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Evaluating Foreign Accent in English: Czech Accent of Beginner and Expert Interpreters

(Bakalářská práce)

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V Olomouci dne 23.6.2016 Krystyna Firlová

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Annotation

The aim of this thesis is to measure the degree of foreign accent of first-year and third-year students of English for Community Interpreting and Translating program at Palacký University. The accent was measured holistically by using native speakers' judgments. On a 9-point scale the native listeners rated aurally produced sentences of 18 Czech advanced learners of English and 4 native English speakers who served as a control group. The thesis also aimed to find factors that influence the degree of perceived foreign accent when it comes to foreign language learners. Based on background language questionnaire, 6 predictor variables were chosen to be analyzed. Simple correlations between the accent rating scores and questionnaire variables were computed. None of the variables examined proved to be statistically significant. The most significant factor which affected the degree of perceived foreign accent of the 18 learners was professional motivation.

Key words

perceived foreign accent, background language questionnaire, factors, accent rating experiment, foreign language learners

Anotace

Cílem této práce je změřit míru cizího přízvuku u studentů prvního a třetího ročníku v oboru Angličtina se zaměřením na komunitní tlumočení a překlad na Univerzitě Palackého v Olomouci. Přízvuk byl měřen za pomocí posudků rodilých mluvčích. Na devíti bodové škále, rodilí mluvčí hodnotili namluvené věty od 18 pokročilých studentů angličtiny a 4 rodilých mluvčích angličtiny, kteří sloužili jako kontrolní skupina. Práce se také zabývá faktory, které ovlivňují míru cizího přízvuku u studentů. Na základě dotazníku bylo vybráno 6 nezávisle proměnných, u kterých byla provedena korelace s mírou cizího přízvuku. Žádná korelace cizího přízvuku a nezávisle proměnných se neukázala být statisticky významná. Nejzásadnějším faktorem, který měl vliv na míru přízvuku se ukázala být profesní motivace.

Klíčová slova

vnímání cizího přízvuku, dotazník, faktory ovlivňující míru cizího přízvuku, hodnocení přízvuku rodilými mluvčími

1 Introduction

A number of studies of foreign accentedness have tried to identify the factors that may affect the L2 learner's pronunciation. Piske *et al* summarized frequently discussed factors in their often cited study from 2001, including: *age of L2 learning* (AOL), *length of residence* (LOR) in the country where the target language is predominant, *gender*, *formal instruction*, *motivation*, *language learning aptitude*, and *language use*, out of which the first two proved to be the most significant. Nevertheless these factors can be taken into account only in regards to L2 learners who immigrated to the country where L2 is spoken. For those learners who remain in their native language environment the factors and their relative importance are likely to be different. One of the aims of this thesis is to search for the possible factors that may be responsible for the different degrees of foreign accent of the individuals who reside in the country where the L2 is not spoken. For this purpose, a questionnaire was designed to retrieve information about the language background of 18 advanced Czech learners of English that were examined in this study. The questions addressed the speakers' starting age, schooling, time spent in English speaking country, the desire of improving their accent and the importance of speaking without the foreign accent, self-reported time spent interacting with native speakers and their exposure to English speaking media.

In order to determine which factors contribute to the higher or lower degree of foreign accent, some kind of measurement of participants' 'accent' is needed. Munro & Derwing (1995, 289) defined foreign accent as 'non-pathological speech that differs in some noticeable respects from native speaker pronunciation norms'. Foreign accent can be either measured instrumentally –focusing on specific segmental or suprasegmental phonetic features– or is approached holistically by using native speakers' judgments. As native speakers are very sensitive to non-native speech (Flege 1984), the use of their judgments in foreign accent rating experiments is widely applied. However, the researchers who deal with the degree of perceived foreign accent are not united with respect to what types of scales to use in order to assess the foreign accent of the speakers most accurately. There are Likert scales, which are most common but vary considerably in the number of

gradients on a scale (ranging from three to ten), sliding scales and some other approaches have been also adopted e.g. direct magnitude estimation (Jesney, 2004). The purpose of this thesis is to carry out a foreign accent rating experiment in order to receive foreign accent scores of the participants and subsequently correlate them with variable measures which were obtained from the language background questionnaire.

The first chapter of this thesis reviews the factors affecting the degree of foreign accent that received an attention in the existing literature with more focus put on those that may influence the language learners in non-native environment. The second chapter is concerned with the various designs that were implemented in foreign accent rating studies and how the selection of stimuli, speakers, listeners or scale may affect the results. The practical part is devoted to the foreign accent rating experiment as well as to the language background questionnaire.

2 Literature Review

2.1 Factors

2.1.1 Age of learning

Probably the most discussed factor in L2 studies that contributes to foreign accented speech is the factor of age i.e. the time when the acquisition of second language begins. In existing literature this factor is often referred to as *age of learning* (AOL), *age of onset* (AO) or just simply a *starting age*. Since the concept of critical period hypotheses (CPH) was introduced by Penfield and Roberts in 1959, many studies were carried out in order to support or disprove it. Critical Period (CP) is a biologically determined period which is said to typically end with the onset of puberty. The hypotheses states that if a second language learner starts learning L2 during this period, learning comes implicitly and with ease and the learner can achieve nativelike competence, reversely, if the acquisition starts after this period, an L2 learner is predetermined to end up with some non-native features in her or his speaker competence (Ellis, 2015). Some researchers who deal with this concept have suggested that almost every aspect of language or linguistic ability has its own CP. The ability to pronounce as a native speaker of L2 appears to be the first to be lost. From the recent studies, Granena and Long (2012) provided evidence that the 'window of opportunity' for phonology in second language learning already closes at the age of 4 (Ellis, 27). On the other hand, for Flege, Yeni-Komshian & Liu (1999) in their study, the age of 9 was the breaking point. They found no participant who was immersed in L2 environment after the age of 9 who would pass for a native speaker in foreign accent rating test. In an early study by Tahta, Wood and Lowenthal (1981) only in participants who started the acquisition by the age of 6 no transfer of accent has been detected. Even though the opinions among the researchers when the CP exactly ends differ, they agree that earlier one starts the better chance he or she has to speak without a detectable foreign accent in the future. Having said this,

