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Efficacy of an Advanced Pronunciation Course: Focus on Linking Phenomena

(Bakalářská práce)

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Olomouc 2021

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Počet stran: 48

Počet znaků: 97 224

Abstract: The aim of this thesis is to examine the effectiveness of teaching advanced Czech learners of English linking in spoken English. The thesis is based on data collected from participants in a three-month seminar focused on practical English pronunciation. Linking is typical for English fluent speech, unlike for Czech. However, it is not an automatic process; linking in English can be influenced by a variety of factors (e.g. formality of the situation, speech rate, or the immediate phonetic environment). The aim of the seminar was to instruct the participants in how to reduce features of their foreign accent by explicit learning. Among other things, the seminar also focused on the linking phenomena. The thesis describes a methodology of the instruction in detail and examines if the participants made any progress in this certain area within the given period of time. Furthermore, it assesses the effectiveness of the individual training activities used in the course concerning linking. To evaluate the effectiveness of teaching instruction, the research uses a Pre-test Post-test design.

Key words: linking, glottalization, pronunciation teaching, advanced English learners, explicit feedback

Anotace česky: Cílem této bakalářské práce je zkoumat efektivitu výuky pokročilých studentů angličtiny zaměřenou na vázání v mluveném projevu. Práce je postavena na datech získaných od účastníků během tříměsíčního kurzu výslovnosti zaměřeného na praktickou výuku anglické výslovnosti. Narozdíl od češtiny je vázání typickým znakem anglického plynulého mluveného projevu. Nicméně to není automatický proces, vázání v angličtině může být ovlivněno několika faktory (např. formalitou dané situace, rychlostí mluvy, či fonetickým prostředím). Cílem semináře bylo naučit účastníky eliminovat znaky cizího přízvuku pomocí explicitního učení. Mimo jiné se seminář také zaměřoval na

vázání. Tato práce detailně popisuje metodologii výuky a zkoumá, zda účastníci udělali pokrok v této oblasti během dané doby a také jak konkrétní jazyková cvičení prokázala největší efektivitu, co se týče výuky vázání. Pro vyhodnocení účinnosti výuky výzkumu je použit Pre-test a Post-test.

Klíčová slova: vázání, glotalizace, výuka výslovnosti, pokročilí studenti angličtiny, explicitní zpětná vazba

I would like to thank my supervisor, Šárka Šimáčková, for her guidance, patience and support during the whole process of writing the thesis.

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1 Introduction

There is a significant difference between pronunciation of words in their citation forms and in connected speech (Ladefoged 2012). Citation form is a careful dictionary pronunciation of the word, Ladefoged (2012, 116) describes it as “the most emphatic, phonetically full form of the word.” However, in running speech, words are not uttered carefully and emphatically, at least not all the time. It would be very difficult both physically and mentally for the speakers to focus on pronouncing each word with all its phonetic qualities and it would significantly impede the efficient use of language. The goal of speech production is to attain maximally effortless speech which would result in production of fluent speech (Hieke 1984). As a result, some of its qualities have to be altered at the cost of fluent spoken communication. “Adjustments or modifications that occur within and between words in the stream of speech” (Celce-Murcia et al. 2010, 35) are called connected speech processes. This thesis is focused on one particular type of connected speech processes which is called linking phenomena.

Although linking phenomena is typical for English native speakers speech, a large number of non-native speakers of English, even the advanced ones, do not fully employ this process into their speech. In Hieke’s research (1984), it has been measured that non-native speakers of English tend to use linking twice less than native speakers. Therefore, it is considered to be one of the characteristics of spoken English which distinguishes native English from non-native English. Although lack of linking does not cause much difficulties in comprehensibility, it can confuse the addressee on prosodic level as lack of linking may cause interruption of the natural English rhythm and sound insecure or in the contrary overly emphatic (Šimáčková, Podlipský and Kolářová 2014).

There are various possible explanations for the inability of non-native speakers to fully incorporate linking into their speech, one of them is the lack of attention which is paid to suprasegmental features in language teaching. “While many English language teacher training programs incorporate a pronunciation component, segmental aspects of phonology are often given more attention than suprasegmental aspects” (Alameen 2014, 1). The current thesis is therefore concerned with teaching Czech advanced EFL students linking phenomena and observing whether they perform more linking realization in their speech after an explicitly taught pronunciation course supported by getting feedback.

The pronunciation course lasting three months was initially taught in the classroom setting and was later switched into a distance form of teaching in an online form. The course's efficacy was measured by a Pre-test and Post-test which involved read speech of a children's story. Apart from measuring the overall effectiveness of the course, a number of pronunciation exercises was recorded throughout the course to map the participants' development and compare the efficacy of individual training methods.

In the form of instruction, imitation and feedback, the participants were led to understand the concept of linking phenomena, observe the contexts in which it naturally appears and finally, try to adopt it in their language production. As providing language learners with feedback significantly enhances the learning process, the participants were constantly given individual corrective feedback on their performance and delayed feedback during the distance form of teaching.

The thesis has determined three research question which aim to assess the effectiveness of the whole pronunciation course on the participants' linking realization, the efficacy of the individual training activities used throughout the course and whether the participants' performance in the training reflected in the final Post-test.

Regarding the structure of this thesis, the concept of linking phenomena and glottalization, together with their classification, are be introduced, as well as the factors which typically affect their occurrence in speech. Subsequently, the thesis presents a section about foreign language classroom learning, introducing general learning strategies. The following chapter is devoted to pronunciation teaching which involves comparing various approaches to language teaching, how is linking phenomena reflected in selected advanced learners' textbooks and finally, distinct corrective feedback strategies are presented and compared. The practical part is devoted to assessing the effectiveness of the three-month pronunciation course with focus on linking instruction and the assessment on individual training activities used in the course.

2 Linking and glottalization

Various connected speech processes such as assimilation, coarticulation, function words reduction etc. influence the final quality of words in utterance. Thanks to these processes which facilitate easier pronunciation of the consecutive sounds, the speech sounds fluent and continuous. This thesis is concerned with one of the types of connected speech processes

which is called linking. By definition, linking is “connecting the final sound or syllable of one word to the initial sound or syllable of the second word” (Celce-Murcia et al. 2010, 158). As a result, the individual words are not audibly separated from one another; on the contrary, the speech sounds as an uninterrupted string of sounds. “Its function in connected speech is to make two words sound like one without changes in segmental identity, as in the phrases *some_of* [sʌm_əv] and *miss_Sarah* [mis_sɛɪə]” (Alameen and Levis 2015, 6).

Although linking is a prominent part of spoken English, a large number of non-native English speakers have difficulties both applying it in their utterances and recognizing it in native speakers’ speech. “A salient characteristic of much of nonnative English speech is its ‘choppy’ quality” (Celce-Murcia et al. 2010, 158) which is caused by the fact that most learners of English do not employ this connected speech process in their speech because of its lack of usage in their native language. Therefore, the presence of linking is one of the features to consider when evaluating oral proficiency in English as a foreign language (Hieke 1984).

2.1 Classification of linking

As for linking typology, there are various ways of categorizing it among phoneticians. Some of them use the term *linking* for covering all the connected speech processes in general, others classify linking solely as consonant to vowel (C-V) and consonant to consonant (C-C) linking and some include also vowel to vowel (V-V) linking (Celce-Murcia et al. 2010).

In this thesis, linking includes consonant to vowel, vowel to vowel and consonant to consonant linking. This thesis distinguishes three types of linking, namely vowel to vowel linking, consonant to vowel linking and consonant to consonant linking. The individual types of linking and their characteristics will be discussed in the following sections.

2.1.1 Vowel to vowel linking

In hiatus contexts in which a word terminates with a high and mid-tense vowel sound and the following word begins with a vowel sound, (Alameen 2007) the two sounds are interconnected by a consonant sound which makes a smooth transition from one word to another. There are three types of vowel to vowel linking in English, namely transient [j], transient [w] and intrusive [r].

Transient [j] occurs in contexts in which the final sound of the word is /i/, /ɪ/ or a diphthong /aɪ/, /eɪ/ or /ɔɪ/ and the following word begins with a vowel sound, for example in the phrase *be elegant* [biːɛləgənt]. The j sound interconnecting these two vowels will be transcribed as [j], not as [j] as it does not meet the qualities of a full consonant and it can neither be classified as a phoneme. The latter can be proved by a comparison of contrasting pairs, as Gimson (2001) exemplifies in *my ears* [maɪˈɪəz] and *my years* [maɪjɪəz]. It can be observed that although the two phrases are pronounced in the same way, transient j does not have the distinctive quality of a phoneme to contrast minimal pairs unlike a phoneme /j/.

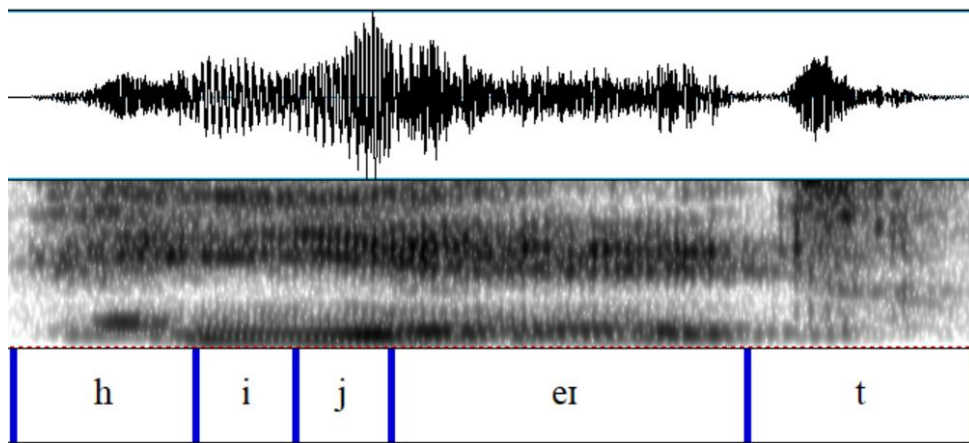


Figure 1. Transient [j] in the word sequence *he ate*.

Transient [w] occurs between the word ending with /u/ or diphthongs /aʊ/ and /əʊ/, and the word beginning with a vowel sound (Celce-Murcia et al. 2010) as in *blue eyes* [bluːwɪz]. Similarly as transient j, transient w cannot be classified as a phoneme either which means that it is merely an additional sound emerging in consequence of a fluent transition from one vowel to another without interruption. Likewise, the contrast between transient w and a phoneme /w/ can be demonstrated in a contrasting pair *two eyed* [tuːwɪd] and *too wide* [tuː wɪd] (Gimson 2001).

