

A large, ornate decorative frame in shades of brown and gold, surrounding the central text. It features intricate scrollwork and floral motifs.

**Phonemic Contrastive Analysis
and the Prediction of Pronunciation
Difficulties for EFL Saudi Learners**

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Abstract

Relative to research on learning and teaching second language grammar (morphosyntax) and vocabulary, pronunciation has received little attention in previous applied linguistic research (Foote, Trofimovich, Collins, & Urzúa, 2016). This is one of the main reasons why teachers and learners usually depend mainly on their intuitions when it comes to teaching and learning pronunciation (Thomson & Derwing, 2015). One of the methods used among researchers and teachers to identify the pronunciation difficulties learners may face is the use of cross-linguistic contrastive analysis, where the phonological systems of learners' first and second/foreign languages are compared, and then areas of differences would constitute the bulk of teaching materials in language classrooms (Jenkins, 2004). The current study attempts to examine whether this method is capable of predicting the difficulties Saudi learners of English as a foreign language (EFL) would face in producing English consonants. First, a basic phonemic contrastive analysis between English and Saudi Arabic consonantal systems was conducted, and based on this analysis; predictions about consonantal pronunciation difficulties or problems were made. Then, a number of Saudi EFL learners were asked to produce a number of utterances which included the predicted problematic consonantal sounds. The produced consonantal sounds were then analyzed to find out to what extent the cross-linguistic contrastive analysis was successful in predicting the learners' difficulties. The results were mixed; not all the predictions made by the phonemic contrastive analysis were correct. Although it would be difficult to draw a strong conclusion with regard to the efficiency of the contrastive analysis method in predicting learners' pronunciation errors, the method can be beneficial for English teachers, but it should be used with caution.

Key words: English, Saudi, Consonants, Pronunciation, Difficulties.

المستخلص:

يسعى البحث الى تعلم وتعليم قواعد اللغة الثانية (المورفوسينتكس) والمفردات ، اذ يحظى النطق بالقليل من الاهتمام في الأبحاث اللغوية التطبيقية السابقة (فوت ، تروفيموفيتش ، كولنز ، أورزوا ، ٢٠١٦). هذا هو أحد الأسباب الرئيسية التي تجعل المعلمين والمتعلمين يعتمدون بشكل أساسي على الحدس عندما يتعلق الأمر بالتعليم والتعلم (Derwing & Thomson, 2015). تتمثل إحدى الطرق المستخدمة بين الباحثين والمدرسين في تحديد صعوبات النطق التي قد يواجهها المتعلمون في استخدام التحليل التبايني اللغوي ، حيث تتم مقارنة الأنظمة الصوتية للغات الأولى والثانية / الأجنبية للمتعلمين ، ومن ثم تشكل مجالات الاختلافات الجزء الأكبر من المواد التعليمية في فصول اللغة (جنكينز ، ٢٠٠٤). تحاول الدراسة الحالية دراسة ما إذا كانت هذه الطريقة قادرة على التنبؤ بالصعوبات التي يواجهها المتعلمون السعوديون في اللغة الإنجليزية كلغة أجنبية (EFL) في إنتاج حروف العلة الإنجليزية. أولاً ، تم إجراء تحليل تباين أساسي لوني بين الأنظمة العربية والإنجليزية العربية ، وبناءً على هذا التحليل ؛ تم إجراء تنبؤات حول صعوبات النطق الصوتية أو المشكلات. بعد ذلك ، طُلب من عدد من المتعلمين السعوديين في اللغة الإنجليزية كلغة أجنبية إنتاج عدد من الكلمات التي تضمنت الأصوات المتسقة الإشكالية المتوقعة. الأصوات المتناسقة المنتجة والتي تم تحليلها بعد ذلك لمعرفة مدى نجاح تحليل التباين اللغوي في التنبؤ بصعوبات المتعلمين. كانت النتائج مختلطة. لم تكن كل التوقعات التي أدلى بها تحليل التباين الصوتي صحيحة. على الرغم من أنه سيكون من الصعب التوصل إلى استنتاج قوي فيما يتعلق بكفاءة طريقة التحليل التبايني في التنبؤ بأخطاء نطق المتعلمين ، إلا أن هذه الطريقة يمكن أن تكون مفيدة لمعلمي اللغة الإنجليزية ، ولكن يجب استخدامها بحذر.

الكلمات المفتاحية: الإنجليزية، السعودية، الحروف الساكنة، النطق، الصعوبات.