there are also some studies which prove that there are few individuals who despite of a late start (after puberty), passed for a native speakers (e.g., Bongaerts *et al.*, 1997). Conversely there are also few occurrences of early learners (less than 6 years old) with a detectable foreign accented speech (e.g., Flege *et al.*, 1997). With these rare examples it is important to bear in mind that the factor of age does not stand alone and that it coincides with other variables such as motivation, L1/L2 use etc. (described in detail below) which have also an influence on the degree of foreign accented speech.

2.1.2 Motivation

Number of studies has examined the role of motivation as one of the factors that has an effect on pronunciation. The motivation variable is mostly obtained by using different scales that are designed to measure motivational intensity. For example, Martinsen *et al*. (2014) used a survey of motivational intensity that consisted of nine statements to which participants were asked to respond by picking one of the four options on a Likert scale, ranging from 1-strongly disagree to 4-strongly agree. The survey mapped the participants' effort put into second language learning, their intentions to improve and their resoluteness to learn. In Flege *et al*. (1999) study, the background questionnaire focused on different aspects e.g. the concern of the participant's L2 pronunciation, the importance of having L2 speaking friends or better opportunity to find a job where L2 would be needed. The different motivational focus of those two studies might be due to the participants under examination. While Martinsen *et al*. recruited US students learning Spanish, Flege *et al*.'s participants were Korean learners of English residing in US. As for the results of the studies, in Flege *et al*. study the factor of motivation accounted for less than 3 % of the variance and Martinsen *et al*. reported only 1.5 % of the variance in foreign accent ratings.

In the study by Bongaerts *et al*. (1997), 11 highly motivated Dutch native speakers were assessed for the degree of foreign accent. All of them studied English language and literature at Dutch university and by the time of testing, 9 were teaching English at university level. All reported the importance of speaking

without a noticeable Dutch accent. And truly five of them scored within the native speakers range.

Across various studies it is apparent that motivation is approached very differently and that it is challenging to quantify it. Gardner (2006, 2) who deals with motivation in second language acquisition and who constructed various templates for assessing motivation says that motivation is a very complex phenomenon and cannot be simply measured by one or by 'even three or four scales'.

2.1.3 Language use

In the background questionnaires much focus is put on the self-reported amount of speakers' L1 and L2 use in their daily life. Li, Sepanski & Zhao (2006) in their paper presented the most common questions concerning the use asked in L2 research. Among the ones connected to L1 and L2 use are: % daily use of L1 and L2; frequency of speaking L1 at home, at work, with friends; language used when socializing; speaking dominance, reading dominance etc. Flege *et al*. (1997) found significant correlation between L1 use and the degree of foreign accent. The group of native Italian speakers who used their mother tongue more frequently (36%) were judged to have stronger foreign accent than the group who reported seldom use (3%) of Italian.

Guion *et al*. (2000) reports on a study in bilingual setting. Thirty native speakers of Quichua who differed only in self-reported L1 use (the starting age of Spanish acquisition was controlled for) were examined. Participants were asked to repeat aurally presented sentences in Quichua as well as in Spanish language. The results revealed that those who reported high use of L1 had also stronger Quichua accent than the group with the lowest L1 use. It is important to note that no such effect was observed for the production of L2 sentences. In the discussion Guion *et al*. comment on the findings: 'L1 and L2 systems can interact at a phonetic level… this interaction plays determining role in the acquisition of L2 pronunciation,' (39). The interaction is for example visible in the study by Sancier & Fowler (1997) where the 27-year-old Brazilian Portuguese speaker manifested

gestural drifts in pronunciation of L1 and her L2 although only detectable by the Brazilian Portuguese listeners.

2.1.4 Formal instruction

The time spent in classrooms learning a second language, does not seem to be a significant predictor in many L2 studies. For example, Purcell & Suter (1980) after the reexamination of earlier study by Suter (1976) in which 61 nonnative English speakers from different L1 backgrounds were judged for their accentedness, report that formal training does not have much influence on pronunciation accuracy. Piske *et al*. (2001) in the review of factors that affect degree of foreign accent offer an explanation. They suggest that the cause for the low significance of formal instruction might be due to the fact that teaching of pronunciation has little room in foreign language classrooms. Number of studies has indeed focused on the effect of pronunciation training on the degree of foreign accent. Elliot (1995), Thomson (2014), Derwing *et al*. (1998) all report positive effects. In Elliot's study, a group of Spanish learning students at Indiana University Bloomington during one semester received instruction in pronunciation as a part of the university course while the control group did not. The students in experimental group were being introduced to place and manner of articulation and taught phonological rules. Listening and oral exercises that focused on perception as well as production of L2 sounds were also essential part of the lessons. The comparison of pretest (taken before the Spanish course) and posttest (taken after) of both groups revealed that the group which received instruction in pronunciation significantly improved in pronunciation accuracy while the control group performed similarly in both tests.

2.1.5 Language experience

According to Trofimowich (2011, 136) language experience refers to 'all situations in which learners engage with a language in a meaningful way through input and/or output outside the classroom'. The variable of language experience

has been approached by researchers in various ways. In studies where L2 learners are immersed in L2 environment, language experience is often defined by the number of years spent in L2 country headed by 'length of residence' (LOR) (e.g., Flege & Liu, 2001). In case of foreign language learning, the amount of time spent abroad appears to be beneficial for L2 learners.