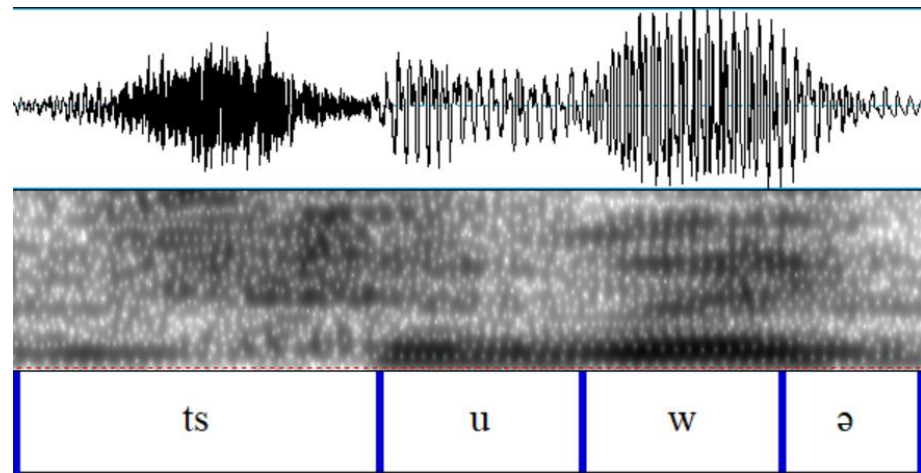


Figure 2. Transient [w] in the word sequence *to a*.

Intrusive [r] is present in non-rhotic English accents and its function is to connect two vowel sounds and thus adjust fluent transition from one vowel to another. If a word ends with /ə/, /ɔ/ or /ɑ/ sound and the next word starts with a vowel sound, intrusive r is inserted to connect these two vowels (Volín 2002). Just as transient w and j, the sound is pronounced to interconnect the two adjacent syllables, although it is not present in spelling, for instance *saw a* in *She saw a ghost* [sɔʳə]. Besides interconnecting neighbouring words, intrusive r can be also appear within a single word at the morpheme boundaries, specifically before a suffix, e.g. *drawing* [dɹɔ.ɪŋ], *withdrawal* [wɪðdɹɔ.ɪl] or *Kafkaesque* [kæfkə.ɪɛsk].

2.1.2 Consonant to vowel linking

There are two ways of connecting a consonant and a vowel sound in English without interruption, both of them used in specific environments. The first type of consonant to vowel linking is called linking r and the second type is called resyllabification.

Linking r is a linking type which is typical of non-rhotic English dialects, such as Received Pronunciation, and generally accents spoken in the southeast of England. In most contexts in non-rhotic accents, the word final post-vocalic r which occurs in spelling is not pronounced (Gimson 2001), e.g. *for* is pronounced as [fɔ] at the end of ‘*What is it for?*’, unlike in rhotic accents where the preposition would be pronounced as [fɔ.ɹ]. However, when the word final post-vocalic r precedes a word which begins with a vowel sound, the /r/ sound is not silent any more; it is pronounced, e.g. in the sequence *for us* [fɔ.ɹʌz]. A word boundary is not the only environment in which linking r appears. Besides connecting two adjacent words, linking r can be also used to interconnect two adjacent morphemes inside a single

word at a morpheme boundary as “morphemes which have historical final r also retain this sound before vowel-initial morphemes within inflection, derivation and compounding” (Durand 1997, 46). For example, when comparing the noun *ear* [ɪə] and a noun *earring* [ɪəɪŋ] which is derived from the previous word by a derivational suffix *ing*, it can be observed that an /r/ sound is inserted between the two morphemes. In other words, the /r/ sound is used as a means of linking in such phonetic contexts of two vowels spanning a morpheme or word boundary.

The other type of consonant to vowel linking is called resyllabification. It is a process which occurs in environments where a syllable ends with a consonant sound and the next syllable starts with a vowel sound. If the syllable ends with a consonant cluster, the ultimate consonant sound is usually attracted to the vowel sound of the following syllable and the consonant will become linked to it, e.g. *best outfit* [bes.taʊt.fɪt] (Celce-Murcia 2010). Additionally, it is worth mentioning that in the case of resyllabification, the aspiration of the syllable-initial voiceless stop is not present (Celce-Murcia 2010). Therefore, the voiceless stop /t/ in *best outfit* is not aspirated although in its resyllabified form, it occurs at the beginning of the syllable. For the same reason, Volín (2002, 64) argues that this phenomenon should be called pseudo-resyllabification as “the allophonic qualities of individual segments suggest that the syllable boundaries are not genuinely shifted unless the speech rate is really fast.”

Due to resyllabification, non-native English speakers sometimes have difficulties understanding native speakers’ speech since they incorrectly identify the individual words in NS’s speech. One of the possible reason for such misunderstanding can be resyllabification which alters the word boundaries so that smoother transition between the individual words is achieved, as for instance in an example (i) and (ii) from a textbook *New Headway for Advanced learner*, 4th edition (2015, 105).

(i) *Some others will leave and say goodbye.*

(ii) *Some mothers will even say goodbye.*

Linking the initial two words in (i) may lead to misinterpretation as a consequence of resyllabification. This process causes that the final consonant sound “m” in (iii) is attracted to the following vowel sound “ʌ” and therefore changing the word boundary. Such

misunderstanding occurs as the orthographical word boundaries do not correspond with word boundaries which are modified in fluent speech.

2.1.3 Consonant to consonant linking

When a word terminates with a consonant and the following word begins with the identical consonant, the consonant sound is not pronounced twice in a row but only once and the sound is lengthened (Alameen 2014), for example in *nice street* /naɪstɹi:t/. If there is a word ending in a stop consonant sound and the next word starts with a stop or an affricate, the first stop consonant remains unreleased (Celce-Murcia et al. 2010).

2.2 Factors influencing linking

As it has been mentioned before, one of the reasons why English applies linking in running speech is to achieve fluency and articulatory facilitation. However, linking is not always used in running speech. There are certain environments in which native speakers intentionally avoid linking. Hieke (1984, 345) claims that there are dependent variables which influence the presence of linking in the running speech, such as “pacing and delivery, formality of register used, the integrity of the speech channel at any one moment and a host of other pragmatic considerations.” Alameen (2007) adds that thought units (or so-called intonational units or tone units) and mode of speech along with syntactic categories also play a role in linking rate. The following section is dedicated to a selected number of factors which generally influence realization of linking.

2.2.1 Formality of register

A factor which can influence the linking rate in speech is the choice of register. In formal communication, people are generally more careful about the choice of the content as well as the presentation of their utterance. The higher awareness of the content and production of speech might result in lower occurrence of linking. When speaking to the public, for example when a politician gives a speech during a press conference, it is important that each word he utters is clearly pronounced and that there is a minimal probability of misunderstanding. Therefore, the reduced application of linking enhances comprehensibility as the individual word boundaries are better distinguishable. In contrast, in informal speech, for example a conversation between friends, people speak more spontaneously, and they employ more

linking in their speech to achieve fluency and lower the articulatory effort (Hyman & Lass 1984).

2.2.2 Mode of speech

The level of spontaneity affects the employment of connected speech processes in general, which includes linking as well. If the simple mode of speech, which means a spontaneous speech, there is generally a higher occurrence of linking than in the complex mode of speech, during which a written text is read aloud (Anderson-Hsieh 1994; Hieke 1984).

2.2.3 Tone units

Another aspect which partially influences linking is a division of speech into individual tone units (Alameen 2007). A tone unit is a segment of a sentence that is characterized by a certain pitch change pattern (Ladefoged 2012). In an utterance, speakers divide their speech into single tone units that often correspond to clauses but can also consist of smaller units of speech, such as subject or spatial or temporal adverbials (Gimson 2001). Thanks to an organization of speech into tone units, it is less demanding for hearers to process and interpret the uttered message.

There are multiple signals which can be used to separate individual tone units, for instance a pause, prolonging the last syllable at the end of the tone unit, quicker tempo of unaccented syllables after a tone unit, etc. (Gimson 2001). The boundaries between tone units can have influence over linking as well. In spite of the fact there are two adjacent words which meet the phonetic criteria for linking (e.g. the first one terminates with a vowel sound and the following one starts with a vowel sound), linking is not realized if the target word sequence is divided by a tone unit boundary.

2.2.4 Syntactic categories

Another factor which can influence the occurrence of linking realization is a syntactic category. In her experiment, Alameen (2007) confirmed that words belonging to certain syntactic categories are more likely to engage in linking than other ones. In particular, the research compared the rate of produced links with respect to the syntactic categories of the examined words, namely lexical and function words. The data proved that linking is employed more if the second word in the target word sequence is a function word, e.g. *go*

away, get a, end of etc. Such tendency to link is even increased in collocations which are frequently used together and are perceived as a single unit (Bybee and Thompson 2000).

2.2.5 Language proficiency

Linking is applied less frequently by non-native speakers of English than by native speakers, especially if this process is used in English learners' native language. Another influencing aspect is the language proficiency of non-native speakers. When comparing the English learners' proficiency with the rate of linking produced by non-native speakers of English, Alameen (2007) confirmed that the rate of links increases with the level of proficiency in English. She has observed that with a higher proficiency, the non-native speakers approach the native-like production of linking, but the learners with low English proficiency struggle with both linking perception and production.

2.3 Glottalization

When linking is realized in potential linking contexts, an uninterrupted flow of sound is being produced. However, if linking is not realized in such environments, a process called glottalization replaces it. Glottalization can be further classified as there are various different types of its realization.

2.3.1 Classification of glottalization

A glottal stop is a gesture, typically transcribed as /ʔ/, which is produced in a larynx. Ladefoged (2012, 61) defines a glottal stop as "the sound (or, to be more exact, the lack of sound) that occurs when the vocal folds are held tightly together." In other words, when producing a glottal stop, the incoming airstream from the lungs is stopped by the vocal cords which are closed by being pressed together. As a consequence of such closure, the suddenly obstructed air builds a pressure which is subsequently released as a result of vocal folds' opening (Gimson 2001). The definitions of a glottal stop vary among phoneticians, for example Ladefoged's definition is contradicted by Pierrehumbert and Talkin (1992) who oppose that "a braced configuration of the folds produces irregular voicing even when the folds are not pressed together." In other words, they disprove Ladefoged's claim that the airflow must necessarily be fully obstructed and therefore, there exists more types of glottal stop realization which must be distinguished.

There are various forms of glottal stops, differing not only in their phonetic realizations (which is connected with its visual representation and auditory qualities) but also in phonetic environments in which they typically appear. The most common realization of glottal stop is a so-called plosive-like glottal stop and creaky voice (Machač and Skarnitzl 2009).

“A canonical glottal stop” can be divided into two phases – a closure phase and the plosion. Regarding its visual representation, a canonical glottal stop is well-identifiable thanks to its “higher spectral intensity of the glottal pulse” (Machač and Skarnitzl 2009, 127). However, in other instances, it may be difficult to identify the glottal stop boundary because it often consists of the formants of the subsequent vowel. If the succeeding vowel’s formants are mixed with those of the glottal stop, it is arguable where to separate glottal stop from the adjacent sounds. Machač and Skarnitzl (2009) label all the pulses which are irregular both visually and auditorily from the vowel ones, as a glottal stop.

