic (perceptive) evaluation of sound material, the foreign language performance quality is indicated through *Equal Appearing Interval* scales, even though occasionally the *Direct Magnitude Estimation* scale (in Brennan, Ryan, and Dawson 1975; Ryan, Carranza, and Moffie 1977) or the *Continuous Evaluation* scale (in Flege and Fletcher 1992; Flege, Munro, and MacKay 1995; Munro and Derwing 1994) have been used as well. Nevertheless, nor the standardized optimal range nor definition of intervals have been confirmed so far. Similar experiments typically used scales of varying division, from a 3-point one (Flege and Fletcher 1992) up to 10-point (McDermott 1996; Jilka 2000). The most common ones are 5-point evaluation scales (e.g., Oyama 1976; Piper and Cansin 1988; Bongaerts et al. 1997) and the 9-point scales (e.g., Flege, Munro, and MacKay 1995; Riney and Takagi 1999; Munro and Derwing 2001). Likert scales have prevailed in the point-based evaluation of L2 pronunciation or the foreign accent in L2. Occasionally used sliding scales (Major 1986; Flege and Fletcher 1992; Flege, Munro, and MacKay 1995) worked by moving the evaluating cursor in the continuum between the limit points. The evaluation was then computer-processed and interpreted as a numeric value.

Southwood and Flege (1999, 335) tried to establish whether a foreign accent is the so-called **metathetic continuum** (a continuum divisible into regular intervals) or the so-called **prothetic continuum** (linearly indivisible continuum). They discovered that the foreign accent in L2 can be understood in terms of a metathetic continuum and that a nine-point or eleven-point EAI scale is the optimal scale for its evaluation.

Studies focusing on research into the manifestations of the so-called foreign accent also differ in the character of the research material. In most cases, the recording of a read text was analysed auditively or experimentally; in some studies the reading comprised words, sentences, or text sections (Asher and García 1969; Flege 1984; Bongaerts et al. 1997), in some it was spontaneous speech (Oyama 1976; Piper and Cansin 1988; Thompson 1991; Kráľová 2011), while some studies featured repetition of speech units based on the native speaker model by the direct repetition technique (Olson and Samuels 1973; Snow and Hoefnagel-Höhle 1977; Flege, Munro, and MacKay 1995) or by the delayed repetition technique (Flege, Munro, and MacKay 1995; Yeni-Komshian, Flege, and Liu 2000; Piske, MacKay and

Flege 2001). Some experiments used the combination of several methods (Markham and Nagano 1996; Oyama 1976; Thompson 1991). The length of the experimentally analysed stimuli also differed from thirty milliseconds (Flege 1984) up to two minutes (Suter 1976).

Even though the type of analysed auditory material differs in different experiments, most authors (with more details in Tench 1996) consider the quality of spontaneous speech to be the most adequate indicator of L2 phonic competence. Nevertheless, the indicator is also burdened with limits, e.g., the natural tendency of a speaker to avoid problematic and difficult phenomena (Piske, MacKay, and Flege 2001). The evaluation of foreign language pronunciation by the listener can be influenced by morpho-syntactic and lexical mistakes in speech (McDermott 1996) as well as speech fluency – pauses and hesitation phenomena (Hieke 1987). During the perception of spontaneous speech acts, the listeners do not filter in retrospect the subcategorial segmental differences that are not relevant for the preservation of auditory categorial identity. L1 and L2 vowel formant differences are probably more distinctly manifested in spontaneous speech rather than in reading isolated words or text (Koopmans-van Beinum 1980).

Many authors consider unprepared free speech to be unreliable for the research of auditory parameters of speech mainly due to its multidimensionality. Piske, MacKay, and Flege (2001, 1435) consider the reading of a prearranged text to be more reliable. Oyama (1976) and Thompson (1991) concluded that pronunciation of a read text was evaluated worse by percipients than pronunciation in a spontaneous speech of identical respondents.

We maintain that unprepared text (after appropriate segmentation) is the most reliable material for analysing partial sound phenomena. Natural communication, in which speakers focus more on contents rather than on the phonetic expression, is most realistically imitated in such a way. Real communication is better simulated in a dialogic form of speech; however, the (non-)native speakers tend to adapt to the communication partners, and in more extended communication, they can adopt some of their sound characteristics. Another obstacle to such research is practical and methodical: in bilingual research, it is highly challenging to record dialogic communication between native and non-native speakers.

Evaluators were mostly native speakers of English; the studies featured from one to eighty-five evaluators (Snow and Hoefnagel-Höhle 1977; Anderson-Hsieh and Koehler 1988, respectively). The number of evaluators

who can provide relevant information on the quality of non-native speakers' phonic performance is not known. Interindividual variability of the evaluation was typically rather low (e.g., the standard deviation in Sheppard, Hayashi, and Ohmori 2007 was 0.76), which was also due to the relatively homogeneous geographical and social profile of the evaluated groups (frequently students or teachers at universities of given countries).

Quantity is not the only phenomenon to pose a serious methodological question; the quality, or the characteristics of the group of listeners, is the other one. Evaluators often differ in psycholingual and sociolingual parameters (McDermott 1996; Brennan and Brennan 1981) but also in which phenomena they consider to be primary in their pronunciation evaluation (McDermott 1996). Thompson (1991, 201) states that linguistically trained speakers evaluate the speech of foreigners more strictly than those without linguistic training. Flege and Fletcher (1992) and Bongaerts et al. (1997) as well as Anderson-Hsieh and Koehler (1988) did not find any significant differences in the evaluations of the two groups. Likewise, significant differences between evaluations by native speakers who did and did not participate in the informative training of evaluations (most frequently, they were exposed to samples of extremes of pronunciation levels) were not confirmed (Flege and Fletcher 1992; Munro and Derwing 1994; McDermott 1996).

No research is known which analyses the capacity of native speakers to evaluate the pronunciation of non-native speakers. Listeners differ, among other characteristics, in idiolect, dialect, affiliation, tolerance, and range of phonic structures. Long (1990, 252) supposes that individuals exposed to more L2 varieties, including L2 with foreign accents, are more tolerant of the non-native speaker pronunciation in the given language. Pronunciation models of native language are preserved in the long-term memory and the evaluation of non-native speaker pronunciation presumably depends on the degree of divergence from the norms. When listening to non-native speakers' production, native speakers generally tend to optimally use the redundancy of the speech signals to compensate for deficits of the speech input. The differences in evaluation arise mostly from the application of various individual evaluation criteria. Generally said, stricter evaluations (or lower evaluation scores) were recorded in the groups of "professional" informants (English teachers) and in the groups of evaluators who themselves speak no other foreign language and get in touch with non-native speakers less frequently (Brennan and Brennan 1981; Flege and Fletcher 1992; Thompson 1991).

The studies also differ in the number of studied subjects, from one respondent (Anderson-Hsieh, Johnson, and Koehler 1992) to two hundred and forty probands (Yeni-Komshian, Flege, and Liu 2000) placed in homogeneous or heterogeneous cohorts, most frequently by the age of L2 onset. English in the production of immigrants to the USA with varying native languages, mostly Chinese (Anderson-Hsieh and Koehler 1988), French (Flege 1984), and Russian (Thompson 1991) has been the most frequently analysed target language so far.

The results confirm the necessity of differentiating the already known dichotomies of langue and parole, potential and actual cause and effect, etc., and recognizing the so-called third factors present in every experiment of similar nature (maturation effect, contamination by pretest, motivation, etc.). Except for the prerequisite of authentic sound input during phonetic training, several individual and over-individual factors influence the process of L2 pronunciation acquisition; their influence is very hard to precisely determine (more details in Kráľová 2009, 57−58).

Several research studies have confirmed the existence of non-native speakers who could acquire foreign language pronunciation at the level of native speakers even as adults (Ioup 1984; Kinoshita and Toda 2005; Moyer 1999; 2004; Ohmori and Sheppard 2003). However, it needs to be noted that these were individuals living for a long time in a foreign-speaking environment. Arising from their pedagogical experience, most teachers will probably confirm that non-native students acquiring a native-like pronunciation through the method of indirect learning are scarce. Their pronunciation tends to improve dramatically when they stay in a natural language environment for a prolonged time. Still, even then, it only rarely reaches the level of a native speaker.