In a longitudinal cross-sectional study, Riney & Flege (1998) examined Japanese native speakers who attended University in Tokyo where English alongside with Japanese are used as languages of instruction. The experimenters compared the changes in pronunciation of freshman and senior students over time. The time span between the first recording and the second was 42 months. The speech samples were rated by the native speakers of English for global foreign accent. The results showed that out of 11 speakers, the pronunciation of 3 speakers had improved significantly, 2 speakers showed some improvement, and the performance of remaining speakers did not show any change. For the learners whose pronunciation improved the most, the amount of time spent abroad in the English-speaking country during the time between testing, proved to be most influential.

Language experience is also measured in terms of the learner's self-reported time spent on target language activities such as listening to the radio, watching TV or the amount of contact with native speakers of L2 (e.g., Derwing, Thomson & Munro 2006).

2.1.6 Others (gender, oral mimicry)

Among the factors that also received some attention in L2 foreign accent research is gender and oral mimicry. The ability to imitate sounds was identified as the second most significant predictor in Pulcer & Suter (1980).

Although most studies did not found gender to be an influencing factor of degree of L2 foreign accent (e.g. Purcell & Suter 1980, Elliot 1995, Abu-Rabia & Iliyan 2011) there are few studies that report females having received higher ratings than men (e.g.,Tahta1981).

2.2 Accent rating

2.2.1 Scaling techniques

The use of listeners' judgments is the most widely adopted method of assessing global foreign accent in L2 research. Generally native or non-native listeners are presented with a scale and are asked to rate a speech sample of an L2 speaker for the degree of perceived foreign accent. The number of points used on the scales greatly differs across the studies, ranging from 3 to 11. Regardless of number of items on a scale, most common practice is to use a Likert format scale with two poles on each side, usually one being labeled 'no foreign accent' and the other 'very strong foreign accent'. In an early study by Wood and Lowenthal (1981) only 3-point scale was used where the number 0 stood for 'no foreign accent', 2 'detectable but slight accent' and 2 for 'marked accent' (267). Since then many studies used 5-point (e.g., Thompson 1991) or 7-point scale (e.g., Magen 1998) but most frequently a 9-point scale (e.g., Flege *et al*. 1999).

Apart from Likert scales, some studies employed also continuous scales (e.g., Flege, Munro, & Mackay 1995). In a study by Major (1987) the listeners were asked to slide a lever on a continuous scale with end points: 'no foreign accent at all' and 'very heavy foreign accent' (67). After listeners made their judgments, they pressed a button to confirm the position of the lever. The values obtained ranged from 1 to 256.

Jesney (2004) comments on the two different approaches that although the use of continuous scale is more beneficial over Likert scale in the sense that the former allows for 'finer distinctions' but at the same time the raters are 'unaware of the individual gradients, raising questions about the reliability of these fine distinctions' (3).

Another approach sporadically used in accent rating studies is direct magnitude estimation (DME) in which listeners construct their own 'scale'. After hearing a first speech sample they are asked to assign any positive number to it. The first speech sample serves as a springboard. Every other sample is judged based on the first one. So for example if a listener assigned a value of 20 to the

first sample and perceives the second sample as thrice as accented, he or she assigns a value of 60 to the second sample and so on. This technique was put under examination alongside with interval scaling by Southwood & Flege (1998) to determine whether the latter is not subjected to a scaling bias, if so, only DME would be appropriate to use for assessing foreign accent. Southwood & Flege point out to the possibility that foreign accent can belong to a continuum called 'prothetic' which is not 'amenable to linear partitioning' (336). The issue lies in the fact that when 'scaling some perceptual dimensions, listeners do not perceive intervals as equal at different locations on the scale' (337). The results of an evaluation of the same samples by the use of DME method and 7-point scale showed that the two methods reflect each other thus the use of interval scales is an appropriate tool for measuring degrees of perceived foreign accent. In the discussion Southwood & Flege also lend support to using 9 or 11-point scale over 7-point scale. The post-hoc test revealed that having higher number of intervals allows listeners better discriminate differences among the speech samples that occur at the top of the scale and thus prevents from ceiling effect.

2.2.2 Stimuli

The types of the stimuli used for assessing degree of global foreign accent vary across the studies. Some of the major are: syllables, word lists, phrases, sentences and paragraphs. The use of sentences appears to be most commonly used (Jesney 2004). Not only the types of the stimuli differ but also the modes in which the stimuli are retrieved do. For example, Flege, Yeni-Komshian & Liu (1999) had their participants repeat 21 different English sentences presented to them twice in a row through a loudspeaker. To rule out the possibility of direct imitation of a native speech, a short 700 ms tone was presented after first time of presenting a sentence and 3600 after the second time; only after the tone, participants could repeat the sentence and be recorded. This practice is called a 'delayed repetition technique'. A piece of paper with all the sentences was available to participants as a written support in order to avoid miscomprehension.

Other researchers instead of repeating the stimuli, employed in their studies spontaneous (also referred to as extemporaneous) speech which involved for

example describing a picture (Derwing *et al*. 2004), summarizing a passage (Kang *et al*. 2010) or interviews (Martinsen *et al*. 2014). As repeating the stimuli may be susceptible to imitation, spoken material is prone to lexical or structural errors which successively can influence the accent rating judgments (Flege, Munro, & Mackay 1995).