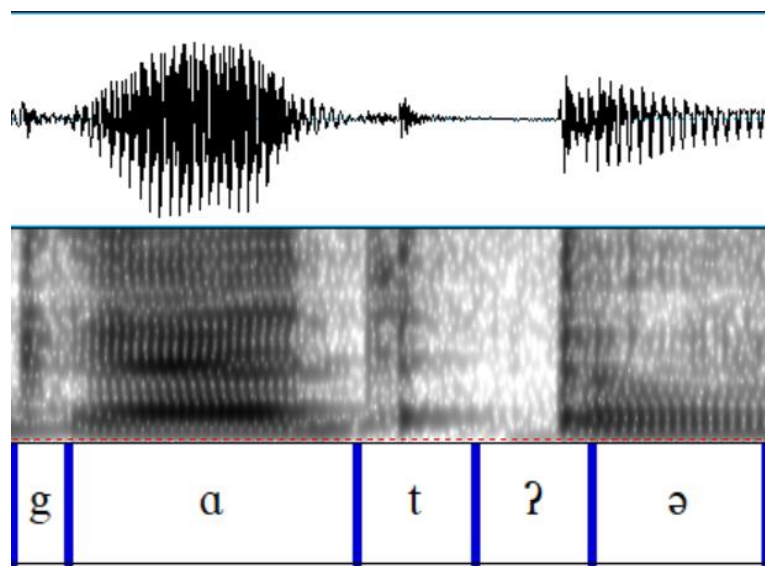


Figure 3. A full glottal stop in the word sequence *got a*.

Another form of glottal stop is what Skarnitzl (2004) identifies is the “barbell glottal stop.” When producing a barbell glottal stop, glottalization already begins in the final phase of the sound prior to the glottal stop unlike in a canonical glottal stop. During such realization, the glottalization already starts before the closure phase which can be both audible and observable. As a result, its visual representation resembles a barbell which explains the name for this type of glottal stop.

Apart from canonical and barbell glottal stop, phoneticians also distinguish so-called creaky glottal stop. What makes it creaky is “some kind of irregularity in the glottal periods” (Machač and Skarnitzl 2009, 128). Besides irregular fundamental frequency, creaky voice is further characterized by “low rate of vocal fold vibration” as well as “constricted glottis: a small peak glottal opening, long closed phase and low glottal airflow” (Keating, Garellek and Kreiman 2015, 1).

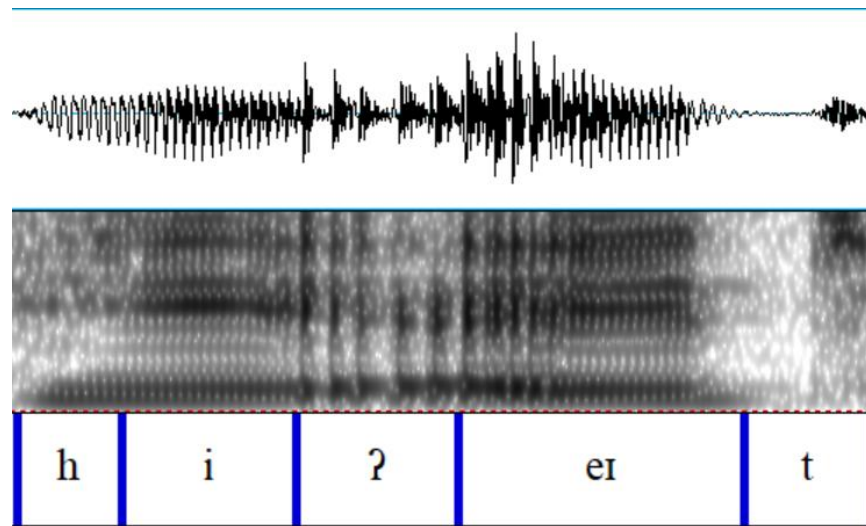


Figure 4. A creaky glottal stop in the word sequence *he ate*.

Besides the above-mentioned types of glottal stops, it is worth mentioning a process called preglottalization. Such process occurs when the voicing process initiates earlier than the articulators get into their position (Machač and Skarnitzl 2009). Preglottalization can be further distinguished as soft or hard glottal onset. The term itself suggests that hard glottal onsets are characterized by a sudden and energetic vocal folds vibration. This type of glottalization typically appears before syllable or word initial vowels. Its counterpart, soft glottal onset, can contrarily be identified by “a gradual increase of the amplitude of glottal cycles, accompanied by a *schwa*-like element” (Machač and Skarnitzl 2009, 147).

To conclude, glottalization is not always realized as a full glottal stop. It often takes the form of an imperfect glottal stop which does not have to be easily identifiable neither in speech, nor in waveform/spectrogram.

2.3.2 Typical contexts for glottalization

As regards its occurrence in speech, glottalization is present in various English phonetic environments, although it does not have a status of a phoneme. Glottal stops can be used to distinguish two adjacent vowel sounds occurring at a word boundary, which is highlighted in Ladefoged, by stating contrasting that “flee east is pronounced [fliʔist], while fleeced is [flist] (2012, 88). However, there are more environments in which glottal stops can occur, for example as an allophone of /t/ in some English dialects, such as Cockney English as in *bitter* /bɪʔə/ or prior to final voiceless stops such as in *that* /ðæʔt/.

Distinct prosodic positions can also affect the occurrence of glottal stops, as it has been discovered in Pierrehumbert and Talkin’s (1992) experiment. When analysing the collected data, they discovered that not all the glottal stops were not well-observable in their target contexts. They proposed two possible explanations – one being that inserting a glottal stop is not obligatory and is rather a speakers’ choice, the other being that a glottal stop always appears in the examined contexts but as for “the nonlinear mechanics involved in vocal-fold vibration, the characteristic irregularity only becomes apparent when the strength and/or duration of the gesture is sufficiently great” (Pierrehumbert and Talkin 1992, 113).

For the purpose of this thesis, not all the individual forms of glottalization will be distinguished, the only distinction made would be creaky voice and a canonical glottal stop since distinguishing different realizations of them is not the main concern of the experiment.

3 Classroom foreign language learning

There are two competing learning strategies not only relevant for pronunciation learning but for acquiring knowledge in general which is explicit and implicit learning. The crucial factor distinguishing these two types of learning is the engagement of learner’s awareness of the ongoing learning process. More detailed distinction between explicit and implicit learning as well as comparing their effectiveness in both laboratory and classroom environments will be discussed in the following sections.

3.1 Implicit learning

There is no universal definition for the concept of implicit learning. However, the majority of scholars agree that a crucial condition for implicit learning is a lack of awareness, intentionality or consciousness. Reber (1989, 219) characterizes implicit learning as “the process by which knowledge about the rule-governed complexities of the stimulus environment is acquired independently of conscious attempts to do so.” Implicit learning is similarly defined by Dekeyser (2003, 314) who claims it is “learning without awareness of what is being learned.” Based on these definitions, it can be agreed that the lack of awareness is the primary criterion which characterizes implicit learning.

It is further highlighted by Dekeyser (2003) that it is necessary not to confuse implicit learning with inductive learning and implicit memory. As consciousness is the main condition for the process of implicit learning, inductive learning is characterized by learners’ own recognition of the general rules and principles from a given set of example sentences, in other words proceeding from the particular to the general in contrast with its counterpart which is called deductive learning. Similarly, there is also a difference between implicit learning and memory although implicit learning frequently results in implicit memory, it is not a rule. Dekeyser (2003) explains that the transfer of explicitly learned knowledge into explicit memory may occur in a situation when a learner can “lose awareness of its structure over time, and learners can become aware of the structure of implicit knowledge when attempting to access it, for example for applying it to a new context or for conveying it verbally to somebody else.”

Although learners lack awareness of the learning process which occurred during implicit learning, the newly gained knowledge resulting from implicit learning is applicable to novel contexts (Ellis 2009b). “We are generally not consciously aware of the rules of the languages we have acquired. Instead, we have a ‘feel’ for correctness. Grammatical sentences ‘sound’ right, or ‘feel’ right, and errors feel wrong, even if we do not consciously know what rule was violated” (Krashen 1982, 10). In other words, learners gain the ability to recognize target-like language patterns although not being aware of the underlying rules behind these processes.

Regarding implicit learning in laboratory conditions, Reber (1989) conducted an experiment, focusing on artificial grammar and probability learning. When comparing the

results of participants who were not aware of the focus of the experiment with a group of participants who were informed about it, the experiment showed that the latter group performed worse than the first one. Reber (1989) suggests the explanation that the participants who were explicitly instructed to search regular patterns often did not manage to recognize the correct ones, possibly due to attempting to find unnecessarily complicated patterns. Therefore, it can be implied that too much focus can sometimes be harmful for learning processes.

3.2 Explicit learning

In contrast with implicit learning, when employing explicit teaching methods, the learner is aware of an ongoing learning process and consequently, the learners are deliberately using the learning strategies (Talley 2014). For the sake of explicit learning, the learners are conscious of the fact that they mastered something new and thus able to explain what in explicit terms (Ellis 2009b). Similarly as for implicit learning, the decisive factor for characterising explicit learning is the involvement of consciousness or awareness. The features which according to Krashen (1982, 10) define explicit learning are described as the “conscious knowledge of a second language, knowing the rules, being aware of them, and being able to talk about them.” Krashen makes further comment that explicit learning also involves the ability to explicitly describe the newly gained knowledge and the rules that govern it. It has been suggested that language learners should be explicitly explained the rules by language instructors as it is supposed to provide them with better understanding of the subject matter (Saito 2011). Encouraging learners to figure out the rules themselves results in an induction method, whereas explicit instructions result in deductive transmitting of the information. (DeKeyser 2003).

The method of explicit instruction has been recommended for purposes of pronunciation teaching, as it provides the learners with greater development of phonological awareness (Saito 2011). In his study focused on pronunciation teaching, Saito showed that explicit phonetic instruction improved the participants’ comprehensibility although the accentedness remained almost the same, in contrast with the control group, which showed no significant improvement.

Regarding study in the classroom setting, Gordon et al. (2012) conducted a study focused on the effectiveness of explicit instruction on learning phonological features and

speech comprehensibility. The participants were divided into three groups, two of them receiving explicit instructions and one control group receiving no explicit instruction. The first group was taught segmental features and the second one was focused on suprasegmental features. The results of the study proved that a considerable improvement regarding comprehensibility could be observed in the suprasegmentals group. As a result, they argued that drawing the learner's attention to target language features and providing them with explicit phonetic instructions such as "(i.e., explicit presentation of contents, guided analysis and practice, and corrective feedback) can be beneficial for L2 learners in the development of comprehensible speech" (Gordon et al. 2012, 194).

Explicit teaching of pronunciation however, did not prove to be extensively useful also by Kissling's experiment (2013), although she believed that it would be more beneficial to make the learners concentrate on the target language feature than to rely on implicit learning process without the assurance that the learners would notice the target feature themselves. However, Kissling (2013) concluded that there have been ambiguous results and evaluations of pronunciation teaching and there has been no unequivocal outcome whether the certain types and methods of pronunciation teaching are effective or not. She examined the effectiveness of her experiment by establishing a control group which was not provided with any explicit teaching instructions and was not informed about the particular focus of the study. Even though the hypothesis presupposed that the explicit pronunciation instruction would improve the participants' pronunciation of selected phonemes, the outcome of the experiment did not confirm it. On the contrary, the results showed that the participants who had received explicit pronunciation instructions did not perform significantly better results than the control group.

3.3 The effectiveness of explicit and implicit learning

Although implicit learning is typical of first language acquisition and enables the children to fully master their native language, it has not proved to have the same results in second language acquisition. Although implicit learning methods are suitable for children whose ability to benefit from them is enormous, regarding adults, various experiments proved that explicit language learning is more effective than implicit learning (Dekeyser 2003, Gordon et al 2012, Saito 2011).