1. Introduction

One of the main consequences of learning a language during or after adulthood is the development of foreign accent in the speech of learners (Flege, Yeni-Komshian, & Liu, 1999; Piske, MacKay, & Flege, 2001). This is probably due mainly to the interference from learners' first language (L1) (Flege & MacKay, 2011). A number of prominent models that have attempted to predict learners' pronunciation difficulties relied heavily on the interference from learners' L1, such as the Contrastive Analysis Hypothesis (CAH) (Lado, 1957) and the Speech Learning Model (Flege, 1995). Because the CAH is based mainly on a comparison between L1 and L2 phonological systems to predict learners' pronunciation errors, it seems more readily accessible to language teachers than other models proposed in the literature of second language phonology.

The CAH is one of the earliest models proposed to explain second/foreign language learners' errors (Lado, 1957). The main claim of the CAH is that all language learners' pronunciation errors can be explained by a comparison between learners' L1 and L2 phonological systems, and that areas of differences constitute the major pronunciation problems for L2 learners. The CAH has long been criticized for not being always capable of explaining and predicting learners' pronunciation errors (Major, 2008; M. Munro, Derwing, & Thomson, 2015)). However, research using contrastive analysis methods still exists (Jenkins, 2004). This is mainly because L1 interference, which is a main feature in the CAH, still plays a significant role in explaining learners' pronunciation errors (Major, 2008; Setter & Jenkins, 2005). In addition, language teachers still use contrastive analysis methods in designing their classroom materials (Setter & Jenkins, 2005)

Teachers often use their intuitions to teach pronunciation, which is probably due to the dearth of research on pronunciation within applied linguistics research (Derwing & Munro, 2005). A number of recent research publications have used the contrastive



analysis method to provide insights for language teachers on how to teach pronunciation (Jenkins, 2004). Further, language teachers have always used L1-L2 comparison for teaching pronunciation regardless of the criticism directed towards the CAH within the field applied linguistics (Jenkins, 2004). The current exploratory study attempts to find out to what extent a phonemic contrastive analysis between Arabic and English would be successful in predicting Saudi EFL learners' pronunciation errors. The results provide insights into the usefulness of using contrastive analysis, a readily accessible method for language teachers, for teaching English pronunciation to Saudi EFL learners. The focus of the study is limited to consonants, as a full comparison between the phonological systems of English and Saudi Arabic would be beyond the scope of the current study.

Literature Review

Problematic English consonants for Saudi learners of English

Relative to the study of morphosyntactic features in second and foreign language research, studies on pronunciation or speech are still small in number, which contributes to the difficulty of reaching any strong conclusions about learning and teaching second or foreign language speech (T Derwing & Munro, 2005; Foote, et al., 2016; Thomson & Derwing, 2015). However, research on L2 speech learning and teaching has been gaining momentum over the last 15 years, evidenced in new research platforms (e.g., Journal of Second Language Pronunciation) and conferences (e.g., Pronunciation in Second Language Learning and Teaching Conference).

One of the earliest experimental phonetic studies on L2 speech was conducted on Saudi learners of English by Flege and Port (1982). One of the major findings in their study was that the Saudi L2 speakers substituted /b/ for /p/ in their production, and

their inability to accurately produce /p/ negatively affected their speech intelligibility.

Other studies depended solely on perceptual and observational analyses. Altaha (1995) examined the pronunciation errors among Saudi learners of English. He mentioned that his students replaced /p/ and /v/ with /b/ and /f/, respectively. Ahmad (2011) examined the pronunciation problems among Saudi learners, and identified the following consonants: /p/, /d/, /v/, /tʃ/, /ʒ/, and /ŋ/ as problematic for Saudi learners of English. Apart from /d/, none of these sounds exist in Saudi Arabic (Ingham, 1994). However, /d/ is dental in Arabic and alveolar in English, and the Saudi participants in Ahmad (2011) substituted the English /d/ in medial and final position with the Arabic dental /d/. Binturki (2008) found that Saudi learners of English had difficulty in producing the following English sounds: /p/, /v/ and /ɹ/. Based on their classrooms observations, Hameed and Aslam (2015) mentioned the English sounds: /p/, /d/, /v/, /tʃ/, /ʒ/ as problematic for Saudi learners of English.

Except for Flege and Port (1981), all previous studies focused mainly on the phonemic level. For example, Flege and Port (1982) showed that their Saudi participants produced longer closure durations for /t/ and /d/ sounds than did their native English participants. In addition, except for Flege and Port (1982), it is not known whether they meant problematic for accent or intelligibility, as these are two different, though related, dimensions of L2 speech (Munro & Derwing, 1995). For example, Saudi L2 learners may not be able to accurately produce the English sound /ɹ/, but this may only affect the degree of their foreign accent, not the intelligibility of their speech.