When teaching foreign language pronunciation, it is advisable to set realistic goals. Rather than devoting effort to have the pronunciation of a native speaker, it is probably more realistic to acquire adequate communicative and pragmatic competence; at the same time, it is noteworthy that it is the pronunciation which plays a dominant role in the primary social acceptance of a non-native speaker by native speakers.

CHAPTER 4

FOREIGN LANGUAGE PRONUNCIATION PEDAGOGY

Pedagogy Development

Forerunners of Pronunciation Teaching (17th – early 20th century)

Pronunciation instruction has been studied for a very long time. Derwing (2010) found evidence of scholars' interest in pronunciation in a piece of writing from the seventeenth century. The book entitled *The Vocal Organ* was written by Owen Price, a professor of the art of pedagogy, in 1665. In this volume, he primarily focused on the segmental level of pronunciation (Derwing 2010). More than a hundred years after, John Walker published *The Melody of Speaking Delineated* in which he examined the suprasegmental features of pronunciation, especially intonation and stress, for the purposes of elocution teaching (Walker 1787).

Later, in the nineteenth and early twentieth centuries, there was no general agreement on the role of pronunciation in language teaching. According to Larsen-Freeman and Anderson (2011), pronunciation was treated as irrelevant in traditional approaches such as the *Grammar-Translation Method*, but it was important in naturalistic approaches like the *Direct Method*, despite a lack of more sophisticated methodology.

An intuitive-imitative approach

Pronunciation instruction was intuitive and implicit in the *Direct Method*. It mirrored the process of first language acquisition, which means that speech production (based on modelling and accurate imitation and repetition) was preceded by a receptive phase in which learners were allowed to interiorise the sound system of the target language through listening (Celce-Murcia, Brinton, and Goodwin 1996).

An analytic-linguistic approach

Nevertheless, Celce-Murcia, Brinton, and Goodwin (1996) mentioned that the first systemic knowledge that contributed to foreign language pronunciation pedagogy emerged at the end of the nineteenth century with the rise of the *Reform Movement* in foreign language teaching, which was largely influenced by practical-minded linguists such as Paul Passy (the founder of the *International Phonetic Association* and the developer of the International Phonetic Alphabet), Henry Sweet, Otto Jespersen, and Wilhelm Viëtor (early members of the *International Phonetic Association* and defenders of phonetic transcription).

In his teaching manual, Jespersen (1904) noted that many language teachers struggle with pronunciation instruction in their classes due to missing theoretical knowledge and practical skills. He advised them to utilize phonetics and its transcription system from the early stages to ensure the exactness and facilitation of the process (Jespersen 1904). Furthermore, learners should be introduced to the spoken form of a language first, and teachers should implement the findings of phonetic research in their teaching. Both of them should undergo solid phonetic training (Celce-Murcia, Brinton, and Goodwin 1996).

In conclusion, Derwing (2010) and Howatt (1984) agreed that the principles introduced by the reformists largely influenced language (and pronunciation) teaching and played a part in the evolution of the *Audiolingual Method* and the *Oral Approach*.

The Audiolingual Method / The Oral Approach (1940s–1950s)

Nearly fifty years after Jespersen's influential title *How to Teach a Foreign Language*, two methods of foreign language teaching which emphasised pronunciation, namely, the *Audiolingual Method* and the *Oral Approach*, were widely used in the United States and in Great Britain. As Brown (2007) commented, the pronunciation component was one of the pillars of these methods. Furthermore, they both followed the "nativeness principle"; in other words, their ultimate goal was native-like pronunciation (Brown 2007).

Celce-Murcia, Brinton, and Goodwin (1996) stated that pronunciation was taught from the very beginning in audiolingual classes. Learners' typical pronunciation training was delivered through imitation and repetition of

modelled sounds, words, or utterances and often complemented with explicit linguistic information such as a symbolic transcription system or chart demonstrating the articulation of speech sounds (Celce-Murcia, Brinton, and Goodwin 1996). Moreover, the minimal pair drill (a drilling technique based on contrasting words in which one sound in the same position is different) was typically used for both oral and listening practice (Celce-Murcia, Brinton, and Goodwin 1996). The same basic principles were mirrored in the *Oral Approach* (Derwing 2010). According to Stevick (1957) and Morley (1991), it primarily focused on phonemes, phonemic contrasts, allophones, and accuracy of production from an early start of language learning.

Even though pronunciation was highly prioritized in both methods, they also shared a significant drawback, namely, the overestimation of segmentals on one side and the underestimation of such suprasegmentals as intonation or utterance stress on the other one (Morley 1991). Gilakjani (2011) further explained that language learners spent hours drilling sounds and their combinations instead of developing their pronunciation in more realistic conversations and focusing on prosodic features.

To sum up, pronunciation was clearly one of the "protagonists" in these language teaching methods. Regarding pronunciation, their aim was to achieve native likeness through imitation and repetition of heard sounds, words, or utterances that were aided by explicit phonetic information. The main disadvantage may be seen in teachers' avoidance of prosody.

The Cognitive Approach / The Silent Way (1960s–1970s)

In the period of the *Cognitive Approach*, the traditional techniques of pronunciation training such as drills were usually viewed as mindless repetition, with no real value for foreign language communication (Morley 1991). Otlowski (1998) mentioned that in the light of new pessimistic research findings, questions were asked about the effectiveness, scope, and role of pronunciation instruction.

These tendencies began with the *Critical Period* research in the 1960s. Its results suggested that native-like pronunciation is an unrealistic (or even unachievable) goal for foreign language learners older than twelve or thirteen (Lenneberg 1967; Scovel 1969). In a different study, Suter (1976) concluded that there is only little correlation between a learner's achieved level of pronunciation proficiency and classroom activities aimed at

pronunciation practice. Such findings pushed the interest in pronunciation teaching aside, and it occurred at the margin of foreign language education (Junqueira and Liu 2010).

Perhaps the best summarizing viewpoint was offered by Kelly (1969), as this author termed pronunciation the Cinderella of foreign language teaching. We are sure that readers can connect this label with the right connotative meanings and consequently make a sketchy portrait of the position of pronunciation training in the *Cognitive Approach* to foreign language teaching.

Yet, not all academics agreed with the generally held beliefs and began to develop new approaches that emphasised the importance of pronunciation. Probably the most essential method, although not widely used in its original form due to a special training prerequisite, was the one known as the *Silent Way*, which was developed by Caleb Gattegno in the mid-seventies (Derwing 2010).

Celce-Murcia, Brinton, and Goodwin (1996) described it as being similar to *Audiolingualism* in terms of its focus on the accurate production of individual speech sounds and their meaningful combinations in the initial phase of foreign language learning, but at the same time as being different from it, due to its significant orientation on suprasegmentals and the ways of instruction, as any use of transcription systems or explicit phonetic information was avoided here. The teacher, as the method's name suggests, remains silent most of the time and uses gestures (e.g., tapping out a rhythm or using fingers to count syllables, signal stress patterns, or simulate the configuration of the articulatory organs) (Celce-Murcia, Brinton, and Goodwin 1996). Besides that, the teacher uses sound-colour charts in which all sounds are listed, Fidel wall charts in which individual letters or their combinations are colour-coded to demonstrate each sound's possible spelling patterns, and coloured rods that can be used to visualise patterns of intonation or pronunciation changes caused by derivational and inflectional morphemes (Celce-Murcia, Brinton, and Goodwin 1996; Derwing 2010).