4 Pronunciation teaching

Over the years, a large amount of pronunciation teaching strategies has developed, each of them using distinct methods and techniques. In the following section, a brief overview of the principal pronunciation teaching strategies will be introduced. Afterwards the linking instruction in textbooks for advanced learners of English will be examined and finally, there will be a subchapter dedicated to the topic of feedback.

4.1 Historical overview and strategies of pronunciation teaching

The western language teaching tradition used to give preference to vocabulary and grammar teaching more than pronunciation teaching which has only started to be more focused on before the 20th century (Kelly 1969). Historically, the pronunciation teaching method which was prevalently used by foreign language teachers was so called “intuitive-imitative approach” which has been lately complemented by a more modern “analytic linguistic approach” (Celce-Murcia et al. 2010).

The intuitive-imitative approach relies on learner’s perception skills and their capability to perceive and imitate both segmental and suprasegmental L2 features, being given no explicit instruction (Celce-Murcia et al. 2010). The more modern analytic-linguistic approach provides the learners with more explicit instructions, for instance “a phonetic alphabet, articulatory descriptions, charts of the vocal apparatus, contrastive information, and other aids to supplement listening, imitation, and production” (Celce-Murcia et al. 2010, 2).

The former, intuitive-imitative, approach was favoured by supporters of the so-called Direct Method. This teaching approach was inspired by first language acquisition and the notion that listening and subsequent imitation is the best strategy to master foreign language pronunciation. Similar theory was highly advocated by Krashen and Terrell in their *Natural Approach* (1983). Their philosophy is based on the presumption that understanding the target language messages is of the greatest importance and therefore they highlight the significance of comprehensible target language input. They argue that if learners are provided with these preconditions, they gradually start to understand the target language not only in an artificial environment created by the classroom, but also in the practical use (Krashen and Terrell 1983).

The latter, analytic-linguistic, approach was established by a reform movement – a grouping of phoneticians who created the concept of International Phonetic Alphabet. By creating a unified system of speech sounds universal for the vast majority of languages, they made it possible for learners to explicitly understand the pronunciation of their target language. The reform movement highlighted the importance of spoken language which should be taught in the first place. Moreover, they encouraged language instructors to apply phonetics in pronunciation teaching and by this means promoted explicit teaching methods application (Kelly 1969).

The usage of explicit pronunciation teaching inspired other developing approaches, namely Audiolingual and Oral approach which favour the combination of listening and imitation, complemented by using phonetic supportive materials, such as International Phonetic Alphabet (IPA). In addition, a new technique which was applied to enhance the teaching process was “a minimal pair drill.” (Celce-Murcia et al. 2010). A minimal pair is a contrastive pair of words differing solely in one speech sound. Thanks to this method, the learner's attention is focused directly at the contrasting sounds, making them perceive and consequently produce the intended contrast between the target sounds.

4.2 Linking in advanced learners’ textbooks

Since linking is given relatively little attention in English language teaching in comparison with other aspects of pronunciation, the following section is focused on textbooks for advanced learners’ English their approach to linking instruction. It is further examined which methods and techniques are used for linking instruction and how much space the textbooks devote to its practical usage.

4.2.1 New English File

Out of 21 sections in the New English File which are related to pronunciation training, two of them are related to linking.

The first pronunciation section is focused solely on linking and introduces the learners consonant to vowel linking (both resyllabification and linking r) and consonant to consonant linking. Learners are familiarized with the typical occurrence of linking in native speakers’ in fast speech and they are explained why it is beneficial for English

learners to master this phenomenon – that linking recognition is helpful for better comprehension of quick speech.

In terms of practical use of linking, the learners are instructed to indicate linking in a listening exercise by transcribing the text and subsequently, they are supposed to imitate to practise applying of linking in their speech.

The second section focusing on linking is combined with pronunciation of *-ed* adjective endings . Students are supposed to practise saying short phrases (all of them requiring C-V linking) and linking the words together, e.g. *baked apples, boiled eggs*, etc. Furthermore, they are supposed to explain the reason for why linking is used in the word sequences. In the following exercise, they are also instructed to read short phrases out loud, this time requiring C-C linking, e.g. *chopped tomatoes, stir-fried tofu* etc.

To summarize, linking phenomena instruction occurs in the textbook in two short entries. In these sections, typical linking contexts are described, and the learners are motivated to master these processes as the potential benefits of linking are explained to them. However, only C-V and C-C linking types are introduced, not mentioning V-V linking. As for the training itself, learners are instructed to train linking perception by listening and transcribing the utterance they hear in an audio-recording. Linking production is subsequently trained by short phrases imitation, in the second section by reading short phrases.

4.2.2 New Headway

A textbook for advanced learners of English, New Headway, reserves one page in the textbook for linking. The whole topic is introduced by a frequent problem which English learners have, that is misinterpretation of sentences due to linking phenomena, for example confusing the sentences: *Ice cream in a nice cold shower* and *I scream in an ice-cold shower*.

The process of linking formation, in particular C-V and V-V, is explained and exemplified by a linking indication in the written text. As for training, learners are asked to imitate the sentences and practise linking indication by marking linking in the text themselves.

The next section is focused exclusively on V-V linking and introduces transient w, transient j and intrusive r. Similarly as before, the phenomenon is demonstrated by

examples and learners are instructed to analyse phonetic environments typical for linking, and practise indicating it in the subsequent exercises as well as practise linking production by reading the given sentences out loud.

Finally, there is an exercise focused on the phenomenon of sentence misinterpretation which happens as a result of word boundaries adaptation due to linking phenomena. Students are supposed to circle one of the two offered options, as in *Ice cream in a nice cold shower* and *I scream in an ice-cold shower*, according to an audio-recording.

To conclude, the New Headway focuses on C-V and V-V linking, utterly omitting C-C linking type. Similarly as the New English File, it introduces the practical benefits of linking to learners and focuses on the frequent problem of sentence misinterpretation which is explicitly described. The training itself is realized by linking indications in the text, recognizing linking in an audio-recording, reading sentences out loud and imitation of sentences.

4.2.3 Comparison of linking instruction in selected textbooks

Both textbooks mention linking phenomena in some of the sections dedicated to pronunciation instructions, each of them mentioning C-V linking, but not mentioning all the types - one of them further mentioning V-V linking only, the other C-C linking only. Both of them provide the learners with practical information about linking significance in the speech and the benefits the linking gives the learners when mastering it. They incorporate audio-recordings of native-speakers to illustrate the process in practise and elicit imitation. They also use a metalinguistic element as they motivate the learners to indicate linking in the text and in their transcription of the recording and ask them to practise its production.

4.3 The role of feedback in pronunciation teaching

One of the most frequent ways of how teachers provide their students with a reflection on their target language performance is by using feedback. Hattie and Timperley (2007, 81) define feedback as “information provided by an agent (e.g., teacher, peer, book, parent, self, experience) regarding aspects of one’s performance or understanding.” Regarding pronunciation teaching, feedback is connected with the learning context, providing the learner with a comment on their language output (Hattie and Timperley 2007). Therefore,

feedback has proven to be an effective method in the teaching environment in general as it makes classes more efficient and contributes to the process of teaching.

Feedback can be classified by various criteria. One of the possible classifications is explicit and implicit feedback. The main criterion distinguishing these two types of feedback is the fact that during the implicit feedback, the learner is not explicitly reminded that their output was incorrect. In contrast, when employing explicit feedback, the mistake is pointed out either by providing a correct form immediately by explicit correction or by metalinguistic feedback which gives the learner further explanation about why the incorrect form is not suitable for the given context (Ellis et al. 2006). “Error correction has little or no effect on subconscious acquisition but is thought to be useful for conscious learning. Error correction supposedly helps the learner to induce or ‘figure out’ the right form of a rule” (Krashen 1982, 11). There are different views on the effectiveness of different feedback strategies but it can be agreed that giving the learners properly provided feedback is beneficial for development of their L2 interlanguage.

There are various methods of how feedback can be delivered. The following section will focus on corrective feedback and its classification.

4.3.1 Corrective feedback

Corrective feedback is a type of feedback which explicitly informs the learner about a non-target-like language use and aims to elicit the target-like form. To be precise, it informs the learner about “how well a task is being accomplished or performed, such as distinguishing correct from incorrect answers, acquiring more or different information, and building more surface knowledge” (Hattie and Timperley 2007, 91).

There are three strategies of how corrective feedback can be used according to Ellis et al. (2006), it is worth mentioning that the individual methods can be combined: inform the learner about making a mistake, provide the learner with the target-like form and employ metalinguistic information to explain the unacceptability of the non-target-like form.

Concerning its usage in second language teaching, it is the most widely used level of feedback by teachers. One of the advantages of corrective feedback is that it supplies a learner with explicit information about his performance and supplies them with a base to

start building further knowledge on. However, it is important that the teacher/instructor distinguishes whether the mistake made by the learner was caused by misinterpretation or by lack of knowledge as in the latter case, a more effective strategy is to provide further information rather than giving feedback (Hattie and Timperley 2007). Therefore, the instructor is supposed to assess the reason leading to a learner's mistake and subsequently consider how to proceed. As a consequence, giving corrective feedback must be carefully thought-out so that it does not result in misunderstanding between the instructor and learner.

There are various corrective feedback strategies employed by language teachers, Lyster and Ranta (1997) as well as Ellis (2009a) distinguish six strategies, differing only in one of them (Ellis employing paralinguistic signal instead of metalinguistic feedback): explicit correction, recast, clarification request, metalinguistic feedback, elicitation, repetition and paralinguistic signal. These corrective feedback strategies can be classified into two categories, namely explicit and implicit feedback. The two contrasting categories will be introduced in the following sections and the individual strategies will be described.

4.3.1.1 Implicit feedback

The core of implicit feedback is that the learner's attention is not explicitly drawn to the untarget-like form they produced. Although the instructor corrects their mistake, it is performed without interrupting the flow of communication, without changing intonation or putting stress, in general without any explicit signal of correcting the mistake.

The most well-known example of implicit feedback is a recast. In this type of feedback, a learner's incorrectly uttered form is corrected by the teacher, however, without interrupting the flow of communication and without explicitly pointing out the non-target like form (i).

(i) *Learner: There are two *womans.*

Teacher: What are the two women doing?

It is important that the learners notice the corrected mistake in the instructor's utterance. Unlike in explicit feedback, the risk while uttering implicit feedback is that learners might not always perceive the correction as their attention is usually not brought to the incorrect part of their utterance. As a result, if the learner does not notice the correction

of their mistake, the feedback is not effective (Ellis et al. 2006). Although it is generally assumed that recasts are implicit, it might not always be the case, for example if the correct form is noticeably emphasized in speech (Ellis et al. 2006).

Nevertheless, recasts' benefits reside in the fact that the learners' are provided with the target and non-target-like form contrast though not being explicitly alerted about it. As the implicit correction reacts immediately to the non-target-like language form, the learners have a chance to spot the contrast and therefore analyse the difference between the two uttered forms (Ellis 2008).

4.3.1.2 Explicit feedback

When the learner is alerted about the incorrectness of their utterance by the instructor and especially, if the flow of communication is interrupted in favour of correcting their answer, we talk about the explicit feedback.