Despite the limitations in previous studies, one may conclude from the above reviewed studies that the following consonant are considered problematic and difficult for Saudi learners of English: /p/, /d/, /v/, /tʃ/, /ʒ/, /ɹ/, and /ŋ/. The question that arises at this point is whether the CAH is capable of explaining the



pronunciation difficulties Saudi EFL learners face when they produce English consonants. For this, a basic contrastive analysis between the consonantal phonemic inventories of Saudi Arabic and English is presented below to find out the differences between the two languages, which are assumed to be the major difficulties for Saudi EFL learners according to the CAH.

Saudi Arabic and English consonantal phonemic inventories:

Although carrying out a comprehensive contrastive analysis, which also includes allophonic variation, between the English and Saudi Arabic consonantal systems is ideal, it is beyond the scope of the current study. In addition, many English language teachers only have the knowledge to carry out a basic phonemic contrastive analysis between learners' L1 and L2, and the aims of the current study is to find out whether teachers can predict their learners' pronunciation difficulties based on conducting a phonemic contrastive analysis. For the purpose of the current study, a basic consonantal-phonemic contrastive analysis between Saudi Arabic and English is presented below. Table 1 below shows the phonemic inventories of Saudi Arabic and English. The English inventory is adopted from (Roach, 2004) and the Saudi Arabic inventory is adopted from (Prochazka, 1988).

Table 1: Arabic and English consonantal phonemic inventories

Saudi Arabic	English Consonantal Phonemes
b	P
t	B
t ^ʃ	T
d	D
d ^ʃ	K
k	G

g	M
ʔ	N
m	ŋ
n	F
r (also realized	V
f	θ
θ	ð
ð	s
ð ^ʕ	z
s	ʃ
ʕ ^ʕ	z
z	h
ʃ	tʃ
x	dʒ
ʁ	w
h	ɹ
ħ	j
ʕ	l
dʒ	
w	
i	
l	
ʔ	

Contrastive Analysis Hypothesis:

The CAH is one the earliest frameworks that have attempted to explain and predict pronunciation errors and difficulties among language learners (Lado, 1957). It has been widely criticized for not being capable of predicting and explaining all learners'



pronunciation errors (Munro, Derwing, & Thomson, 2015). However, it can still provide some explanation for some of the errors made by L2 learners (Major, 2008). Furthermore, it is still used by language teachers and researchers to predict pronunciation difficulties among language learners (Jenkins, 2004; Setter & Jenkins, 2005). The aim of the current paper is to find out to what extent the CAH is successful in predicting the consonantal pronunciation errors found in the speech of Saudi EFL learners.

One may expect from the table of phonemic inventories above that the following non-existent consonants in Arabic (i.e., areas of differences) would be difficult for Saudi EFL learners to produce: /p/, /ŋ/, /v/, /ʒ/, /tʃ/ and /ɹ/.

The English sounds /p/, /v/ and /tʃ/ are similar to the Saudi Arabic sounds /b/, /f/ and /dʒ/, respectively. Voicing is the main phonological feature that differentiates between Saudi Arabic and English with regard to these sounds. While the English /p/ and /tʃ/ sounds are voiceless, their most similar Saudi Arabic sounds /b/ and /dʒ/ are voiced. The English sound /v/ is voiced, while its most similar Saudi Arabic sound /f/ is voiceless. If the Saudi learners substitute the English sounds with the Saudi Arabic ones, the intelligibility of their production may be adversely affected. The most similar Saudi Arabic sound to the English sound /ŋ/ is /n/. The difference between these two sounds is in the place of articulation. While /ŋ/ is velar, /n/ is alveolar.

It should be noted here that unlike the other consonants identified, /ɹ/ is slightly different. The English /ɹ/ is a voiced alveolar or post-alveolar approximant which exhibits large cross-dialectal variation in English (Roach, 2000). This means its pronunciation varies across English dialects. The Arabic /r/ is a trill or a tap. Interference from Arabic in the English speech of Arab learners would result in the production of a trill or a tap, instead of the English alveolar approximant. This may not likely

to affect the comprehension or intelligibility of the produced sound, but may lead to the perception of foreign accent. In contrast, producing /b/ for /p/ or /f/ for /v/ may likely affect the intelligibility of the produced sound (Dauer, 2005), as these sounds carry more functional load in English.

Table 2 below lists all the phonological features of the English sounds /p/, /ŋ/, /v/, /tʃ/ and /ɪ/ and their most similar Saudi Arabic sounds.