Communicative Language Teaching (1980s–1990s)

The role of pronunciation within foreign language pedagogy was also widely debated in the eighties and nineties during the era marked by the spread of *Communicative Language Teaching*. It is essential to mention that research on the role of pronunciation training in one's foreign language

development was not as pessimistic as it has been in the previous decades. For example, Pennington (1989) expressed doubts about the validity of the results proposed by Suter (1976) and concluded that there is not a valid base for saying explicitly that pronunciation is not a teachable system of a foreign language and is a waste of time. Pennington's (1989) findings also suggested that teachers who are equipped with phonetic knowledge and focused on the implementation of suprasegmentals into a communicative language course can bring better results. In a later study, Morley (1991) supported these claims by stating that positive results in learners' pronunciation are expected if pronunciation training is not isolated but is integrated into communicative activities.

Communicative Language Teaching recognised the vital role of pronunciation in spoken language production, although it was not taught explicitly (Carey 2002).

Its proponents rejected most of the past techniques because the traditional, isolated practice of individual segments was simply not compatible with the philosophy of teaching foreign languages as communication (Celce-Murcia, Brinton, and Goodwin 1996). According to Junqueira and Liu (2010), the previous focus on individual sound units of the target language was substituted with a central interest in prosody. They also added that teaching suprasegmentals such as rhythm or intonation in contextualised situations is the optimal approach to pronunciation training in non-native language classrooms (Junqueira and Liu 2010).

Celce-Murcia, Brinton, and Goodwin (1996) advised language teachers who plan to address pronunciation communicatively to follow the five-step framework below:

1. description and analysis – multimodal demonstration of a pronunciation feature, with emphasis on its production and occurrence;
2. listening discrimination – noticing the specified pronunciation feature accompanied with feedback;
3. controlled practice – oral production of the pronunciation feature in controlled contexts such as reading sentences with minimal pairs or short dialogues;
4. guided practice – structured communicative activities (e.g., information gap exercises or short skits) in which learners can

observe and check their progress in the selected pronunciation features;

5. communicative practice – less structured communicative activities focused on fluency (e.g., listing and ranking tasks, reading learner-produced stories, problem-solving, dialogue, role-play, or simulation) in which learners pay attention to both the new pronunciation feature and the content.

Along with the shift to integrated instruction of prosodic features, a change of the goal of pronunciation instruction happened too. In the 1980s and later, there was a consensus among language teachers that the purpose of pronunciation training should be pronunciation that does not interfere with a learner's communicative ability rather than a native-like accent (Busà 2007; Celce-Murcia, Brinton, and Goodwin 1996). Brown (2007) noted that pronunciation instruction ought to be aimed at comprehensible pronunciation. Hismanoglu (2006) described the focus of this method as pronunciation that is easily understandable and allows a positive picture of the learner as a speaker of a foreign language. Even though these perspectives slightly differ from one another, they are all based on the principle of intelligibility which holds "... that learners simply need to be understood" (Levis 2005, 370). As a consequence to what has been stated in the preceding lines, we may specify the main objective of classroom pronunciation training in *Communicative Language Teaching* as intelligible pronunciation, where the epithet "intelligible" means understandable.

Even though the importance of pronunciation training was recognised by the followers of *Communicative Language Teaching*, language teachers continued to neglect pronunciation work because they had not developed an agreed-upon communicative strategy for addressing this language system in their classes (Silveira 2002; Celce-Murcia, Brinton, and Goodwin 1996). Derwing (2010) mentioned that teachers at that time had restricted access to adequate resources and that a considerable number of them had no background in teaching methodology or linguistics. Furthermore, only little attention was paid to pronunciation instruction in teacher trainee programmes of that era, and consequently, language teachers struggled with pronunciation training in their own teaching practices (Gilakjani 2011). If we look at an earlier study from the United States, we find that teachers of phonetics and phonology courses were interested in speech sounds, mastery of a transcription system, and prosodic features, but only in terms of enhancing teacher trainees' own pronunciation (Murphy 1997).

Post-Method Language Teaching (1990s and later)

The basic idea of this era was that single-method-teaching is ineffective. *Post-Method Foreign Language Teaching and Learning* holds the idea that to learn a language properly no single method suffices, no matter how many patents and copyrights it incorporates. To rephrase, a successful foreign language education process must be based on a blend of various methods and approaches. Another basic notion of the Post-Method era is that language skills and systems are not enough to communicate meaning, but that meaning is contextual. It means that "something happens" before and after you say something to someone. To put it in a different way, all linguistic communication is post-communicative, because you have already communicated something before you start speaking. Moreover, the meaning of your words may continue to evolve after you finish speaking.

Regarding post-method pronunciation instruction, Khafidhoh (2017) stated that pronunciation is not taught for mastery but as a supporting element in the development of both productive and receptive language skills. Therefore, post-method pronunciation teaching is a twin to communicative pronunciation teaching in two aspects, namely, in the integration and contextualisation of the process.

Although it seems that not much has changed, a significant shift in the way how pronunciation instruction is approached has been made. The main driver of the change was an enormous increase in teaching resources. The instructional methodologies of such influential didactitians as Donna Brinton, Judy Gilbert, Janet Goodwin, Carolyn Graham, Martin Hewings, Joanne Kenworthy, Clement Laroy, John Levis, Joan Morley, John Murphy, Gertrude Orion, Jack Richards, or Rita Wong are mixtures of imitative-intuitive, analytic-linguistic, and communicative approaches. The didactic variability showcased in their textbooks and teaching manuals embodies the true nature of post-method pronunciation teaching; that is, teachers should not consider any technique as outdated or superior, and instead, they should use their erudition, experience, and intuition to integrate them all with respect to set goals.

Baker and Murphy (2011) added that since the nineties, we had witnessed the advent of electronic resources for pronunciation teaching, including videos, CD-ROMs, specialised computer software, and online tools. In that era, when the idea of online pronunciation teaching was viewed as absurd, Steven Donahue, a college professor in the United States, used the Internet

as a supplementary tool in pronunciation training. Donahue asked his students to record themselves pronouncing certain words and to send him the recordings via e-mail. Then, he used a specialised computer software to visualise changes in the pitch and loudness of students' speech and posted these visuals on the class webpage (Boehle, Stamps, and Stratton 2000).

To sum up, foreign language pronunciation teaching has transformed in three aspects in the past two centuries (Table 2). First, its position within language instruction has changed. It was prioritized in the *Reform Movement*, *Audiolingual Method/Oral Approach*, and *Silent Way*, prominent in the *Direct Method*, *Communicative Language Teaching* and *Post-Method* era, and irrelevant in the *Grammar-Translation Method* and *Cognitivism*. Second, there has been a shift in the overall focus of the process. Segmentals and accuracy (native-likeness) were central in the *Direct Method*, *Reform Movement*, and *Audiolingual Method/Oral Approach*. The *Silent Way* added suprasegmentals on top. On the contrary, *Communicative Language Teaching* and *Post-Method Language Teaching* mostly focus on suprasegmentals and fluency (intelligibility). Third and last, didactic practices have evolved. The instruction was implicit and intuitive-imitative in the *Direct Method*, explicit and analytic-linguistic in the *Reform Movement* and *Audiolingual Method/Oral Approach*, explicit and supported by specialised equipment and techniques in the *Silent Way*, implicit, integrated, and contextualised in *Communicative Language Teaching*, and blended in *Post-Method Language Teaching*.

Period	Priority	Goal	Emphasised Level	Way of Instruction	Methodology
Direct Method	High	accuracy	segmental	implicit, intuitive-imitative	listening, modelling, imitation, repetition
Reform Movement	Highest	accuracy	segmental	explicit, analytic-linguistic	phonetic training
Audiolingual Method / Oral Approach	Highest	accuracy	segmental	explicit, analytic-linguistic	listening discrimination, modelling, imitation, repetition, minimal pairs, demonstration
Silent Way	Highest	accuracy	segmental and suprasegmental	explicit, supported by specialised equipment	gestures, sound-colour charts, Fidel wall charts, coloured rods
Communicative Language Teaching	High	fluency	suprasegmental	implicit, integrated, contextualised	information gap activities, listing and ranking, reading stories, problem-solving, drama techniques
Post-Method Teaching	High	fluency	suprasegmental	intuitive-imitative, analytic-linguistic, communicative	all mentioned previously

Table 2 The development of pronunciation teaching

Teaching Methodology

Noticing

Noticing is a prerequisite technique to successful foreign language pronunciation teaching. Many experts (e.g., Gilner 2008; Kelly 2000) emphasise its important role in developing both reception (listening) and production (speaking). Furthermore, noticing is relevant not only during the initial introduction of a pronunciation feature (be it segmental or suprasegmental) but also during its fixation or revision (Kelly 2000).