Explicit correction is a strategy during which, the learner is explicitly alerted that their utterance was incorrect and subsequently provided with the correct form by the teacher (ii) – the learner is not involved in the process of figuring out the target form themselves (Lyster and Saito 2010).

(ii) *Learner: I goed to school yesterday.*

Instructor: No, it isn't goed. It's went.

As for differences in classification of terminology, Lyster and Saito (2010) include several corrective feedback strategies in a single category of prompts, however, in earlier studies of Lyster and Ranta (1997) as well as Ellis (2009a), prompts are divided into several distinct strategies.

Unlike explicit correction, a prompt does not explicitly inform the learner about making a mistake. The main aspect in which prompts differ from explicit correction and recasts is that the learners are not supplied with the correct form but instead they are triggered to deduce it on their own based on their L2 knowledge (Lyster and Saito 2010). There are many strategies how to prompt the learner to utter the correct form, e.g. "elicitation, metalinguistic clues, clarification requests and repetition" (Lyster and Saito 2010, 268). To conclude, prompts are beneficial in the way that they encourage the learners to utilize their

existing target-language knowledge to correct their mistakes themselves. The individual types of prompts are described in the following section.

Another type of explicit feedback is so called clarification request which gives the learner a signal that their utterance was not understood as a result of incorrectly used language form. To attain such type of feedback, the instructor often pretends to be confused so that the learner notices that some part of their language performance was faulty and thus tries to detect and correct the mistake (iii).

(iii) *Learner: I *goed to school yesterday.*

Instructor: Excuse me?

In the elicitation strategy, the instructor indicates the mistake by repeating the learner's utterance while omitting the incorrect form (iv). To highlight the problematic part of the utterance, the instructor often changes the intonation. The goal is to help the learners identify the mistake themselves and make them correct the mistake on their own.

(iv) *Learner: There were two old *womans sitting on the bench.*

Instructor: There were two old ...?

While in elicitation, the incorrect form remains unpronounced, the repetition strategy explicitly repeats the non-target like form, raising the intonation so that its signalled that there is a need for correction (v). The learners are again motivated to figure out the correct form themselves.

(v) *Learner: I goed to school yesterday.*

Instructor: Goed?

Unlike previously mentioned types of feedback which were only designed to elicit the corrected language form by solely pointing out the mistake or the problematic part of the utterance, metalinguistic feedback provides the learner with comments, information or questions which are supposed to guide him to figure out the correct form (vi). As a result, the learner is given more clues about the unacceptability of their utterance and they do not have to deduce the reason themselves.

(vi) *Learner: I goed to school yesterday.*

Instructor: Is the verb "go" a regular verb?

Paralinguistic signal is a special type of feedback as it does not verbally alert the learner about the mistake but instead uses gestures or facial expressions, such as raising two fingers to indicate the need to use plural.

It is worth mentioning that all of these strategies can be combined to achieve the maximal effect, for example by a combination of clarification request and repetition, as in (vii).

(vii) *Learner: I *goed to school yesterday.*

Instructor: Excuse me?...Goed?

4.3.2 Effectiveness of different types of feedback

As for corrective feedback application in the classroom setting, Lyster and Ranta (1997) observed the use of most frequently employed strategies by instructors and their efficacy. Over half of the used feedback was in the form of recasts, followed by less used elicitation, clarification requests, metalinguistic feedback, explicit correction and repetition of an error. Although being used the most, recast effectiveness proved to be only 31%. The most effective strategy was elicitation with 100% of effectiveness, followed by clarification requests, metalinguistic feedback and repetition. The same result was confirmed by later experiments in which Lyster (1998), Ellis et al. (2006) and Lyster and Saito (2010) in which it was concluded that recasts are less effective than explicit feedback strategies because the error is immediately provided with the correct form and furthermore, not being alerted about it (Ellis et al. 2006). Lyster and Saito (2010) concluded that regardless of which type of feedback was used, all of them proved to be beneficial to improvement of learners' target language. Based on the experiments above, prompts proved to be more efficient than recasts or explicit correction, thus, to conclude, explicit corrective feedback is recommended for foreign language classroom teaching.

Another factor which must be considered by language instructors is the extent of given feedback as sometimes, too much feedback can lead to a worse understanding of the certain task. It has been observed that if the feedback is too detailed, it may reduce comprehension as well as change the learner's focus from general understanding to the particular task only. It applies primarily to metalinguistic feedback which does not only

correct the mistake but provides the learner with further information about the unacceptability of the mistake.

Although language teachers are advised to familiarize with different feedback strategies and study their potential effectiveness, Ellis (2009a) proposes that each teacher should test which methods work the best for them and subsequently decide which feedback strategies to employ in their classes, based on their own experience.

5 Research questions

Although linking is a significant characteristic of the English language, non-native speakers of English seem to have difficulty applying it in their speech. Apart from the fact that lack of linking causes foreign accent, it also interrupts the natural flow of English speech which may cause misunderstanding on the pragmatic level (Šimáčková, Podlipský and Kolářová 2014). As a result, language instructors should react to such inconsistency and propose as well as test the effectiveness of teaching materials of various linking instruction methods. The effectiveness of distinct types of training activities which are used in English language textbooks was compared. To support the effectiveness of the training, explicit teaching as well as explicit corrective feedback was given to the participants. After the transfer to an online form, it changed its form primarily to metalinguistic explanations.

The current thesis' aim is to answer the following research questions:

1. Will the advanced non-native speakers of English realize more linking after finishing the pronunciation course?
2. Which training activities will prove to be the most effective?
3. Will the participants' performance in the individual training activities reflect in the final Post-test, in other words, will they be able to transfer linking realization?

6 Methodology

The aim of this thesis is to assess the effectiveness of a three-month pronunciation course with focus on linking phenomena. The motivation for this thesis was the fact that suprasegmental features are often ignored in favour of segmental features in foreign language teaching, although they have been given more attention in recent years. However, linking represents an important connected speech process in English and therefore, various

pronunciation exercises were tested to assess those with greatest effectiveness in employing linking phenomena in English learners' speech. As not much literature exists on teaching linking in foreign languages, the thesis tests various different teaching methods and techniques, and subsequently aims to evaluate them. Finally, the individual exercises will be compared, and the efficacy of the whole pronunciation course will be discussed.

6.1 Stimuli

The stimuli for the pretest and posttest consisted of a children's story *The Tiger Who Came to Tea*. The short story contains 503 words and for the purpose of this thesis, contexts containing three types of linking were chosen, namely, transient [w] and transient [j].

Resyllabification contexts						Hiatus contexts					
						transient [j]				transient [w]	
was	but	but	like	had	got a	Sophie	he	he	the	to a	to a
a	I'm	again	a	eaten		opened	ate	ate	orange		

Table 1. The chosen target contexts from Pre-test and Post-test for analysis of linking in the participants' read speech

There is an equal amount of resyllabification and hiatus linking contexts which are examined in the practical part. To be specific, there are six word-sequences of resyllabification contexts examining consonant-to-vowel linking and six hiatus word-sequences, four of which focused on the presence of transient [j] and two of which focused on transient [w], as illustrated in **Table 1**.

The factors which were taken into account when selecting the target word sequences were: linking context (consonant-vowel linking x vowel-vowel linking), syntactic criteria (lexical x non-lexical/function words) and tone unit boundaries. The pre-selected word sequences were subsequently compared with model recordings of five British native speakers reading the target text. Taking all the factors into account, the word sequences were finally chosen so that the highest probability of linking realization is arranged for, not interfering with other factors influencing linking.

One of the decisive factors from syntactic criteria is whether the given words belong to lexical or non-lexical categories. In general, non-lexical words tend to be linked

to the preceding word more than lexical words as they do not usually carry the most significant or novel information and therefore can be reduced and backgrounded. Another factor which was considered when examining the probability of linking realization was the division of speech into tone units. Although the division of tone units can be partially predictable, each speaker adapts the tone unit boundaries according to their own consideration. Taking them into account was important so that the target word sequence is not interrupted by a tone unit boundary which would not provide a context suitable for linking production. After testing the pre-selected word sequences on model recordings of the native speakers, those with highest probability of linking were chosen. Some native speakers, however, Speaker 2, 3 and 5 realized the target word sequence *to a* as *to the* as they probably read a different version of the text. The speaker 1 produced a very emphatic speech which was supported by glottalization which is the reason of her relatively low linking rate. As the target text was a children’s story, all the speakers read the text in a slow, comprehensible and empathic way and divided the text into smaller tone and syntactic units so that it is well-understood by the target audience – children. It caused that the linking realization was not that high as the native speakers often used glottalization to emphasize certain lexical words.

Native speaker	Linking realization
Speaker 1	50%
Speaker 2	75%
Speaker 3	92%
Speaker 4	75%
Speaker 5	83%
average	75%

Table 2. Linking realization by native speakers.

The target word sequences were subsequently annotated in Praat (Boersma and Weenink 2018) in all the participants’ Pre-test and Post-test recordings. As for coding the word sequences realization, five different symbols were used (as illustrated in **Table 3**). The chosen contexts were then annotated according to their realization. Three distinct types of linking are distinguished in the practical part, namely resyllabification, transient

[w] and transient [j]. In case of absence of linking, there are two types of glottalization which were differentiated, either a canonical glottal stop or a creaky voice.

symbol	realization
G	glottalization
C	creaky voice
Lc	resyllabification
Lj	transient [j]
Lw	transient [w]

Table 3. Coding of the target context’s realization.

The Figures 5 to 10 depict distinct types of realization of selected contexts: hiatus and resyllabification contexts: the contrast between realization of transient [j] (**Figure 5**) and glottalization (**Figure 6**) in the word sequence *Sophie opened*, the contrast between the transient [w] (**Figure 7**) and glottalization (**Figure 8**) in the context *to economize* and the contrast between resyllabification (**Figure 9**) and glottalization (**Figure 10**) in the word sequence *was a*.

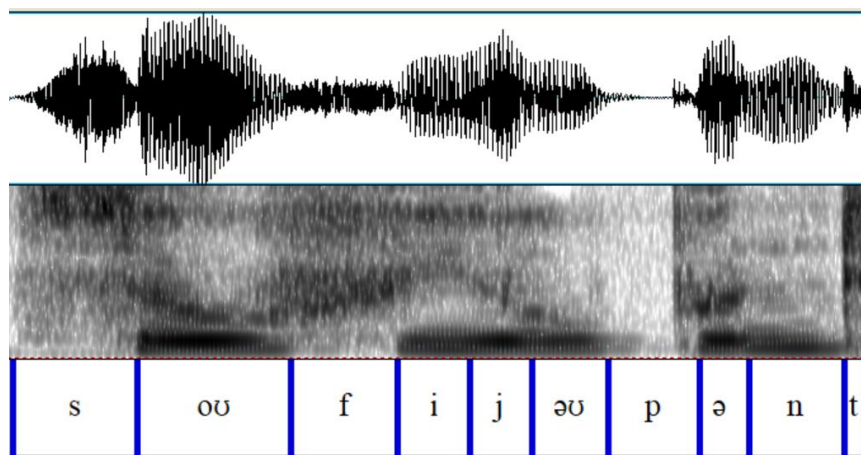


Figure 5. An example of transient [j] in the hiatus context *Sophie opened*.