Some researchers used read material over spontaneous speech, as is the case in the study by Brennan & Brennan (1981) in which the speakers were asked to read 570-word long passage. Munro & Derwing (1994) in their study examined the effects of read stimuli vs extemporaneous speech on the degree of perceived foreign accent. Ten Mandarin speakers of English as second language were asked to tell a story based on cartoons they had in front of them. Their stories were recorded and then transcribed word by word, including hesitations. After two up to seven days each speaker was given a transcription of their own story and was asked to read it aloud. Both speech samples of each speaker were given for evaluation to 44 native speakers of Canadian English. The results revealed that no difference was found between the two conditions. Based on these findings, Munro & Derwing propose that if a read material is used as a stimulus, L2 speakers should be familiar with the vocabulary and grammatical constructions in the text in order to prevent them from making errors such as ‘’reading pronunciations’, or unnatural pauses or hesitations which create an impression of disfluency’. Such errors ‘do not accurately reflect limits on their pronunciation ability, but rather… result from unfamiliarity with particular words or structures,’ (257). This was said in response to the studies that found read material to be more accented than extemporaneous speech. As was the case in Thompson’s (1991) study in which Russian immigrants were presented with an unfamiliar passage of English prose. However, as Flege, Munro, & Mackay (1995) point out that the spontaneous speech is perceived as less accented than read material might be due to the fact that L2 speakers tend to avoid the words or sounds that are difficult to pronounce for them. This could reduce the reliability of Munro & Derwing’s study (described above) because they used read material based on their subjects’ spontaneous speech. As both read and spoken materials are subjected to different kinds of errors, Flege, Munro, & Mackay (1995) suggests that the use of ‘fixed set materials’ that were elicited by repeating the given stimuli after a native speaker

with the use of ‘delayed repetition technique’ appears to be the best choice for assessing global foreign accented speech (194) .

2.2.3 Speakers

The selections of speakers recruited in foreign accent studies vary in considerable ways and are mainly dependent on the focus of a particular study. Most frequently recruited speakers are those who are learning English as a second language with different first language background at different stages of L2 acquisition. The speakers’ are often asked to fill out a background language questionnaire which is designed to show what factors may have contributed to their degree of foreign accent and at the same time allows researchers to control some variables which they do not want to interfere with the results.

Although in most cases speakers are matched for their L1, there are some studies that chose to include participants who differ with respect to their mother tongue. One such study is by Derwing & Munro (2013) in which Slavic alongside with Mandarin speakers were tested. This longitudinal study aimed to compare two groups of immigrants to Canada with different L1 backgrounds to see whether their pronunciation improves over time. Among others the results revealed that while Slavic speakers demonstrated improvement in the degree of foreign accent after 2 years of residing in L2 environment, no such change was observed among Mandarin speakers. The fact that English and Slavic languages belong to the same Indo-European group was reasoned to be of an importance when discussing the outcome. However different factors such as ‘intergroup climate, intergroup attitudes, L2 self-confidence, and social situation’ also played a role (167).

Not only that researchers include the speakers from the same or diverse L1 background in their studies, but they also often recruit some native speakers of a language under examination. Native speakers serve as a control group which is important in two respects. Firstly, researchers can determine the range within which native speakers perform when subjected to perceived foreign accent experiment and subsequently their performance can be compared to the one of

non-native speakers. Secondly, only by having native speakers' scores, the judgments of those listeners who failed to recognize native speech can be excluded (Flege, Munro, & Mackay 1995).

The proportion of native samples that should appear among non-native ones is unclear. Flege (1992) found out that the more native speakers included in an experiment the more accented the speech of non-natives was perceived. The reverse also applies. These findings suggest that the results of various studies can be affected by the number of native speakers included in those studies and thus are difficult to compare (Jesney 2004).

2.2.4 Listeners

After being retrieved from L2 speakers, the stimuli is then presented to listeners also called judgers whose task is to rate on a scale the speakers' performance. Flege (1984) has demonstrated in an experiment that listeners are very sensitive to nonnative speech - even 30 ms of speech were sufficient for some native speakers to detect foreign accent. Although most frequent choice is to rely on native intuitions, there are few studies which have employed non-native listeners for making accent judgments. Non-native listeners represent those whose L1 language is different from the language they are asked to rate. In some cases, the listeners' native language is the same as of the speakers in others listeners share neither L1 of the speakers' mother tongue nor the language of presented stimuli. In a study by Riney *et al.* (2005), 5 American speakers alongside with 10 native speakers of Japanese rated speech samples produced in English by a group of 11 Japanese speakers and a control group of 5 American speakers (for more information on the speakers and stimuli used in the study, see Factors, section 2.1.5) The results revealed that the accent assessment scores given to speakers using a 9-point scale by native as well as non-native listeners were very similar to each other. The American speakers received from American listeners an average score of 8.8 and from Japanese listeners a score of 8.3. Japanese speakers were given an average score of 3.9 by American listeners and slightly lower 3.7 by Japanese listeners. Japanese listeners were also in agreement with American listeners in regards to identifying Japanese speaker who sounded the least and the

most English-like. Even though Riney *et al*. showed that both native and non-native judgers perform comparably, further investigation indicated that the groups did not rely on the same phonological cues when assessing the degree of perceived foreign accent. While American listeners found segmental parameters ('especially /r/ and /l/') to be the deciding factor, Japanese relied more on non-segmental parameters such as 'intonation, fluency, and rate of speech,' when listening to Japanese productions of English (460). Despite the insights into non-native vs native listeners that Riney *et al.* and others (e.g. Flege 1988) provided, employing the latter for assessing foreign accented speech remains the most common practice among the researchers.

In the study described above all listeners from both native and non-native group were linguistically unexperienced that is they did not have any sort of training in phonetics before the actual experiment took place. Yet there are some researchers, who have preferred to use linguistically experienced listeners over unexperienced ones in their experiments. One of the reasons for doing so lies in the fact that linguistically trained listeners appear to be more reliable in foreign accent assessment than their unexperienced counterparts; such is the case for example in Flege *et al.* study (1984). On the other hand, having linguistically experienced listeners is often an indication that they are most likely to be familiar with the various speakers' foreign accents which might bias the ratings. Accent familiarity tends to cause the judgers to be more lenient or severe towards the productions of those speakers whose wide spectrum of accents is known to them (Huang 2013).