According to the above authors, the concept of noticing holds that learners notice salient language items and build awareness of a particular aspect of pronunciation through focused listening. However, to interiorise an item of pronunciation, this item must be relevant to them at a specific time. Stated simply, "… learners need to know what it is they should be paying attention to" (Wong 1987, 12).

Drills

Drilling is one of the significant techniques of current classroom pronunciation practice (e.g., Jahan 2011; Tergujeff 2012a), although its roots reach the historical audiolingual era. Kelly (2000) mentions that drills are fundamental for the teaching of both segmentals and such suprasegmentals as word/sentence stress or intonation. Furthermore, this technique is suitable for teaching both receptive and productive skills (Yates 2002).

Celce-Murcia, Brinton, and Goodwin (1996) define the basic repetition drill as a repetition of a teacher-modelled language structure. The main role of the teacher is to provide an accurate model of a word, phrase, or sentence (with own voice or technology), and learners' task is to repeat the perceived model as rapidly and accurately as possible (Kelly 2000). The author also suggests starting with choral drilling and then moving to individual practice, preferably before the orthographic form of the modelled language item is introduced (Kelly 2000).

The first form of drilling to be mentioned here is known as the expansion drill or chaining. Kelly (2000) states that it is valuable for practising sentences which are long or contain difficult sounds or words, since in this technique certain elements of the sentence are isolated, modelled separately by the teacher for learner imitation/repetition, and added gradually until the

learners can repeat the whole line accurately. The teacher usually starts to expand the sentence from the end (backward build-up drill) to maintain the intonation pattern, but it is also possible to begin with the sentence-opening part (forward build-up drill) (Larsen-Freeman and Anderson 2011).

The open pair drill is another common variation. The teacher drills a learner in one structure (e.g., a question) and a second learner in another one (e.g., an answer). The two learners then present the drilled (question-answer) sequence in front of the class. After the others have listened to the question-and-answer exchange, they practise it chorally and individually and are asked "to question each other and respond in turn across the class" (Kelly 2000, 17).

The chain drill also belongs to common drilling techniques. It shares one feature with open pair drills, namely, the learner-to-learner interaction. As the term suggests, a conversation chain is formed in the classroom (Larsen-Freeman and Anderson 2011). The teacher initiates the chain by asking one learner a question; this learner answers the question and then repeats it to the adjacent learner, and the chain of conversation continues (Larsen-Freeman and Anderson 2011).

The next drilling technique is termed the substitution drill. According to Kelly (2000), it combines drilling key structure with replacing vocabulary items. To put it differently, in each new round of modelling, the teacher changes one or more words in the utterance being dealt with. Larsen-Freeman and Anderson (2011) describe the activity in a different way. First, the teacher models a sentence and then one or more cues (i.e., one or multiple words or phrases that fit into certain positions within the modelled line). Second, learners are asked to repeat the sentence and put the cue(s) in the correct place(s). Based on the number of cues to be inserted in the line, we distinguish single-slot substitution drills and multiple-slot substitution drills.

A close relative of substitution drills is the transformation drill. Both have the aspect of change in common, but unlike substitution drills (in which the key structure remains the same and one or more words change with each modelling), transformation drills use the same items of vocabulary, while learners are asked to transform the key structure (Larsen-Freeman and Anderson 2011). Some typical transformations include changing affirmatives into negatives, statements into questions, active voice into

passive voice, direct speech into reported speech, or uncontracted forms into contracted forms.

One might argue that substitution and transformation drills are more suitable for teaching grammar than for teaching pronunciation, but this always depends on the teacher's ability to use integrated approaches; therefore, substitution drilling focused on replacing prepositions can serve as a means for practising the two different weak forms of the definite article or the transformation of statements into questions can be viewed as an opportunity to target falling and rising intonation.

The minimal pair drill is a notoriously known variation. Minimal pairs are words or utterances that differ in only one phoneme in the same position. They use contrast to assist learners in differentiating between sounds that are considered problematic or similar (Celce-Murcia, Brinton, and Goodwin 1996). Baker (2007) recommends that teachers start with the word level and then move on to the sentence level. On the sentence level, sounds can be contrasted paradigmatically – across two sentences, or syntagmatically – within one sentence (Celce-Murcia, Brinton, and Goodwin 1996). For the syntagmatic form, Kelly (2000) uses the term close proximity drill.

The contextualised minimal pair drill can be described as an attempt to put minimal pairs into meaningful communicative contexts. In this variation of drilling, the context is established by the teacher in the form of a sentence stem, and learners are asked to complete it with the correct, meaningful answer (Celce-Murcia, Brinton, and Goodwin 1996).

The last variation to be listed – the developmental approximation drill – is a technique adopted from speech correction strategies. It imitates the process of acquiring certain sounds in the first language. Celce-Murcia, Brinton, and Goodwin (1996) note that many Anglophone children acquire /w/ prior to /r/ or /j/ prior to /l/, and thus in developmental approximation drilling, non-native English speakers who struggle with producing /r, l/ can be encouraged to start pronouncing initial /w, j/ and then shift to word-initial /r, j/.

Drill Variation	Example	
Repetition Drill	T:	Class, how are you?
		Fine, how are you?
	T:	Class, how are you?
	Ls:	Fine, how are you?
	T:	James, how are you?
	L1:	Fine, how are you?
	T:	Kate, how are you?
	L2:	Fine, how are you?
Expansion Drill (Chaining)	T:	... told him.
	Ls:	... told him.
	T:	... would've ...
	Ls:	... would've ...
	T:	... would've told ...
	Ls:	... would've told ...
	T:	I would've told him.
	Ls:	I would've told him.
	T:	If I'd seen him ...
	Ls:	If I'd seen him ...
	T:	If I'd seen him, I would've told him.
	Ls:	If I'd seen him, I would've told him.
		(Kelly 2000)
Open Pair Drill	T:	What is the colour of your eyes?
	L1:	What is the colour of your eyes?
	T:	The colour of my eyes is green.
	L2:	The colour of my eyes is green.
	L1:	What is the colour of your eyes?
	L2:	The colour of my eyes is green.
	Ls:	What is the colour of your eyes?
	Ls:	The colour of my eyes is green.
	L3:	What is the colour of your eyes?
	L8:	The colour of my eyes is brown.
	L4:	What is the colour of your eyes?
	L6:	The colour of my eyes is blue.
Chain Drill	T:	Have you ever been to London?
	T:	Yes, I have. / No, I haven't.
	T:	Have you ever been to London?
	L1:	No, I haven't.
	L1:	Have you ever been to London?
	L2:	No, I haven't.
	L2:	Have you ever been to London?
	L3:	Yes, I have.