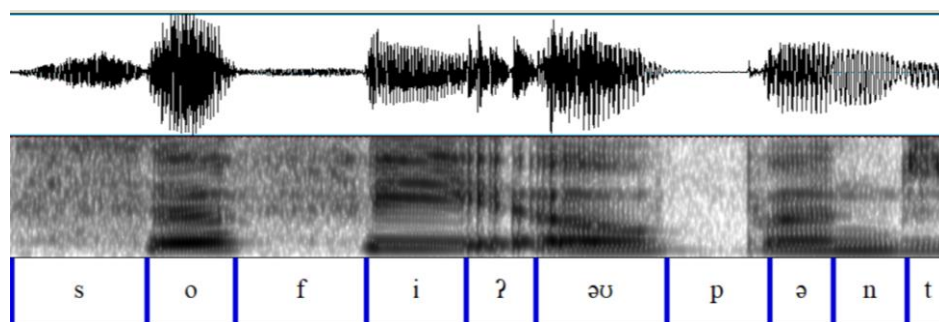


Figure 6. An example of glottalization in the hiatus context *Sophie opened*.

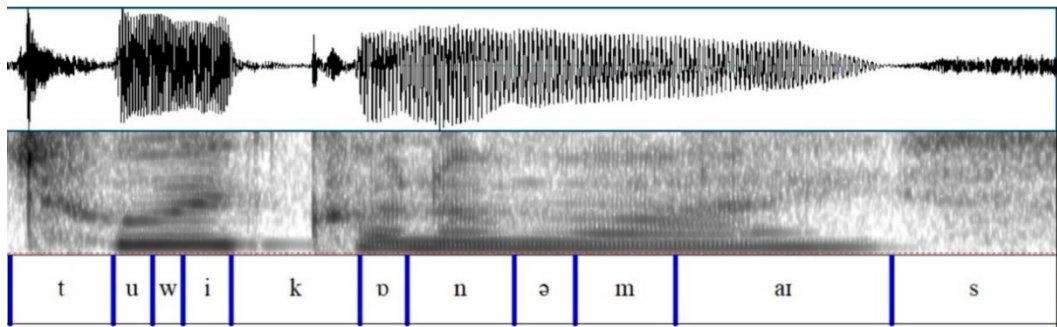


Figure 7. An example of transient [w] in the hiatus context *to economize*.

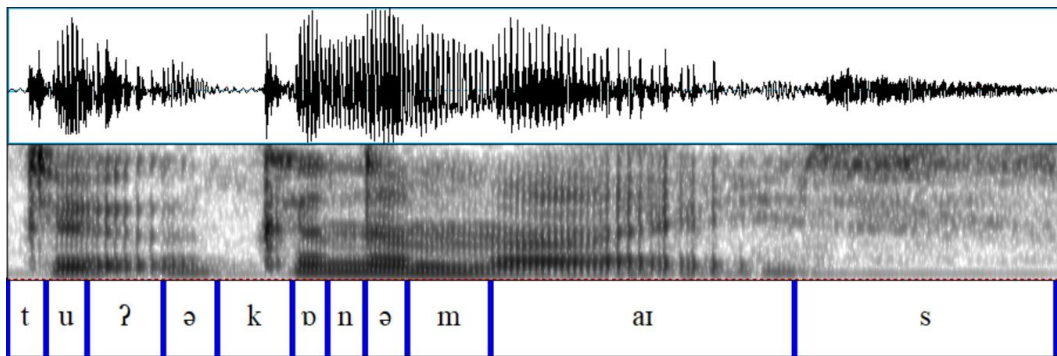


Figure 8. An example of glottalization in the hiatus context *to economize*.

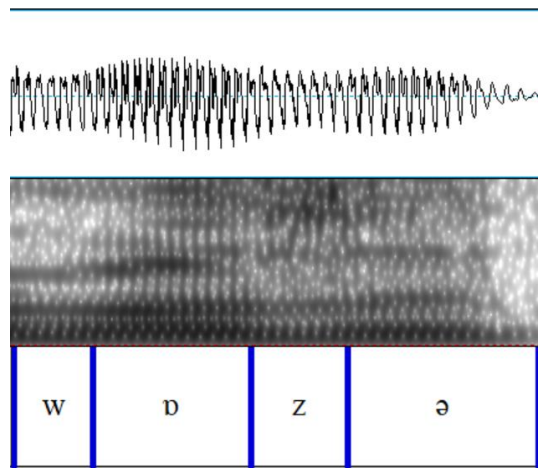


Figure 9. An example of resyllabification in the resyllabification context *was a*.

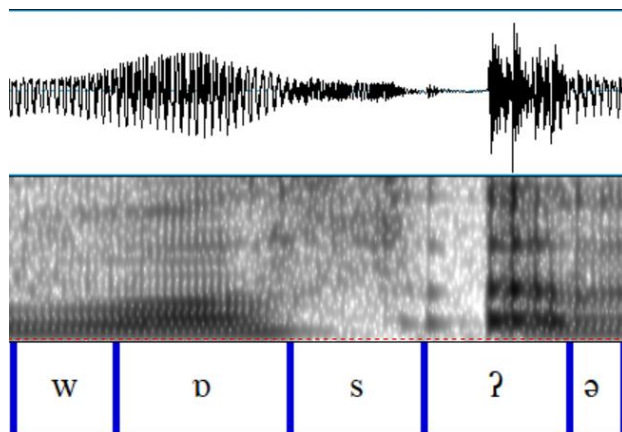


Figure 10. An example of glottalization in the resyllabification context *was a*.

6.2 Procedure

The experiment was set in a Pre-test Post-test design, examining audio-recordings of read speech of a children's story *The Tiger Who Came to Tea*. The participants received the printed text of the short story in advance to familiarize with it and subsequently, they were asked to record it, not being explicitly instructed what features to focus on. The only instructions they were given were to present the text as if they were reading it to a little child.

The recording of the Pre-test took place in a recording room at Palacký University equipped with professional technology suitable for high-quality recordings and each participant was asked to read the target text. Due to the switch of the course to online form, the Post-test was recorded by each student on their own recording device and subsequently sent to the instructor by email. Due to this fact, the quality of the Post-test recordings is lower than that of the Pre-test.

6.3 Participants

The participants of the study were 14 Czech native speakers, all of them advanced learners of English studying at the Department of American and English studies at Palacký University in Olomouc. Five of the participants were male and nine of them were female. All the participants were familiar with the basic principles of English phonetics and phonology which provided them with an explicit learning background due to compulsory courses in phonetics at the Department.

6.4 Training

The pronunciation course lasted fourteen weeks in total. The experiment was originally supposed to be in the classroom setting but due to unexpected circumstances caused by a pandemic situation, the course was subsequently switched into an online form. The first four sessions took place in the classroom setting, and the remaining eight classes were taught in a distance form online. Regarding the whole pronunciation course, it was primarily focused on English connected speech, focusing namely on stress, rhythm, intonation, linking etc.

As for the lessons taking place in the classroom setting in a computer room where each student was provided with their own computer and headphones with a microphone. The seminars recurred weekly, each of them lasting 90 minutes during which the students were fully focused on their pronunciation training. The lessons were taught by explicit instruction given by the course instructor, and a large amount of time was devoted to practise, subsequent self-recording and concentrating on each participant's speech production. The instructor continually provided each student with corrective feedback and elicited the target-like forms by means of imitation. Thanks to self-recordings, each participant was able to compare the target-like production with their own realization and as a result, their awareness of the non-target-like features in their utterances was raised and enhanced their learning process.

After the seminar's transfer into online form, the participants were given the instruction in the form of a handout containing a series of pronunciation exercises and received detailed instructions for each exercise and other supportive materials, such as audio-recordings serving as models for imitation exercises. After completing all the tasks, the participants were asked to record selected pronunciation exercises which were subsequently evaluated by the course instructor. Finally, each student received personalized feedback on their performance in the particular session so that it is compensated for the lack of real-time feedback given in the classroom setting.

As all the participants of the experiment were studying at the Department of English and American studies, they were all familiar with English phonetics and phonology which created an eligible opportunity for explicit phonetic instructions which were employed in the course. To revise and reinforce their theoretical knowledge about

linking, the participants were given a short lecture about linking phenomena, combining both theoretical and practical instruction. Before the lecture, each participant was asked to audio-record a series of short sentences containing multiple linking contexts. However, the participants were not informed about the aim of the exercise so that their natural read speech was elicited. After self-recording, they were provided with a visual indication of linking contexts in the given sentences and demonstrated with a distinction between linked and non-linked production of the given phrases in contrastive pairs (viii) and (ix).

(viii) *these are* [ðiz.ʔɑɪ] x [ði.zɑɪ]

(ix) *tomatoes I've ever* [tə.meɪ.touz.ʔaɪv.ʔɛv.ə] [tə.meɪ.tou.zai.vɛv.ə]

Thanks to perceiving the utterances in contrast, the difference between linking and glottalization was emphasized. Subsequently, the participants were asked to imitate the contrast multiple times. During their training, they were being monitored and provided with explicit corrective feedback on their performance, each participant individually. The goal was to raise their awareness of linking in English and be presented with particular strategies of how to apply linking phenomena in practice, which is the first step in teaching them to incorporate it in their speech. Combining the imitation technique supported by phonetic transcription, the linking process was explicitly illustrated to reinforce their perception of how linking practically works. The lecture about linking served as the introduction into linking and provided them with a base to start building their further knowledge as well as help them in the subsequent training activities focused on linking

The training activities which were used in the course can be classified into four categories: reading, imitation, combination of imitation + reading and spontaneous speech. Spontaneous speech, however, served solely as a comparison of linking in controlled read speech and spontaneous language production. There was a combination of multiple factors in the exercises: different types of activities as well as distinct types of stimuli, target contexts and foci. Inspired by linking teaching techniques used in English textbooks for advanced learners, various similar types of activities were used to compare its effectiveness.

When choosing the target contexts, similarly as in the Pre-test and Post-test, the word sequences were chosen so that they are not separated by a tone unit boundary and there were different combinations of lexical and function words inside the individual word

Activity	Code	Stimuli	Target contexts	Focus + instructions
reading	R+L[h,r]	short sentences	resyllabification + hiatus	metalinguistic focus on linking (indicate linking in the text)
	R+CS[r]	short phrases	resyllabification	focus on connected speech
imitation	I+Lc[r]	a short sentence (linked and glottalized version)	resyllabification	metalinguistic focus on linking (imitate both utterances and explain the difference in their realization)
	I+L[r]	short sentences	resyllabification	metalinguistic focus on linking (write the sentences down, indicate linking, imitate)
reading + imitation	R,I+CS[h,r]	coherent text	resyllabification + hiatus	focus on connected speech
spontaneous speech	Talk[h,r]	-	resyllabification + hiatus	30-60s monologue about a selected topic

Table 4. An overview of the examined training activities from the course.

sequences. Not all the activities were focused on both hiatus and resyllabification contexts. More emphasis was put on resyllabification contexts as resyllabification is the most frequent type of linking in English which is also reflected in linking instructions in English learners' textbooks *New English File* (Oxenden and Latham-Koenig 2010) and *New Headway* (Soars et al 2015) which focus primarily on resyllabification. The overview of the individual training activities used in the course is presented in **Table 4**. The activities are described in the following sections, and the example sentences from the activities with highlighted target contexts which were analysed are provided below each described exercise. The word sequences chosen for analysis of the individual activities were annotated in Praat (Boersma and Weenink 2018) and coded in the same way as the Pre-test and Post-test (See **Table 3**).