Not only familiarity with a particular accent may cause a bias but also the unfamiliarity. There are few studies in which native listeners failed to identify native speakers because they were unfamiliar with the type of accent some speakers had. The results of the first experiment in Bongaerts *et al*., (1997) study revealed that the speakers, who spoke with an accent which showed some regional traits, received lower ratings from the native listeners of English than some non-native speakers who spoke RP (Received Pronunciation) which is a variety commonly used by TV or radio presenters in England. After having controlled for the speakers' and listeners' origin areas in the second experiment, no such tendency was displayed.

3 Research Questions

The purpose of this thesis was to assess the degree of perceived foreign accent of 18 Czech female learners of English by conducting a foreign accent rating experiment. Aurally produced short sentences were elicited from the speakers and then rated on a 9-point scale by American listeners. For various beneficial purposes of employing a control group of native speakers in foreign accent rating studies (see Accent Rating, section Speakers), speech productions of 4 native speakers of English were also included in the experiment. The first question that was raised was: *Which foreign accent scores will the non-native speakers receive in comparison to those of the native speakers?* Moreover, since all 18 speakers are advanced foreign language learners studying interpreting and translating from Czech to English and vice versa at a university level the question was raised whether at least some of them will score within the native speakers' range as was the case in few studies which examined advanced foreign language learners before (e.g., Bongaerts *et al*., 1997)

Another comparison will be drawn between first-year vs third-year students. At the time of the data collection, 10 speakers were at the beginning of their studies and 8 speakers were third-year students. The latter during these three years at university were exposed to native speech of American university teachers (at least in some courses), took compulsory intensive language courses and were instructed in English phonetics and phonology. Taking into account the three years of intensive exposure to English language of the senior students and the phonetic instructions received, it is hypothesized that the group of third-year students will obtain higher ratings than the group of freshmen students.

The motivation of this paper was to look for the factors that may affect the degree of perceived foreign accent of foreign language learners. These are the predictor variables that were examined:

1. *Age of learning.*

   The age of first exposure proved to be a significant predictor of foreign accent in many L2 studies (sees Factors, section Age of learning). It is predicted that the age at which the learning of the 18 speakers first

occurred will be positively correlated with the degree of their foreign accent.

2. *Age at which the speaker started to feel comfortable using English.*
   Suter (1976) found a negative correlation, i.e. 'the older a speaker was when he first began to speak English, the less accurate his pronunciation tended to be,' (245). It is predicted that the same will apply.
3. *Time spent abroad in an English speaking country before 15 years of age.*
4. *Time spent abroad in an English speaking country after 15 years of age.*
   The variables no. 3 and 4 were chosen on these grounds: Firstly, many studies that focused on foreign language learners have found that a stay in L2 speaking country appears to have a positive effect on native-like pronunciation (e.g.,Riney & Flege, 1998). Secondly, the motive behind splitting the variable into two variables *before* and *after 15 years of speaker's age* was driven by Critical period hypothesis (see Factors, section Age of learning).
5. *Strength of the speaker's concern about improving their foreign accent.*
6. *The importance for an interpreter to speak without foreign accent.*
   The variables no. 6 and 7 can be headed by a factor of motivation. It is hypothesized that the more a speaker is motivated to improve their foreign accent, the higher will their scores appear on the foreign accent scale. The variable no. 7 aims at the speaker's professional motivation. As all the speakers are most likely to work as interpreters in their future jobs, it is expected that the speakers will be highly motivated and that the strength of their concern to speak without a foreign accent will be positively correlated with the criterion variable.
7. *Amount of time spent by interacting with native speaker outside classroom.*
8. *Amount of exposure to English speaking media.*
   It is hypothesized that variables no.7 and 8 will be positively correlated with the degree of foreign accent.

4 Methods

4.1.1 Speakers

Eighteen Czech speakers participated in the experiment out of which 10 were first-year students and 8 were third-year students of English for Community Interpreting and Translating program at Palacký University. In order to apply for this undergraduate program, applicants need to be advanced learners of English (at least a level B2 of Common European Framework of Reference for Languages is required from them). The participants are all native speakers of Czech language with English as their second language. Some of them in a background questionnaire reported to speak more than one foreign language fluently. The speakers' ages ranged from 19 to 27, with a mean age of 21. To control for extraneous variables, only female speakers were examined.

In addition to the 18 Czech participants, a control group of 4 native English speakers was also employed in the experiment. Of these, two were American native speakers (one female, one male) and the other two were British (one female, one male). None of them showed any traits of regional accents. Their ages ranged from 24 to 54.

4.1.2 Speech material and recording

The speech productions of the speakers were drawn from a larger set of stimuli which was primarily designed for a study by Šimáčková & Podlipský (2015). For the purpose of this experiment, six short sentences were chosen. A delayed repetition technique was used to elicit the sentences in order to prevent speakers from direct imitation. The sentences were presented to the speakers aurally via headphones and recorded under three different conditions. Since the sentences used in this experiment were drawn just from two conditions, only these are explained here. In the condition referred to as *code-switching condition*, a speaker first heard an English sentence produced by a native speaker of English followed by a prompt question in Czech language spoken by a native speaker of

Czech: *Co jsi slyšel?* (‘What did you hear?’). The speaker was instructed beforehand to answer: *Slyšela jsem* (‘I heard’) and then repeat the English sententence (see example no. 1). In the sitting in which this type of stimuli was recorded, experimenters interacted with speakers in Czech language during the whole proccess of recording.

(1) *Voice no. 1: Choose your friends well.*
Voice no. 2: Co jsi slyšel?
Speaker: Slyšela jsem: Choose your friends well.