<table>
<tr><td rowspan="10">Substitution Drill</td><td></td><td>single-slot</td><td>multiple-slot</td></tr>
<tr><td>T:</td><td>I go to school.</td><td>It’s behind the bar.</td></tr>
<tr><td>Ls:</td><td>I go to school.</td><td>It’s behind the bar.</td></tr>
<tr><td>T:</td><td>he</td><td>in, office</td></tr>
<tr><td>Ls:</td><td>He goes to</td><td>It’s in the office.</td></tr>
<tr><td>T:</td><td>school.</td><td>near, bank</td></tr>
<tr><td>L1:</td><td>they</td><td>It’s near the bank.</td></tr>
<tr><td>T:</td><td>They go to</td><td>across, alley</td></tr>
<tr><td>L2:</td><td>school.</td><td>It’s across the alley.</td></tr>
<tr><td></td><td>we</td><td></td></tr>
<tr><td></td><td>We go to school.</td><td></td></tr>
<tr><td>Transformation Drill</td><td>T:
Ls:
T:
Ls:
T:
Ls:
T:
L1:</td><td colspan="2">Jane runs every Sunday.
Jane runs every Sunday.
question
Does Jane run every Sunday?
negative
Jane does not run every Sunday.
contraction
Jane doesn’t run every Sunday.</td></tr>
<tr><td rowspan="11">Minimal Pair Drill</td><td rowspan="2"></td><td>word level</td><td colspan="2">sentence level</td></tr>
<tr><td rowspan="10">T:
Ls:
T:
Ls:
T:
L1:</td><td rowspan="10">sit – seat
sit – seat
ship – sheep
ship – sheep
lip – leap
lip – leap</td><td rowspan="4">T:
Ls:
T:
Ls:</td><td>paradigmatic:</td></tr>
<tr><td>Don’t <u>slip</u> on the floor.
Don’t slip on the floor.
Don’t <u>sleep</u> on the floor.
Don’t sleep on the floor.)
(Celce-Murcia, Brinton, and Goodwin 1996)</td></tr>
<tr><td rowspan="4">T:
Ls:
T:
Ls:</td><td>syntagmatic (= close proximity):</td></tr>
<tr><td>You may <u>sit</u> in this <u>seat</u>.
You may sit in this seat.
The <u>heat</u> <u>hit</u> me like a wall.
The heat hit me like a wall.
(Engoo n. d.)</td></tr>
<tr><td rowspan="4">Contextualised Minimal Pair Drill</td><td rowspan="2">T:</td><td colspan="2">context:</td></tr>
<tr><td colspan="2">1) The blacksmith [a) hits / b) <u>heats</u>] the horseshoe ...
2) This [a) <u>pen</u> / b) pan] leaks.</td></tr>
<tr><td>Ls:</td><td colspan="2">learners’ options:</td></tr>
<tr><td></td><td colspan="2">1) a) with the hammer. / b) <u>in the fire</u>.
2) Then don’t [a) <u>write</u> / b) cook] with it.
(Celce-Murcia, Brinton, and Goodwin 1996; Bowen 1972)</td></tr>
</table>

Developmental Approximation Drill	T: Ls: T: Ls: T: L1:	you → Lou you → Lou young → lung young → lung yes → less yes → less
		(Celce-Murcia, Brinton, and Goodwin 1996)

Table 3 Sample drills

Ear training

Foreign language learners must be able to use and comprehend the target language in real-life communication beyond the confines of the language class. From the pronunciation teaching perspective, language teachers therefore must prepare learners in such a way that they are able to produce intelligible speech and understand a variety of native and non-native speech accents.

This receptive ability comprises of several microskills, which among others include recognition of target language sounds and stress/rhythm/intonation patterns, understanding of speech reduction caused by such processes as omission or assimilation, or processing of different speech errors, rates, and styles (Richards 1985). These aspects should form the core of pronunciation-oriented listening activities.

However, the sad truth is that many teachers seem to ignore most of them in their pronunciation instruction. For example, only 40% of the surveyed Finnish language teachers (N=92) replied “yes” to the question, whether they use listening in the context of classroom pronunciation practice (Tergujeff 2012b). Moreover, Tergujeff’s (2012a) teacher observations (N=4) demonstrated that pronunciation-centred ear training is seldom, and if applied, it is aimed at sound recognition.

The above empirical results can be explained by the dogmatic understanding of the activity as solely sound discrimination (Celce-Murcia, Brinton, and Goodwin 1996). In the post-method era, however, such limited understanding is unsatisfactory, and teachers should create opportunities for their learners to be exposed to samples of authentic audio literature (such as radio shows, interviews, conversations, stories, or explanations) since focused listening oriented on suprasegmentals seems to have a positive influence on oral production (Morley 1991; Gilner 2008).

Regarding audio samples valid for the development of receptive skills, teachers have two options, namely, didactic and authentic material, although authentic speech is preferred (Wong 1987). Nevertheless, both types provide an excellent opportunity for learners to notice the pointed-out elements about language and their use in natural speech (Kelly 2000).

Finally, it does not matter which type of material is selected for ear training; what matters is its suitability. Below are four basic questions (derived from Wong 1987; Kelly 2000; Hardison 2010; Tergujeff 2012b) that should be taken into consideration before a speech sample is introduced in the classroom:

a) Does the speech sample go beyond the sentence level?
b) Does the speech sample contain sentences that are connected and create a whole?
c) Does the speech sample include discourse among a wide range of speakers such as people of different ages, genders, social, and geographical backgrounds?
d) Do the speakers in the speech sample use natural language and speak at a normal speed?

If the questions are answered positively, then it is likely that the listening material is relevant for ear training. However, if authentic speech is to be used in the class, other factors such as learners' age, language proficiency, and interests, presence of offensive language or ideology, or length of the sample come into play too.

Reading aloud

Kelly (2000) explains that since the language is received via the written word, reading is a receptive activity like listening, and thus it represents a suitable way to centre learners' focus on a particular pronunciation feature. This type of pronunciation work is ideally preceded by activities that allow learners to get an overall gist of the text dealt with. Then, at the point when a text is read aloud, pronunciation training can be integrated (Kelly 2000).

For example, learners can practise a text passage silently and then read it aloud, paying attention to such suprasegmental features as stress and intonation (Celce-Murcia, Brinton, and Goodwin 1996). This technique also represents a meaningful opportunity to study the linking of speech sounds and sound-spelling correspondences (Gilner 2008; Kelly 2000).

According to Kelly (2000), however, learners can profit from reading aloud activities only if appropriate texts are selected. Oral reading of encyclopaedic texts can turn into a monotonous recitation of words (Kelly 2000). Therefore, exposure and practice based on reading aloud should be preferably built around texts and genres that were created with the intention to be delivered orally, like song lyrics, speeches, poems, plays, or dialogues (Celce-Murcia, Brinton, and Goodwin 1996; Kelly 2000). Moreover, Wrembel (2001) claims that the presence of an emotional context in dramatic texts, such as extracts of plays or transcripts of selected scenes from popular movies, can add to learners' communicative competence and fluency. Thus the use of such texts can also have a positive influence on their pronunciation.

Description / Demonstration

Multi-sensory teaching is widely used in the development of learners' foreign language communicative competences. The use of multi-modal approaches in language teaching draws on the *Generative Theory of Multimedia Instruction*, which holds that if the language input is delivered in parallel via multiple channels (such as through a combination of oral practice, verbatim, and visuals), learners can apply multisensory processing and reinforce their learning (Mayer 1997).

That such instruction increases the effectiveness of classroom pronunciation practice is documented in research. Particularly, learners who had received auditory and explicit articulatory training demonstrated significantly better performance in receptive and productive discrimination tests than those who had engaged in traditional one-channel sound recognition and drill (Catford and Pisoni 1970), and learners who had undergone a twelve-week-long pronunciation instruction supported with didactic video improved their production of individual sounds from pre-test by at least 80% (Davis 1999). These studies showed that description and demonstration should be considered as relevant tools in classroom pronunciation activities, especially in any pronunciation work that relates to the articulatory system.

Let us now focus on how teachers can enrich their pronunciation work with multimodal approaches. Gilner and Morales (2000) claim that explicit description of the articulatory processes can be beneficial for learners' pronunciation on the segmental level. However, self-awareness of the articulators and how they move is more important for the production of vowels and consonants than memorising the names of the parts of their

mouths (Jenner 1992; Cruz-Ferreira and Abraham 2006; Yoshida 2016). Therefore, instead of giving explicit knowledge of articulatory phonetics, teachers should spend time increasing learners' awareness.

Such awareness can be built through various explicit techniques. The vowel continuum can be used to make learners aware of the aspects in which the articulation of the mother tongue and the articulation of the target language are different or similar (Gilner and Morales 2000). The different or similar configurations of the articulators can be described, demonstrated (using a vowel diagram), or experienced (by gliding from the high-front to the high-back part of the oral cavity) (Gilner and Morales 2000). The awareness of articulatory movements can also be raised through silent articulation (Catford 2001).