Sound	Manner of Articulation	Place of Articulation	Voicing
English /p/ Arabic /b/	Stop Stop	Bilabial Bilabial	Voiceless Voiced
English /v/ Arabic /f/	Fricative Fricative	Labiodental Labiodental	Voiceless Voiced
English /tʃ/ Arabic /dʒ/	Affricate Affricate	Post-alveolar Post-alveolar	Voiceless Voiced
English /ŋ/ Arabic /n/	Nasal Nasal	Velar Alveolar	Voiced Voiced



Sound	Manner of Articulation	Place of Articulation	Voicing
English /ɹ/	Alveolar or Post-alveolar ¹	Approximant Trill or Tap ²	Voiced Voiced
Arabic /r/ or /r̥/	Alveolar		

The Current Study

Based on the above consonantal-phonemic contrastive analysis between Saudi Arabic and English, five consonants, which do not exist in Saudi Arabic, have been selected. Following the CAH, the consonants: /p/, /ŋ/, /v/, /tʃ/ and /ɹ/ are predicted to be difficult for Saudi learners of English to produce. The consonant /ʒ/ was not included because it is limited in its distribution in English (Roach, 2000), and has a weak functional load in English (Cruttenden, 2014). A number of Saudi EFL learners were recruited to produce these consonants, and their productions were analyzed to examine the predictability of the phonemic contrastive analysis. The current study attempts to answer the following question:

Q: To what extent is the phonemic contrastive analysis successful in predicting the areas of difficulty among Saudi EFL learners in producing English consonants?

Speakers:

¹ The place of articulation can be alveolar or post-alveolar depending on the English dialect spoken (Wells, 1982).

² It can be trill /r/ or /r̥/ depending on the distribution or allophonic variation of the sound. For example, in intervocalic position; it becomes trill if it is geminate, and tap if it is single

Fifteen Saudi EFL learners were recruited from the English Language Centre at Taif University. They were studying an English course as part of their degree at the University. They were all males, aged from 19 to 20 years. They all had the same public primary education in Saudi schools, where English is taught from year 4 as part of the curriculum. They have never lived in a native English language community.

Stimuli:

The learners were asked to read into a microphone a number of sentences which were collected mainly as corpus of Saudi learners' speech by the researcher. Two sentences which included the five consonants under investigation (/p/, /ŋ/, /v/, /tʃ/ and /ɹ/) were selected for the corpus (see Appendix A). The learners were not asked to produce the consonants in isolation or in a carrier word, but rather embedded in carrier sentences which would help to deflect the learners' attention from monitoring their pronunciation, as this may underestimate the amount of transfer from their L1 (Arabic). The recording took place in a

language lab at the English Language Centre at Taif University.

Procedure:

The recorded utterances were then uploaded into Praat for analysis (Boersma & Weenink, 2017). The researcher, who is specialized in second language speech, auditorily analyzed the production of the consonants under investigation. In cases where it was difficult to decide on the production of a consonant, on-screen spectrograms generated by Praat were consulted. For example, if the researcher was not sure whether a learner produced /v/ or /f/, the spectrogram would be checked to find vocalic striations or its absence, which is a cue for voicing, during the production of the consonant. The production of each consonant by each learner was judged as correct or incorrect if it is omitted or substituted with another phone, or deviated from the



native phonetic norms in ways which adversely affected its intelligibility.

Results

Each consonant produced by each learner was coded either as 1 (for correct) and 0 (for incorrect). Then, an average percentage of correct pronunciation from all learners was calculated for each consonant to reflect the difficulty of the sound for the learners. Due to the nature of the results, only descriptive statistics is used. Table 3 below presents the standard deviation (SD) and the average percentage (Mean) of correct pronunciation for each consonant.

Table 3. The average percentages and standard deviations of correct pronunciation by the Saudi learners

Sound	/p/	/ŋ/	/tʃ/	/v/	/ɪ/
Mean	13%	13%	73%	60%	13%
SD	0.35	0.35	0.45	0.50	0.35

The results show that most of the participants had difficulty with producing the sounds /p/, /ŋ/ and /ɪ/. On the other hand, they were relatively more successful in producing /tʃ/ and /v/. The results seem to show some success for using the phonemic contrastive analysis to predict pronunciation difficulties for the

Saudi EFL learners. However, the cases of /v/ and /tʃ/ seem to challenge the postulate of the CAH.