6.4.1 Reading activities

R+L[h,r] was a training activity focused on reading short sentences which did not comprise a coherent text. They contained primarily simple and every-day vocabulary so that the participants are not disturbed by complicated or unknown words and can concentrate more

on the target feature which was linking. The activity focus on both resyllabification and hiatus contexts. The exercise required metalinguistic processing as the participants were asked to indicate linking contexts in the exercise in advance and subsequently practise linking realization. After being given sufficient time for preparation, they were asked to record all the sentences.

(x) *We work latehours.*

(xi) *Weare short of staff.*

R+CS[r] was a reading activity consisting of a series of short phrases. However, unlike in the previous exercise, the register used in this activity was more complex, containing borrowings from foreign languages with more difficult pronunciation which were more distant from the core language. The activity focused solely on resyllabification contexts. This exercise did not put metalinguistic focus solely on linking but instructed the participants to focus on multiple suprasegmental features and connected speech processes, including linking. In contrast with the previous exercise, the metalinguistic element was not so intense as the participants were instructed what features to focus on but they were not encouraged to further examine the text.

(xii) *a father of an illegitimate child*

(xiii) *an increased incidence of allergies*

6.4.2 Imitation activities

Another category of linking exercises were imitation of model recordings by native speakers without the text of the recording so that the concentration on the audible information is reinforced.

In I+Lc[r], there was a strong impulse for metalinguistic processing focused on linking in the activity. To maximize the perception of contrast between a linked and glottalized utterance, the same sentence uttered by the same native speaker was firstly presented in a linked version and subsequently in a glottalized version. The participants received only the audio-recording, not being provided with a transcribed text so that their attention is brought only to the audible contrast. To further reinforce the focus on linking, the sentence was short and consisted of simple vocabulary so that the participants are not

disturbed by challenging vocabulary or the length of the uttered sentence. The task was focused on resyllabification contexts only. The participants' task was to explain the difference between the two utterances of the same sentence and afterwards, imitate both the utterances so that the contrast can be perceived.

(xiv) *I've got an awesome lesson for all of you today.*

In I+L[r], an audio-recording of a native speaker was supposed to be imitated in the second imitation exercise. The uttered sentences were short and contained simple register. The task was focused solely on resyllabification and a metalinguistic element focused on linking was used as well since the participants were asked to write the sentences down and indicate linking according to the model recording. Afterwards, they were instructed to imitate all the sentences and record them. The aim was to examine their capability to recognize linking solely in an auditory source and focus their attention on linking perception.

(xv) *She ate a piece of toast with avocado.*

(xvi) *She's sick of waking up early.*

6.4.3 Imitation and reading activity

R,I+CS[h,r], a reading and imitation exercise, consisted of a coherent text with more complex vocabulary. It was focused on both resyllabification and hiatus contexts. The main metalinguistic focus of the exercise was on rhythm but besides that, the participants were also asked to pay attention to other suprasegmentals and connected speech processes, including linking.

(xvii) *Fear is essential to keep us out of danger and we learn to feel it very young.*

6.4.4 Spontaneous speech

Talk[h,r] was an activity which elicited spontaneous speech. The participants received no instructions in the exercise, their only task was to record a 30 to 60 seconds monologue about a selected topic. As no focus was stated, there was a spontaneous speech present to examine and compare with their read speech or an imitation of speech produced in the other exercises and compare the amount of realized linking.

6.5 Results

The study uses a within-subject design with two within-subject variables: Test (Pre-test, Post-test) and Type (V-V, C-V) and the dependent variable which is the percentage of realized linking. The results were tested with the Friedman test, a non-parametric test, chosen instead of a repeated measures ANOVA because the values were not normally distributed (Shapiro-Wilk test, $p = 0.0099$ for pre-test vowel_vowel, $p = .0003$ for the post-test vowel_Consonant). The Friedman ANOVA confirmed that there was a statistically significant difference in the percentage of linking, $\chi^2(N 14, df 3) = 20.882, p = 0.0001$.

	Mean	Std.Dev.
preV_	19.63	19.50
postV_	36.87	28.63
preC_	52.36	31.25
postC_	80.93	26.85

Table 5. The mean and standard deviation of the examined variables.

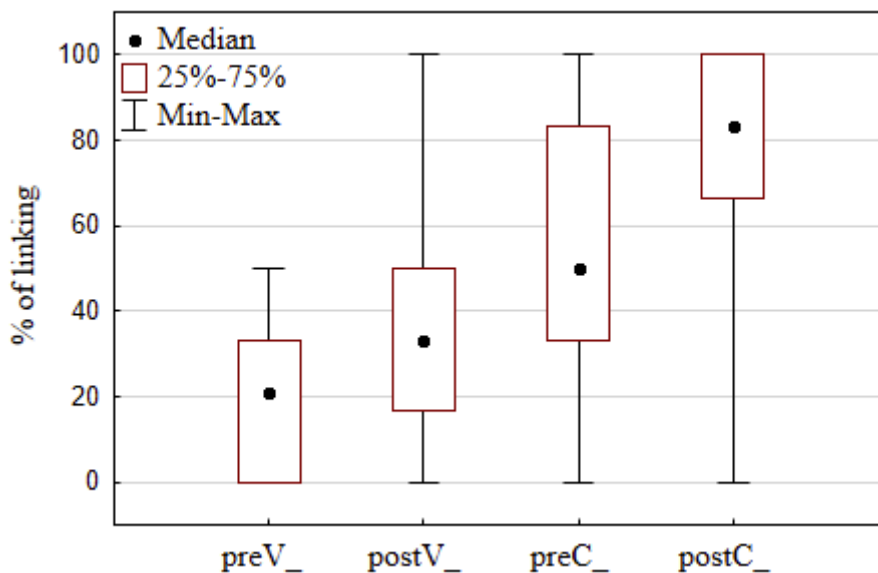


Figure 11. Box and Whiskers graph portraying the linking realization in hiatus and resyllabification context in Pre-test and Post-test.

As it can be observed in Figure 11, the participants realize linking in resyllabification context more than in hiatus contexts in both Pre-test and Post-test. There

was an increase in percentage of linking realization in both resyllabification (C_) and hiatus (V_) contexts.

Post-hoc tests were carried out in order to test differences between the four categories (Pre-test V-V, Post-test V-V, Pre-test C-V and Post-test C-V). The results were submitted to Wilcoxon Matched Pairs Test with a Bonferroni adjustment of $.05/4 = .0125$ for multiple comparisons. The p-values which are marked as significant at $p < .05000$.

Pair of Variables	Valid	T	Z	p-value
preV_ & postV_	11	4.00	2.58	0.009926
preV_ & preC_	14	14.50	2.39	0.017056
preC_ & postC_	9	2.50	2.37	0.017818
postC_ & postV_	13	1.00	3.11	0.001872

Table 6. The table of differences between the four variables (Pre-test V-V, Post-test V-V, Pre-test C-V and Post-test C-V) according to Wilcoxon Matched Pairs Test with a Bonferroni adjustment of $.05/4 = .0125$ for multiple comparisons.

From the results in the **Table 6** can be observed that hiatus and resyllabification linking differ from another in both Pre-test and in Post-test. However, the Wilcoxon Matched Pairs Test proved that not all the statistic differences are significant. The significant values can be observed between hiatus linking in Pre-test and Post-test with p-value 0.009926. Similarly, it can be observed that the difference between resyllabification and hiatus linking in the Post-test is significant with p-value 0.001872. Although the differences between resyllabification and hiatus linking in Pre-test with p-value 0.017056 and resyllabification in Pre-test and Post-test were not evaluated as significant, there can be observed a trend towards significant difference.

Figure 12 depicts the individual progress of the participants between Pre-test and Post-test. The figure shows that the individual performances differ and are inconsistent. Two participants performed lower frequency of linking than in the Pre-test and two participants realized the same amount of linking as before the pronunciation course. The

remaining ten participants performed greater linking frequency after attending the course, some of them making slight progress and some of them performing significant progress.

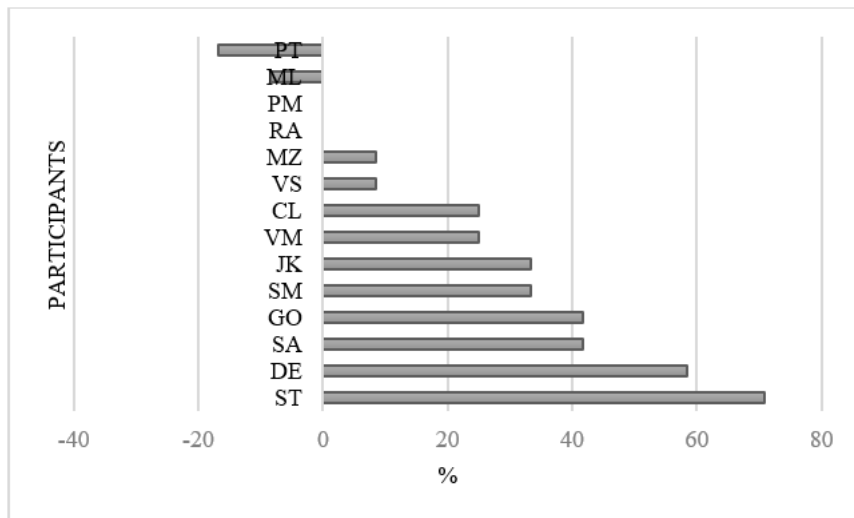


Figure 12. The progress of the individual participants in total linking realization between Pre-test and Post-test.

training activity	linking realization
I+Lc[r]	90.3%
I+L[r]	87.1%
R+L[h,r]	84.8%
R,I+CS[h,r]	78.2%
Talk[h,r]	58.5%
R+CS[r]	54.5%

Table 7. The mean percentages of linking realization by the participants in the individual training activities.

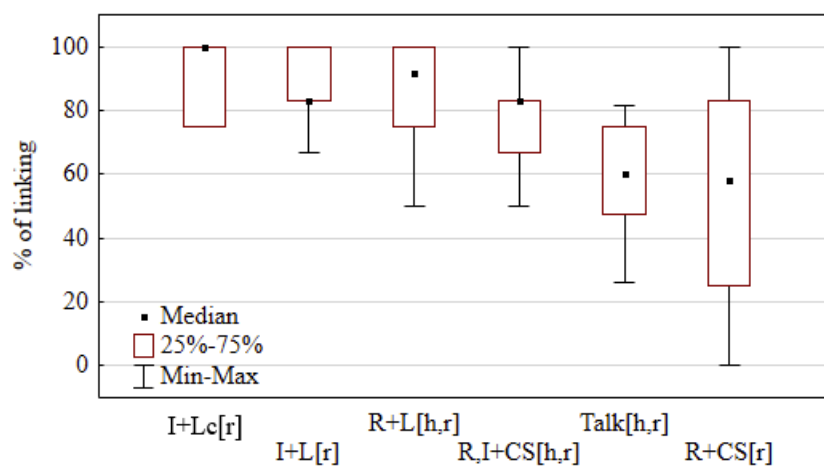


Figure 13. Box and Whiskers graph of linking realization by the participants in the individual activities.