Yoshida (2016) inclines to demonstration when teaching about articulation. Learners can use small mirrors to observe how the shape of their lips and mouths changes or discover the processes happening inside their oral cavities through demonstration on a dental model (Yoshida 2016). Laroy (2008) advises teachers to raise learners' awareness of the articulatory system by incorporating the sense of touch. Learners are simply asked to put their hands on different body parts to get tactile feedback on the place and quality of the vibrations made in the articulatory process; for example, /iː/ produces vibrations in the neck, /e/ can be felt in the collar bone and upper ribs, and /æ/ vibrates in the diaphragm (Laroy 2008).

Computerised Visualisation

Processing of speech using computer hardware and software was traditionally a domain of highly specialised university computer laboratories. Insufficient computing power of early personal computers and the high prices of the tools necessary prevented this technique from being available to a larger public. However, the situation is entirely different nowadays. Reduced costs of technology and the availability of sophisticated freeware programmes and mobile applications have allowed teachers and learners to analyse speech samples quickly and accurately on any desktop, laptop, tablet, or smartphone.

The value of this activity lies in visual cues. They show both teachers and learners to what extent learners' oral production approximates the target pronunciation (Busà 2007). In other words, they show exactly where and how learners' pronunciation differs from native speakers.

It is generally believed that these visualisations reinforce interiorisation of both segmentals and suprasegmentals (e.g., de Bot 1983; Spaai and Hermes 1993; Lambacher 1996; Stibbard 1996; Chun 1998; Eskenazi 1999; Wennerstrom 2000). Particularly, visualisation of the duration of sounds, words, and sentences can help learners understand the impact of timing on intelligibility (Busà 2007), and pitch graphs (i.e., visualisations of intonation curves) can help them recognise and produce intonation contours, pitch levels, and stressed syllables (Chun 1998) or see the relationship between changes in the voice pitch and topic shift (Wennerstrom 2000).

The mechanism of how computerised visualisation enhances learners' ability to learn target pronunciation is described by Lambacher (1996, 32): "Students visualize their pronunciation and learn to interpret the different patterns of sound segmentals and suprasegmentals, by associating the patterns on the screen with the sounds they are producing."

However, the process is effective only if learners have prior knowledge in reading and interpreting acoustic properties of speech such as intonation contours, pitch level, loudness, duration, frequency, and intensity of speech sounds (Busà 2007). Generally, acoustic analysis of speech sounds requires deeper theoretical and practical expertise than visualisation and analysis of intonation patterns, which requires only basic computer skills and little theoretical background on target language phonology and acoustic phonetics (Busà 2007).

Speech Analysis Software

Any software for speech analysis has three primary functions. Users can record their speech, visualise its acoustic properties (e.g., frequency, pitch contours and levels, or sound waves), and analyse the oral input (e.g., by comparing it with a native pronunciation model) (Busà2007). However, more sophisticated software with unique features (such as video analysis) is also available.

The widely used systems are *Praat* (available at http://www.fon.hum.uva.nl/praat/) and *WaveSurfer* (available at http://www.speech.kth.se/wavesurfer/). The former has greater functionality (e.g., speech manipulation or synthesis), but the latter is considered more intuitive and thus more suitable for novice practitioners who would like to start experimenting with speech analysis in their pronunciation teaching practice.

Unexperienced learners can perform a simple speech analysis anytime and anywhere using a smartphone. *Voice Pitch Analyzer* and *Voice Tools* (both available in Google Play Store) are free smartphone applications that can visualise voice pitch, calculate the average pitch range, and determine whether a user's voice is perceived as male or female in real-time.

Developers have also created advanced multimodal human communication analysis software. These systems add another layer to speech analysis, namely, video annotation. The user can therefore analyse speech (e.g., sound waves or pitch contours, speech transcription, etc.) and its gestural components (i.e., gestures, posture, and facial expressions) too. Popular freeware solutions are *ANVIL* (available at: https://www.anvil-software.org/), *SignStream* (available at: http://www.bu.edu/asllrp/Sign Stream/3/), or *MacVisSTA* (available at: https://sourceforge.net/projects/ macvissta/).

Speech Recognition Software

Apart from speech analysis software, technological enthusiasts who want to enhance pronunciation teaching can also opt for automatic speech recognisers. Usually, these computer programmes have all regular features of speech analysis software (such as real-time pitch graphs or sound wave display), but on top of that, they detect pronunciation errors and give visual and audio feedback (Busà 2007). Examples of such software include *WinPitch LTL W10* (available at http://www.winpitch.com/) or *BetterAccent Tutor* (available at http://www.betteraccent.com/).

Correction

The last major technique to be discussed here is the correction of mispronunciation. The topic was already mentioned in conjunction with speech recognition software. However, in this part, we focus on human, not automatic pronunciation correction. When teachers give feedback on learners' pronunciation, they must take three basic aspects into consideration, namely, how to approach it, who should do it, and when it is appropriate. The recommended principles are listed below:

How?
There is a consensus among the authors (e.g., Morley 1991; Yates 2002; Tergujeff 2012a) that teachers must be empathetic, sensitive, and constructive in the process. To put it differently, learners who mispronounce

a word or use an incorrect tone should not face negative feelings as if they were being punished by their teacher.

Who?
Self-correction or peer correction should always be preferred over teacher correction (Morley 1991; Lane 2010). The teacher's role here is to notify the learner of the mispronunciation by cues (Morley 1991; Lane 2010). They can be verbal (e.g., by saying "Pronunciation!") or nonverbal (e.g., by using agreed-upon gestures).

When?
It is widely accepted that the time when the teacher points to a pronunciation error depends on the activity itself. In accuracy-focused activities, mispronunciations are usually corrected immediately. On the other hand, when the activity develops fluency, incorrect pronunciation can be discussed afterward.

Teaching Materials

The previously mentioned techniques may involve using several pronunciation teaching materials, but for a better illustration, we deal with them separately. It is important to note that these materials can be applied in various ways which largely depend on the teacher's know-how and creativity; therefore, we do not make any clear and definitive division of pronunciation teaching materials according to the level of pronunciation being practised. Instead, instructional hints are proposed. It is also noteworthy that classroom-based research on the effectiveness of the teaching materials mentioned below is rare (Baker and Murphy 2011), so the following list is similarly to the preceding parts based mostly upon good practices.

Homophones and Homographs: Kelly (2000) defines homographs as words equal in form but different in sound (batman /'bætmən/ – an army servant; Batman /'bæt mæn/ – the superhero) and homophones as words equal in sound but different in form (weight /weɪt/ and wait /weɪt/). He explains that these words can be used to introduce and study sound-spelling associations (Kelly 2000). They might be dictated, introduced in listening or reading tasks or used in discrimination exercises.

Tongue Twisters: Tongue twisters such as "The thirty-three thieves thought that they thrilled the throne throughout Thursday" may also complement

pronunciation training to good advantage. These forms of language play have been adopted from speech correction strategies and are suitable for practising the production of difficult speech sounds or those that do not have equivalents in learners' native language (Kelly 2000; Celce-Murcia, Brinton, and Goodwin 1996).

Rhymes, Witticisms, and Alliteration: Hancock (2006) recommends not to underestimate the potential of these forms of language play for sound discrimination practice. They further contextualise this traditional activity and make it more entertaining (Hancock 2006).

Limericks: These forms of rhymes can be used to get students to focus on word-final sounds (Yates 2002).

Audio-visual materials: According to Davis (1999) and McCrocklin (2012), video or step-by-step video demonstrations of how speech sounds are produced are useful tools to help learners improve aural discrimination and oral production of discrete sounds. The use of audiovisuals can also contribute to the identification and use of thought groups which are closely connected to the informational function of intonation (Gilner 2008).