In another sitting, the condition referred to as *English-only condition*, differed in the respect that this time, the experimenters communicated with speakers in English language only (the experimenters were either bilingual or native speakers of English). The design of stimuli was as follows: after hearing a target sentence, a prompt question in English produced by a native speaker of English: *What should you say?* was presented by a different voice. The speakers were instructed to answer: *I should say* and then repeat the target sentence (see example no.2).

(2) *Voice no. 1: Pain can be a good thing.*
Voice no. 2: What should you say?
Speaker: I should say: Pain can be a good thing.

In both sittings, speakers were able to ask for the repetition of each stimuli once if they got distracted and did not remember the target sentence. In order to minimize the speech productions of unwanted disruptions such as coughs or disfluency, the experimenters took the liberty to ask the speakers to repeat the same stimulus again after replaying it for them. Under both conditions, presented sentences were produced by British speakers as well as American speakers. All the stimuli were recorded in a sound booth at Palacký University by using Zoom Hn4 digital audio recorder.

From each condition, three sentences were elicited, see table no.1. The stimuli for foreign accent rating thus included speech productions of 6 sentences

retrieved from each speaker. The introductory sentences *Slyšela jsem* and *I should say* were cut out using Praat (Boersma and Weenink 2001) and only target sentences were used for the foreign accent assessment. All six sentences were short (containing four up to five words), meaningful and did not contain unusual words with which speakers would not be familiar with. The criteria for the selection of sentences for this experiment were the following: to employ those speech productions of sentences that were fluent and free of disruptions and lexical errors. Also for the purpose of different study, the sentences had to contain a specific target word. All sentences contained at least one word that can be tricky for Czech speakers to pronounce with respect to phonological differences between Czech and English language. Despite the efforts to have all speakers‘ speech productions as unite as possible, few lexical changes occurred across the stimuli, for example in a sentence *Pain can be a good thing*, the word *can* was replaced by some speakers with *could, is* etc. Nevertheless no grammatical error was detected.

Table no.1 – Stimuli sentences

English-only condition	code-switching condition
1. Pain can be a good thing.	4. Pass the book around.
2. We like the new pub.	5. He didn't feel any pain.
3. I made a wrong move.	6. Choose your friends well.

Apart from 6 sentences used in the experiment, twenty two speech productions (one from each speaker) were elicited in order to be used as trial sentences for listeners. The sentences covered in these speech productions differed from one another and were different from the six testing sentences.

4.1.3 Listeners

The sentences were evaluated by 12 American students at Goshen College in Northern Indiana, all reported to come from the area. Apart from their native English language, they did not speak any other language fluently and were not

exposed to people with Czech accents before the experiment took place (with the exception of their Czech fellow student who collected the data and whom the listeners knew). Six of the listeners were males and 6 were females. Their ages ranged from 19 to 32, with a mean age of 23.

4.1.4 Procedure

The speaker's speech productions were presented individually to the listeners via headphones in a quiet room at Goshen College. Firstly, the listeners were asked to read and follow the instructions which were displayed on a laptop screen (as well as the rest of the experiment). The listeners were instructed to rate on a scale how foreign-accented a sentence sounded to them. The instructions included a short explanation of what is meant by foreign-accented vs native-accented speech. After hearing a sentence, the listeners were asked to evaluate the sentences by clicking a button numbered from 1 to 9, where the number 1 was labeled 'strong foreign accent' and the number 9 'no foreign accent'. The listeners had the possibility to replay a sentence two times before rating it if they wished. Once a listener rated a sentence, a short tone accompanied the click of the button and another sentence was played to them. There were 22 trial sentences presented to the speakers before the actual test began (for more detail, see Accent Rating, section Stimuli). The trial sentences were used so that listeners could practice the rating and become familiar with all the voices and all the range of accents they were about to rate. The actual test comprised of 264 sentences (22 speakers x 6 sentences x 2 each token) in a randomized order for each listener.

4.1.5 Eliciting the mean accent ratings

A mean score for each speaker's production of each sentence was calculated, averaged over 12 listeners. For other purposes that are not part of this thesis, the sentences no.3 and 6 (see table no.1 – Stimuli sentences) were not included in the speaker's mean accent rating score therefore only 8 judgements per speaker (4 sentences x 2 each token) were considered.

To ensure the reliability of the listeners' judgments, the ratings of the same stimulus from a listener that differed by 4 points onward on a 9-point scale were discarded. In total, 67 pairs out of 1056 were excluded.

In order to see whether and to what extent the listeners agreed in their ratings given to each pair of stimuli among themselves, Pearson correlations were performed. The significant correlation showed that the listeners were most of the time consistent in their ratings.

4.1.6 Background questionnaire – eliciting the predictor variables

A Google doc. online questionnaire (see Appendix) was sent out to the 18 speakers via email after the data collection and was completed by all of them. The questionnaire was designed to retrieve information about the speakers' language background. The preparation of the questionnaire involved searching for questions that would cover various factors that were proven to have, to bigger or lesser extent, an effect on L2 pronunciation accuracy in the previous research and adjust them to our speakers. Different types of questionnaire items were employed to elicit various variables (for the list of variables, see Research Questions):

Var. no. 1 and 2

The respondents were asked to state in a closed-ended question the age at which they first started learning English and the age at which they first felt comfortable using English.

Var.no.3

This variable was discarded from analysis because only one speaker reported to had spent 6 months in an English speaker country before she reached 15. Dörnyei in the book called *Questionnaires in Second Language Research…* (2003) points out that the items that are endorsed by almost no one are 'difficult if not impossible to process statistically', therefore they should not be analyzed (56).