The average of linking percentages realized by the participants in the individual training activities is portrayed in **Table 7**. The linking realization in % is visually represented in **Figure 13**. No statistical comparison of the linking percentages was performed. The participants realized the highest rate of linking in imitation exercises without being given the transcribed text. Another factor which connects the three exercises with highest effectiveness as regards realized linking is the involvement of metalinguistic elements. The participants' attention was intentionally focused on linking realization which was reflected in the final production. Concerning the complexity of provided stimuli, participants had greater difficulty realizing linking in longer, coherent texts in comparison with shorter phrases, as well as in texts in more complicated registers.

6.6 Discussion

This section focuses on answering the thesis research questions as well as commenting on the findings of the experiment.

The first research question asked about the overall effectiveness of the pronunciation course on the participants' linking production. As it can be observed in the results from Pre-test and Post-test, a higher percentage of linking realization could be observed in the participants' performances after finishing the course in both hiatus and resyllabification contexts. The results proved that tests which can be marked as significant are the Pre-test hiatus linking and Post-test hiatus linking, as well as the difference between resyllabification and hiatus linking in the Post-test. In both Pre-test and Post-test, there is a higher percentage of linking in resyllabification contexts. The interesting issue worth mentioning is that the difference between the individual participants' linking realization in Pre-tests and Post-test is very inconsistent. Although the majority of participants employed more linking after finishing the course, there were two participants who even performed lower percentage of linking than in the Pre-test although their performances the individual training activities proved that they were able to realize linking. Such decrease in their linking production might be caused by the fact that if the metalinguistic processing of linking was not included, the participants omitted this processes from their read speech as it is not automatized enough and instead, focused on other aspects of fluent speech which they were taught in the course. This explanation can be further supported by the findings from training activities results. They showed that metalinguistic elements focused solely on

linking supports the ability to link and with its lack, the frequency decreases. Another possible explanation might be too careful speech focused on proper pronunciation which employs glottalization for purposes of greater intelligibility. However, the majority of participants profited from the course as there is an observable improvement in linking realization between Pre-test and Post-test in both resyllabification and in transient glides involvement.

The second research question investigated which training activities demonstrated the greatest effectiveness. The results proved that imitation according to the model recording by the native speaker complemented by a metalinguistic element were the most effective and that the greatest number of participants employed linking in such contexts. The presence of the metalinguistic focus solely on linking also proved to be effective in reading activities. When the activity required focus on more connected speech processes or suprasegmental features, such as stress, unstressed syllables reduction, rhythm or intonation, the frequency of realized linking decreased.

As for complexity of the stimuli, the participants realized more linking in shorter phrases or sentences with simple vocabulary. With the increasing complexity of the vocabulary as well as with the length of the text, their linking realization decreased. The biggest difference between the individual participants linking realization was observed in the activity focused on imitation with provided text of the recording. The explanation might be that some participants were distracted by the text from the mere audio information and the orthographical word boundaries made them produce less linking and audibly separate the individual words. The exercise also lacked the metalinguistic focus on linking and therefore, the participants might not concentrate on linking production as they were concerned with other processes of fluent speech production.

The exercises which elicited either imitation or reading were compared with linking rate in spontaneous speech in which the participants were not instructed to focus on any particular feature. It can be observed that they produced less linking which can be caused by lack of metalinguistic element and proves that linking is still not automatized in their speech production.

The last research question asked whether there is a transfer of linking production from the training activities to the Post-test. It can be observed that most of the

participants performed more linking realization after they completed the course but comparing it to the results of the individual training activities, they generally performed less linking than throughout the training. This could be again caused by the lack of metalinguistic focus on linking in the Post-test and also the fact that the children's story used for the Pre-test and Post-test was a longer piece of text in the participants tried to concentrate on multiple suprasegmental features at once and omitted linking which is still not an automatic process in their speech. To conclude, there is observable improvement in linking but the process is still not automatized in the participants' speech production when they lack the focus on the particular process and read longer piece of text.

7 Conclusion

Although linking is a typical characteristic of English fluent speech, non-native English speakers often have difficulties including this connected speech process into their speech and this is one of the factors which results in foreign accented speech. Apart from foreign accent which does not have significant effect on comprehensibility, lack of linking may cause misunderstanding on the prosodic level, for example the speech may sound overemphatic and even impolite or on the other hand too hesitant and insecure (Šimáčková, Podlipský and Kolářová 2014). Despite the fact that linking phenomena has received greater attention in recent years, there is still lack of research on training activities which would contribute to effective linking instructions to non-native speakers and an assessment of the most effective training methods.

The aim of this thesis was to assess the efficacy of a pronunciation course for advanced non-native speakers of English focused on connected speech, in particular, the thesis examines its effect on linking phenomena. During a three-month pronunciation course which first took place in classroom setting and later switched into a distant form, the participants were explicitly instructed to approach fluent speech and reduce their foreign accent. To increase the effectiveness of the course, the participants were provided with corrective feedback, and after the transition to online form by personalized delayed feedback.

The literature review focused on introducing linking phenomena and glottalization and introduced multiple factors which affect its occurrence in English speech. Subsequently, distinct approaches to classroom language learning were introduced and explicit and implicit learning methods were compared. The next section was dedicated to pronunciation teaching. It presented the most significant approaches to pronunciation teaching and briefly introduced its historical development. Furthermore, the approach to linking instruction in advanced learner's textbooks was selected and compared and served as an inspiration for the training activities used in the course to assess their effectiveness. The last subsection was concerned with the role of feedback in pronunciation teaching, different techniques which are employed and the assessment of their effectiveness.

The practical part of the thesis introduced three research questions and subsequently presented the process of data elicitation, introduced the examined activities and outlined the progress of the pronunciation course. Subsequently, the efficacy of the

course was analysed. Apart from the overall effectiveness of the course, the thesis assessed the contribution of the individual training activities used in the course. The participants were explicitly taught by various training activities: reading, imitation of the native-speakers' recording without the transcribed text, imitation of the native-speakers' recording with the transcribed text and finally, the efficacy of the individual exercises was examined. An important part of the course was incorporating the metalinguistic element into the activities which proved that when focusing the participants' attention solely on linking, the linking realization is higher than without the focus. The most effective type of exercise was imitation of the native speaker without text with the present of metalinguistic element focused on linking. Furthermore, the incorporation of the metalinguistic elements into other training activities proved to increase the rate of participants linking as well, compared to those where it lacked or was focused on more aspects of connected speech.

In overall, the course proved to be effective but its effect on the individual participants was inconsistent as not all of them benefited from the course in the same way. The majority of the participants performed more linking after completing the course in both hiatus and resyllabification contexts than before the experiment. Nevertheless, some participants performed no progress in the Post-test or even realized less linking than before the course. This could be caused by the lack of metalinguistic element which would make them concentrate on this particular connected speech process as they tried to focus on other features of fluent speech at the expense of linking. The experiment showed that the advanced learners are able to produce linking when they are explicitly taught the process but with the increasing complexity of the text and lack of metalinguistic processing on linking phenomena, their linking realization decreases. It proves that the process of linking is still not automatic for the learners and requires more training so that they approach the native-like linking production.

8 Resumé

Přestože je vázání typickým znakem plynulé anglické řeči, nerodilí mluvčí angličtiny mají často problém zahrnout tento proces do své mluvené řeči, a to je jeden z faktorů, který tvoří cizí přízvuk. Mimo cizího přízvuku, který sám o sobě nemá velký vliv na pochopení řeči, může však vynechání vázání způsobovat narušovat přirozený rytmus anglického mluveného projevu, problémy v pochopení, například tím, že řeč zní příliš afektovaně nebo naopak příliš váhavě (Šimáčková, Podlipský a Kolářová 2014). Přestože se výzkumy začaly více věnovat problematice vázání, stále není příliš věnována pozornost konkrétním cvičením a aktivitám, zaměřených na výuku vázání v angličtině a vyhodnocením těch nejefektivnějších metod.

Cílem této bakalářské práce bylo zkoumat efektivitu kurzu výslovnosti pro pokročilé mluvčí angličtiny se zaměřením plynulost mluveného projevu, konkrétně se tato práce zaměřuje na vázání (linking phenomena). Během tříměsíčního kurzu výslovnosti, který probíhal nejprve v prezenční formě a následně v distanční formě, byly účastníci explicitně učeni plynulost anglické řeči a odbourání cizího přízvuku. Pro zvýšení účinnosti celého kurzu byl během výuky žákům poskytován individuální korektivní feedback, později zpožděný feedback.

Přehled literatury představuje problematiku vázání a glotalizace a popisuje jednotlivé faktory, které ovlivňují jejich výskyt v mluveném projevu rodilých mluvčí. Další kapitola se věnuje výuce výslovnosti a popisuje nejznámější přístupy k výuce výslovnosti a také stručně představuje historický vývoj jednotlivých výukových metod. Dále je poskytnuta analýza vybraných učebnic angličtiny pro pokročilé a je porovnán jejich přístup k výuce vázání. Jednotlivá cvičení z učebnic poté sloužily jako inspirace pro cvičení použitá v tomto kurzu a následně byla takové vyhodnocena jejich efektivita. Poslední podkapitola se věnovala roli zpětné vazby ve výuce výslovnosti, různými technikami, které bývají používány a vyhodnocení jejich účinnosti.

Praktická část poté uvádí jednotlivé výzkumné otázky a popisuje průběh kurzu, sber dat, jednotlivá cvičení a vyhodnocuje celkovou účinnost kurzu. Mimo celkovou efektivitu kurzu se práce zabývá také vyhodnocením jednotlivých cvičení výslovnosti, které byly součástí kurzu a porovnáním jejich účinnosti. Kurz spočíval v explicitní výuce výslovnosti několika výukovými metodami: čtení, imitace nahrávky rodilých mluvčí bez poskytnutí

textu nahrávky, imitace nahrávky rodilých mluvčích s textem nahrávky a následně byla vyhodnocena efektivita jednotlivých cvičení.

Výsledky prokázaly, že se celkový počet realizace vázání zvýšil, a to jak v produkci resylabifikace, tak ve vázání hiátů. Při detailnějším pohledu na rozdíl mezi Pre-testy a Post-testy jednotlivých účastníků se však prokázalo, že jejich pokrok je velmi nekonzistentní, kdy se někteří účastníci v produkci dokonce zhoršili, většina z nich však prokázala vyšší úspěšnost než před začátkem kurzu. Přestože si v jednotlivých cvičeních během kurzu zaměřených na vázání vedli účastníci relativně dobře a jejich produkce vázání se oproti Pre-testu ve většině aktivit zvýšila, tento trend se tak dobře neodrazil ve finálním Post-testu, přestože bylo možné pozorovat jistý pokrok.

Důležitou součástí tvořilo také zapojení metalingvistického elementu, při kterém se prokázalo, že při zaměření pozornosti pouze na vázání práce s daným jevem, se produkce vázání u žáků zvyšuje. Nejefektivnějším typem cvičení se prokázala být imitace bez poskytnutí textu s přítomností metalingvistického elementu. Dále pak zapojení metalingvistického vnímání zvýšila účinnost i ostatních cvičení oproti těm, kde tento komponent chyběl, nebo byl zaměřen na více aspektů výslovnosti.

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