Jazz Chants: These rhythmic expressions of natural language that connect the rhythm of American English with the rhythm of traditional American jazz can be implemented in the instruction to give learners a sense of stress and rhythm in a motivating and fun way (Zhang 2011). Celce-Murcia, Brinton, and Goodwin (1996) recommend them for practising stress changes within thought groups.

Rap Songs: Yates (2002) and Fischler (2009) state that rap music, similarly to chants, can serve as a means of highlighting stress. However, they must be carefully selected to avoid offensive content. Suitable examples are the songs "I Miss You" by DMX or Big K.R.I.T.'s "The Vent".

Jokes and Poems: These literary forms can be used to model and practise correct stress placement (Celce-Murcia, Brinton, and Goodwin 1996).

Monologues and Dialogues: They can be used to demonstrate discourse functions of intonation via various techniques such as imitation, transformation, noticing, ear training, or recording (Gilner 2008).

Pedagogy Challenges

Underrepresented Research

In the studies of the previous two decades, pronunciation instruction was addressed minimally at best when compared with research in other areas of language pedagogy. The situation was illustrated by Deng et al. (2009). They studied the number of articles on pronunciation teaching in fourteen top-class applied linguistics journals over nearly a decade (1999-2008) and found that the percentage of papers devoted to this topic ranged from 2.7% to 7.4% (Deng et al. 2009). Furthermore, the published studies rarely involved classroom-based data (Baker and Murphy 2015).

Inadequate Teacher Training

Murphy (1997) described language teacher preparation of the communicative era as inappropriate in the sense that it emphasised the linguistic component (i.e., teacher trainees' pronunciation) and ignored the didactic component (i.e., teacher trainees' know-how in pronunciation instruction). However, Gilbert (2010) and Gilakjani (2011) claim that the neglect of pronunciation teaching methodology in preparatory programmes for teachers is also relevant today. The situation is demonstrated by the research reviewed in the following lines.

A critical inspection of Canadian ESL teacher training programmes (N=67) uncovered that just 30% of teacher trainees had received didactic training in pronunciation teaching (Breitkreutz, Derwing, and Rossiter 2001). Ten years later, Baker and Murphy (2011) interviewed a small-size sample of Canadian and American teachers of English (N=5) to explore their subjective theories of pronunciation instruction. The results showed that the interviewed teachers felt unconfident during pronunciation work, despite receiving training in pronunciation pedagogy (Baker and Murphy 2011).

The problem also exists in Asian and European educational contexts. Nair, Krishnasamy, and De Mello (2006) discussed teacher preparation with Malaysian ESL teachers (N=12), and they admitted that the phonology seminars taken as a part of their education were aimed at improving pronunciation proficiency rather than at providing them with a knowledge base for pronunciation teaching. Similarly, Tergujeff (2012b) stated that the surveyed Finnish teachers of English (N=103) had generally taken little training in how to teach pronunciation.

To sum up, the results show that foreign language teachers are trained in their own pronunciation but receive little training in pronunciation teaching pedagogy. Consequently, they have the skill but not the didactic tools to pass it to the learners. This conclusion is in stark contrast with Burgess and Spencer (2000) since they noted that to teach any skill requires teachers to also have pedagogical know-how and not only the skill itself.

Poor Implementation

Inadequate teacher training in the field negatively influences classroom practice. Teachers lack a solid knowledge base and usually marginalise pronunciation training and/or stick to ad hoc or when-we-have-time activities, as the collected evidence suggests. MacDonald (2002) interviewed Australian ESL instructors (N=8) and found that the participants were reluctant to teach pronunciation due to its vague implementation in the curriculum. Moreover, most teachers dealt with pronunciation only when the need arose in their classes or activities detached from the lesson's context (MacDonald 2002). Walker (1999) surveyed Spanish language teachers across all levels of institutionalised education (N=350) and showed that the planning aspect of pronunciation training is relevant for 7% of them. Moreover, occasional and spontaneous pronunciation work prevailed over regular (Walker 1999).

Tergujeff (2012a) observed Finnish foreign language teachers (N=4) during thirty-two lessons. Among other topics, she also focused on how often they work on learners' pronunciation. According to her classroom data, 111 activities focused on pronunciation were indicated, and the participants referred to pronunciation from 0.4 to 7.8 times per lesson (i.e., 3.5 times a lesson on average). In another study, the same researcher demonstrated that 85% of the surveyed Finnish teachers (N=92) devote maximally 25% of their weekly teaching time to pronunciation (Tergujeff 2012b). Although we find the option "up to 25% percent" to be not precise enough (as it could have also been selected by teachers who in reality dedicate 1% of the teaching time to pronunciation), it seems that pronunciation teaching is still an area of cursory interest.

The nonsystematic approach to pronunciation teaching described in the previous paragraph is negatively perceived by learners. In Morocco, Yeou (2010) studied English learners' (N=100) attitudes towards their pronunciation instruction and found that the vast majority (86%) was dissatisfied. Furthermore, 83% considered the used teaching techniques unsatisfactory

(Yeou 2010). Similarly, Kang (2010) concluded that most learners from New Zealand who participated in the study (67%; N=115) expressed disappointment with their pronunciation training.

Dogmatism

Although pronunciation instruction is well developed in post-method language pedagogy, teachers tend to incline to dogmatic beliefs about pronunciation teaching. This includes both scope and methodology. Post-methodists generally prefer intelligibility over native-likeness. However, the recommendation is one thing, and real practice is another one. Cohen and Fass (2001) described a tendency for a higher value of accuracy of oral production among teachers. In their study that focused on the opinions of Colombian teachers of English (N=40), most participants agreed that accuracy was given more attention in learners' assessment than intelligibility (Cohen and Fass 2001).

In a different study, Sifakis and Sougari (2005) focused on Greek foreign language teachers' (N=421) beliefs about pronunciation teaching. After analysing the questionnaire data, the authors concluded that the participants support native-like pronunciation instead of accents that are intelligible to both non-native and native speakers of the target language. The fact that they stressed accuracy and not fluency was in most cases connected with lacking awareness of the new implications for pronunciation teaching arising from the expansion of English to a global language. The presented evidence suggests that teachers favour native-like pronunciation, so the goal of intelligible pronunciation, set due to the status of English as a global lingua franca, is still not firmly rooted in real classroom practice.

Intelligibility goes hand-in-hand with speech sounds, connected speech, prosody, and awareness of various accents (Lane 2010). However, teachers often focus too much on segmentals. One of the studies (based on teacher observations) demonstrated that the only form of listening activity (aimed at developing the receptive aspect of pronunciation) was sound discrimination (Tergujeff 2012a). Suprasegmentals, features of connected speech (assimilation, omission, linking, weak forms), and general awareness of different varieties of English were listed among the missing topics (Tergujeff 2012a), despite the fact that they play a significant role in both the learners' ability to comprehend oral language input and the overall comprehensibility of their oral speech.

Regarding teaching techniques, the famous post-method didactitians (see Post-Method Language Teaching) blend behaviouristic, naturalist, cognitivist, communicative, and constructivist approaches. Therefore, none of the instructional techniques is considered wrong or inappropriate. However, there are certain principles for feedback techniques. Language teachers should always be empathetic, constructive, and open to self-/peer-correction and delayed feedback.

On the contrary, Tergujeff (2012a) witnessed a high frequency of immediate teacher correction in her study. More specifically, the research participants (N=4) usually corrected learners' pronunciation errors instantly by saying the mispronounced word in the desired form (Tergujeff 2012a). Similarly, Jahan (2011) reported that a vast majority of the surveyed language teachers (86%; N=51) correct their learners immediately after detecting a mispronunciation. Only 14% claimed that they prefer a post-discussion in which learners can comment and correct their peers (Jahan 2011).