Var.no.4

Contrary to the variable no.3, out of 18 speakers 7 speakers responded affirmatively to the yes-no question: *Have you spent a significant amount of time in an English speaking country after the age of 15*? - Thus this variable was included and processed. The speaker, whose answered was yes, was subsequently

asked to fill in the blank space the time spent abroad in terms of *months*. As some speakers reported being more than once abroad, different numbers of months each time, the total number was considered.

Var.no.5 and 6

One question for each variable was presented to obtain the values that would elicit the speakers' motivation to speak without foreign accent. These two questions were asked: *On a scale from 1 to 9 indicate how important it is for you to improve your pronunciation during your studies? And On a scale from 1 to 9 indicate how important in your opinion it is for an interpreter to speak without a foreign accent?* The point 1 for both scales was labeled 'unimportant' whereas the point 9 'essential'.

Var.no. 6

There were 9 options to pick from in a pull-down menu for answering the following question: *How much time apart from school do you spend interacting with native English speakers?* The options ranged from 1: 'none', 2: '1-2 times a year', 3: 'several times a year' … up to 'on a daily bases'. When processing the data, each option was coded into a number that represented how many *times a month* the participants interacted with native speakers. So a speaker who reported having no interaction with native speakers outside the classroom whatsoever, was assigned a number 0, the answer 'on a daily bases' was represented by a number 30 which was intended to correspond to days in a month.

Var.no. 7

This variable was elicited by asking the speakers: *How often are you currently exposed to the English speaking media? (films/ music/ news/ radio/ others).* The first option was labeled 'hardly ever', the last 'more than 2 hours a day'. The amount of exposure to English speaking media was coded into the number of *hours per week.* The smallest value was 2 hours a week, and the highest was 21 hours a week.

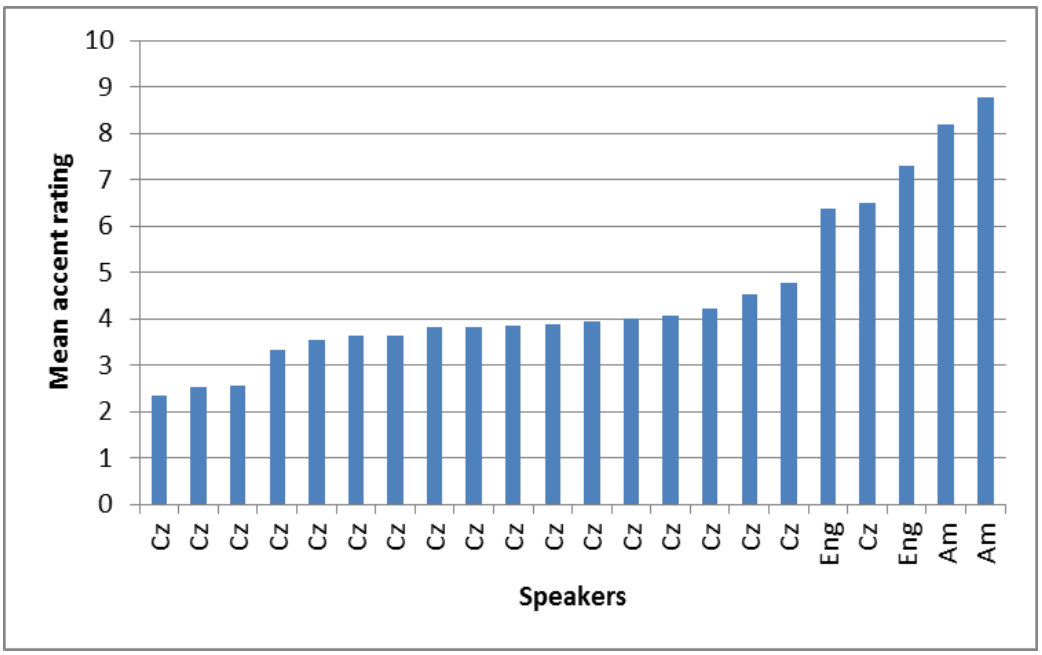
5 Results

5.1.1 Mean accent rating scores of native vs non-native speakers

The table 1 shows how well the Czech speakers performed in comparison to the control group of English speakers. The mean accent rating scores given to the Czech speakers by American listeners on a 9-point scale, ranged from 2.35 to 6.49. A mean score for all Czech speakers was 3.83. The control group of 4 native speakers of English received scores that ranged from 6.36 to 8.76, with a mean of 7.66.

To answer the question whether some speakers would score within the native speakers range, the t-tests were computed comparing each non-native speaker with each native speaker. Only one Czech speaker did not differ significantly from either of the British speakers (labeled 'Eng.' in the chart).

Table no.2 – Mean accent ratings of Czech and native speakers of English



5.1.2 First-year students vs third-year students

The assumption that the third-year students would perform better than first-year students was not proven. T-test showed that the mean ratings of 10 first-year students were almost identical to the 8 third-year students, t (16) = 0.947, p=0.046.

5.1.3 Correlating degree of perceived foreign accent and questionnaire variables

In order to find out which variables (see Research Questions) have an effect on the degree of perceived foreign accent, simple correlations were computed. The table no.3, on a following page, shows how well degree of accent was correlated with each of the variable obtained from the background questionnaire. The first column represents the examined variable, the second the correlation coefficient. In the third column, an interpretation of the yielded result is given (please read the interpretation only as a tendency). The fourth column shows whether the predictions made were confirmed or not. The variables are arranged from the most significant to the lowest. None of the variables were statistically significant.