Psychological Aspects

Since researchers began recognizing affective factors as equally relevant in learning as cognitive factors in the second half of the twentieth century, one of the most examined affective variables in the field of foreign language learning has been foreign language anxiety (Scovel 1988; Horwitz, Horwitz, and Cope 1982; MacIntyre and Gardner 1994). Numerous studies have examined anxiety in relation to language skills (e.g., Hilleson 1996; Saito and Samimy 1996; Cheng, Horwitz, and Schallert 1999; Sellers 2000; Cheng 2002; Elkhafaifi 2005; Zheng 2008), concluding that speaking is the skill most affected by anxiety, and one of its most immediate determinants is the concern over foreign language pronunciation (Price 1991; Phillips 1992; Baran-Łucarz 2011), an essential factor in speaking.

Pronunciation is considered the most salient aspect of the language ego (Guiora, Brannon, and Dull 1972) and difficult to acquire in a new language. Pronunciation is strongly related to human identity and the level of self-confidence. Moreover, it plays a dominant role in the way communication partners are viewed (Lev-Ari and Keysar 2010). The apprehension connected with one's ego being threatened in front of others can be a relatively strong source of anxiety among foreign language learners (Baran-Łucarz 2014). Many non-native teachers rate their communication abilities resulting from their self-perceived inadequate language proficiency negatively (e.g.,

Horwitz 1996; Kim and Kim 2004; Medgyes 1999; Mousavi 2007; Moussu 2006; Rajagopalan 2005; Reves and Medgyes 1994; Takahashi 2009).

Inability to present oneself according to the self-image and self-concept of competence formed in their first language as reasonable and intelligent individuals can situate a foreign language teacher into a cycle of negative self-evaluation, as language and self are intimately bound (Horwitz 1996). What is more, students usually sense their teacher's discomfort in speaking a foreign language. Such apprehension of a teacher's ego being endangered in front of them can be a rather strong cause of speaking anxiety. This often leads to speaking avoidance behaviour (Pajares 1996) which can be harmful in foreign language teaching.

Most of the existing research on foreign language anxiety has been learner-oriented and has relied on foreign language teachers to implement anxiety-relieving behaviours and practices in their classrooms. Although Horwitz (1996) was the first researcher to propose that non-native foreign language teachers may experience feelings of anxiety as well, research on teacher anxiety remains somewhat limited (Sellers 2000; Cheng 2002). As teachers and learners constantly interact, teacher anxiety can negatively affect foreign language education. The perceived inability to present oneself according to the self-image and self-concept of competence formed in their first language as reasonable and intelligent individuals can situate a foreign language teacher into a cycle of negative self-evaluation, as language and self are intimately linked (Horwitz 1996).

As many English language teachers (Canagarajah 2005) and most students in EFL TESOL programs (Medgyes 1999) worldwide are non-native speakers of English, research on non-native English teachers has enjoyed wide attention in the last few decades. Pioneering work in the 1990s (Braine 1998; Medgyes 1994; Phillipson 1992) opened the floor for debate on this issue. While early studies focused on comparing native vs. non-native teachers, the research later turned to the specifics of non-native teachers (Bailey 1978; Llurda 2005). Although the myth of the native speaker as an ideal foreign language teacher has already been deconstructed, with many virtues attributed to the non-native teacher, e.g., empathy with learners' learning difficulties, having been one themselves (Benke and Medgyes 2005; Lasagabaster and Sierra 2005; Moussu 2006), foreign language teachers are generally assumed to be perfect foreign language speakers.

Several seminal works have brought together experiential facts and theoretical principles, placing a special emphasis on the concerns of World Englishes. However, the experiences of non-native teachers within their own national educational systems remain seriously underinvestigated (Hayes 2009). Until now, few studies (Medgyes 1994; Rajagopalan 2005; Kráľová and Tirpáková 2019) have examined non-native teachers' self-perceptions, despite findings showing how identity has meaningful consequences for personal as well as professional behaviour (Cowie 2011; Norton 1997). Generally, sources of teachers' foreign language anxiety have been investigated, but only rarely the effects and other circumstances concerning this complex phenomenon.

The existing research in foreign language learning has overwhelmingly concentrated on negative emotions (anxiety), with positive emotions not being widely studied. The impetus for a more detailed consideration of the role of positive emotions in foreign language pedagogy has been supported by developments in positive psychology after 2000 (Frederickson 2003). Positive psychology is considered to have the potential to become a significant factor in foreign language learning as a move toward activating learners' strengths and self-regulated learning (MacIntyre, Gregersen, and Mercer 2016). An example is the new conceptual framework *EMPHATIC* developed by Oxford (2016).

Dewaele and MacIntyre (2014) introduced the concept of *Foreign Language Enjoyment*. They concluded that positive emotions (enjoyment) and negative emotions (anxiety) are related, independent but not opposite phenomena in foreign language learning. A few researchers have investigated the dimensions of foreign language enjoyment (Dewaele and MacIntyre 2016; Li, Jiang, and Dewaele 2018), its causes and effects (Dewaele and Alfawzan 2018; Dewaele et al. 2018) as well as its relationship with foreign language anxiety (Dewaele and MacIntyre 2014, 2016).

In line with this trend, the latest studies have introduced and verified the effectiveness of various intervention strategies in foreign language pronunciation teaching and learning mostly focused on three intervention approaches: cognitive, affective, and behavioural (Hembree 1988; Kondo and Ying-Ling 2004). Studies verifying cognitive strategies focused on changing learners' cognitive self-appraisals and examined (inter alia) the effectiveness of cooperative learning techniques (Nagahashi 2007), traditional vs. modern teaching methods (Hismanoglu and Hismanoglu

2010), summative vs. formative evaluation (Hashemi 2011), or oral corrective feedback (Lee 2016).

The affective approach is focused on reducing the negativity of the foreign language experience. It includes therapies such as systematic desensitization (Fuller 1978), biofeedback (Walton 1981), support groups (Foss and Reitzel 1988), relaxation (Ratanasiripong, Sverduk, Stanton, and Neale 2003), meditation (Oxford 2015), an engaging program (Ismail 2016) or psycho-social training (Kráľová et al. 2017). The behavioural approach can prompt the attempt to train learners in foreign language skills, applying different methods and techniques, e.g., computerized pronunciation practice (Shams 2005), explicit instruction and self-analysis on the acquisition of foreign language pronunciation (Lord 2005) or teaching speaking in a virtual environment (Grant, Huang, and Pasfield-Neofitou 2014).

Interdisciplinary research in foreign language pronunciation teaching and learning seems to be the current tendency nowadays since the nature of pronunciation is strongly related to a learners' ego. New trends in teaching pronunciation emphasize the affective aspect of learning to counterbalance traditional cognitive learning (Morley 1991) and lend support to the view that psycho-social investment is a driving force in personality development (Roberts, Wood, and Smith 2005). As the current findings indicate, research taking ecological and dynamic points of view (Cao 2009; Hiver and Al-Hoorie 2016) is needed in foreign language learning and teaching as language identity is complex, dynamic, and highly context-dependent (Faez 2007).

CONCLUSION

The research of variables linked to the quality of foreign language phonic competence and performance is an uneasy task, and the results are not always satisfactory. One of the significant methodological pitfalls is the problematic delimitation of the research object and methods for partial analyses, which is mostly due to the interactive complexity of characteristics partaking in the final effect – the foreign language pronunciation.

We agree with the statement that "the internal point of departure is an essential prerequisite of a functionally adequate phonetic analysis of external speech factors" (Kráľ 1974, 186). Performance is the moment in which language, as a potentially invariant and general phenomenon, connects with the current variant and individual phenomenon – speech. Regarding the dynamic system of an interaction between a person and its environment, the externolingual dimension of foreign language phonic competence offers a much greater variability and diffusion of events.

Nevertheless, there are still more questions than satisfactory answers. Our publication is just an attempt to provide a detailed survey of the problems; it is also an analysis of the phenomenon under investigation and the starting point for possible further research. Theoretical and empirical findings confirm that foreign language pronunciation is a complex and complicated phenomenon. It is not always possible to atomise its components and study the whole in detail. Despite that, giving up on the possibility of appropriate generalizations and findings applicable and usable in language pedagogy would be just looking for excuses.

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