Table no.3 – Correlations between the degree of perceived foreign accent and predictor variables

Predictor variable	r	INTERPRATATION	H
Strength of the speaker's concern about improving their foreign accent.	-0.3995	The less a speaker was concerned about improving her accent the more native-like she sounded.	✘
Amount of time spent by interacting with native speaker outside classroom.	-0.3264	The oftener a speaker interacted with native speakers of English, the stronger accented she was perceived.	✘
The importance for an interpreter to speak without foreign accent.	0.2926	The more a speaker perceived the importance to speak without foreign accent in her profession, the lower the degree of accent.	✔
Age at which the speaker started to feel comfortable using English.	0.2176	The higher the age at which a speaker first felt comfortable using English, the less accented speech.	✘
Amount of exposure to English speaking media.	0.2052	The more exposed a speaker was to English speaking media, the more native-like she sounded.	✔
Time spent abroad in an English speaking country after 15 years of age.	0.1914	The more time a speaker spent in an English speaking country, the lower the degree of foreign accent.	✔
Age of learning.	0.091	The younger a speaker was when she first started learning English, the more native-like she sounded.	✔

6 General discussion

The results showed that even though the Czech speakers examined in this thesis were advanced foreign language learners, they were given quite low accent rating scores. The fact that the speakers were perceived by American listeners so foreign accented might be due the small spectrum of different 'accents' represented in the samples. The American listeners were also linguistically inexperienced and not familiar with the Czech foreign accented speech. The inexperience of the listeners with various accents is often found to results in harsher rating (e.g., Thompson 1991).

The three years spent at the university at an interpreting program in which a considerable focus is put on English language and pronunciation did not prove to be beneficial when it comes to the degree of foreign accent. The prediction that third-year students would be perceived lower accented in comparison to the first-year students was not confirmed. For the future research, it would be interesting to assess the foreign accent of the same learners who were at the beginning of their studies at the time of testing once more in their third year of studies to see whether some improvement on their pronunciation takes place or not.

As for the variables elicited from the questionnaire, few surprising results were yielded. Even though the speakers' motivation to improve their pronunciation was predicted to be positively correlated with the degree of accent, the result gave the opposite effect. One possible explanation might be that the speakers who are already good are not that much interested in improving their foreign accent and reversely the speakers who perceive themselves as strongly accented, aim to get better.

The second variable in the row as to the statistical significance was very surprisingly negatively correlated. Although there is evidence that the amount of L1 use affects the production of L2 and also the amount of L2 use might affect to some extent pronunciation of L1 (see Factors, Language use) but there is no evidence in L2 literature (to my knowledge) that would report negative effect of the amount of L2 use on L2 production. When looked back at the method used to retrieve the information about the amount of time spent by interacting with native speakers, few methodological errors were made. Firstly, the options that the

respondents could choose from when asked the question were constructed in the way that was later difficult to code into values. For example, the answer *several times a year* is hard to define accurately. Secondly, even if the number of times a month was accurate, more questions would have to follow in order to have an idea about the actual time spent conversing with a native speaker.

The variable that proved to be the least significant of all the variables was the one which ranks usually among the most significant in L2 research. Even though age of onset is a strong predictor of the degree of foreign accent in the countries where L2 is spoken (often confounded with the age of arrival), it does not have to necessarily hold true for foreign language learners. In the case of the students examined here, some of them reported having started learning English already at the age of 5. Nevertheless the amount of input that those speakers received in the early age of their lives is unknown. The usual practice in Czech families is to send a child to English lessons which are held in the kindergarten most often 2 times a week where the children would learn some basic vocabulary such as names of colors, animals and learn a few English nursery rhymes from a non-native teacher. This input is incomparable to the one when one is immersed in L2 environment.

It is challenging to uncover the reasons that might be behind the fact that none of the variables proved to be significantly correlated with the degree of perceived foreign accent. It might be due to the inaccurate measures of the variables or simply because some other variables played a crucial role in shaping the ‘accents’ of the 18 speakers that were not addressed here.

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8 Appendix

8.1.1 Questionnaire

Name:

Age:

I am

- ☐ a first-year student
- ☐ a third-year student

What languages, apart from English and Czech, do you speak fluently?

At which grade did you start learning English at school? How old were you?

Did you learn any English before that?

- ☐ Yes
- ☐ No

If yes, how old were you when you started?

Did you attend an elementary school with extended language instruction?(škola s rozšířenou jazykovou výukou)

- ○ Yes
- ○ No

Did you attend a grammar school with extended language instruction?(škola s rozšířenou jazykovou výukou)

- ○ Yes
- ○ No

Did you attend a bilingual grammar school?

- ○ Yes
- ○ No

Have you received any additional instruction in English language?

Yes

No

If yes, state what kind (language school, summer language school, etc.)

Apart from your university studies, have you been taught English by a native speaker?

Yes

No

If yes, for how many years?

Have you spent a significant amount of time in an English speaking country before the age of 15?

Yes

No

If yes, how many months?

Have you spent a significant amount of time in an English speaking country after the age of 15?

Yes

No

If yes, how many months?

At what age did you start to feel comfortable using English?

On a scale from 1 to 9 indicate how important in your opinion it is for an interpreter to speak without a foreign accent?

	1	2	3	4	5	6	7	8	9	
unimportant										essential

On a scale from 1 to 9 indicate how important it is for you to improve your pronunciation during your studies?

	1	2	3	4	5	6	7	8	9	
unimportant										essential

In your perception, how much of a foreign accent do you have in English?

- 1. none
- 2. almost none
- 3. light
- 4. some
- 5. moderate
- 6. considerable
- 7. heavy
- 8. very heavy
- 9. extremely heavy

How much time apart from school do you spend interacting with native English speakers?

- none
- 1-2 times a year
- several times a year
- 1-2 times a month
- several times a month
- 1-2 times a week
- several times a week
- almost every day
- on a daily basis

How often are you currently exposed to the English speaking media? (films/music/news/radio/others)

- hardly ever
- 1-2 hours per month
- several hours per month
- 1-2 hours per week
- several hours per week
- 1-2 hours nearly every day
- daily – up to 1 hour
- daily – 1 to 2 hours
- more than 2 hours per day