Discussion

The main objective of this study is to find out to what degree a phonemic contrastive analysis, a readily accessible and widely used method by language teachers, is successful in predicting Saudi learners' difficulties in producing English consonants. After conducting a phonemic contrastive analysis between Saudi Arabic and English consonantal sounds, the sounds (/p/, /ŋ/, /v/, /tʃ/ and /ɪ/) were predicted to be difficult for Saudi EFL learners based on the main claim of the CAH. A number of Saudi EFL learners were then asked to produce these predicted consonants in an attempt to examine the robustness of the phonemic contrastive analysis in predicting the Saudi EFL learners' difficulty in producing English consonants. The results are mixed, but seem to lean in favour of the phonemic contrastive analysis, as the participants found three out of the five consonants (/p/, /ŋ/ and /ɪ/) difficult to produce. In addition, the sound /v/ posed difficulty to 40% of the participants. The sound /tʃ/ was found relatively easy to produce by the participants, in contradiction of the prediction made by the phonemic contrastive analysis. It is not clear why the participants found it relatively easier to produce /tʃ/, and, to a lesser degree, /v/. This may have something to do with the inherent phonetic characteristics of /tʃ/ and /v/ (e.g., ease of phonetic articulation).

The results are in line with previous research in other L2 contexts where the CAH was found not predict all pronunciation errors among language learners (Munro et al., 2015). Before one can draw a strong conclusion about the strength of the CAH, two issues need to be considered; the focus of pronunciation teaching and analysis and notion of L1-L2 similarity and difference.

It should be clear from the start whether the focus of pronunciation teaching or analysis is on foreign accent or intelligibility. These are two different dimensions of second



language speech, though interrelated (Munro & Derwing, 1999). A speaker with a heavy foreign accent can sometimes be fully intelligible to listeners (Derwing & Munro, 1997). To give an example from the data used in the current study, the production of the English /ɹ/ by the Saudi EFL learners as a trill or tap is not likely to render the word *reading* unintelligible to the listeners, while the production of the English /p/ as /b/ may change the meaning, for example, from the word *page* to *beige*. Thus, while the mispronunciation of the sound /p/ may adversely affect its indelibility, the mispronunciation of the sound /ɹ/ may only affect the degree of perceived foreign accent. This, unfortunately, has received little attention in previous research on second language speech. When addressing pronunciation difficulties among non-native speakers, we need to set in advance whether the difficulty is for sounding native-like or for being intelligible.

The notion of similarity or difference between L1-L2 sounds is a complex one. To examine the similarity between two sounds properly, one needs to examine the sub-phonemic level as well (Flege, 1987). For example, the sound /p/ exists in both Spanish and English, but its voice onset time is shorter in Spanish than in English. This does not make the Spanish and English /p/sounds equivalent, but certainly similar. The production of the word *page*, for example, with a Spanish /p/, may not likely affect the intelligibility of the sound, but would affect its accentedness.

Most language teachers may not be able to measure VOT or any other sub-phonemic level, and, to a lesser degree, decide on which pronunciation features can be detrimental to intelligibility. This is why the phonemic analysis was deemed suitable for the current study, as it is still employed by many language teachers, as well as researchers (e.g., Altaha, 1995; Ahmad, 2011; Hameed & Aslam, 2015). The current study aimed to find out whether it could be of use to language teachers to predict their students' pronunciation difficulties.

Conclusion

The phonemic contrastive analysis used in the current study to predict the difficulties the Saudi learners face in producing English consonants showed some success. However, teachers utilizing this method need to be careful in taking the predictions generated by the phonemic contrastive analysis method as absolute, but rather as guidance. Although it is not capable of predicting or explaining all learners' pronunciation errors, the phonemic contrastive method can provide teachers with many insights into their students' pronunciation patterns. Teachers also need to shift their focus from accentedness to intelligibility, and to emphasize on those sounds or features that impede learners' speech intelligibility. In addition, similarity between L1-L2 sounds should not be always seen as advantageous to the learners, because sometimes similarities can also cause difficulty to language learners. This is because learners may not be able to perceive the difference between similar sounds, and, consequently, not able to produce them correctly (Flege, 1995).

References:

- Ahmad, J. (2011). Pronunciation Problems among Saudi Learners: A Case Study at the Preparatory Year Program, Najran University Saudi Arabia. *Language in India*, 11(7), 22-36.
- Altaha, F. (1995). Pronunciation errors made by Saudi university students learning English: analysis and remedy. *ITL International Journal of Applied Linguistics*(109), 110-123.
- Binturki, T. A. (2008). *Analysis of pronunciation errors of Saudi ESL learners*. Unpublished MA thesis, Southern Illinois University at Carbondale.
- Boersma, P., & Weenink, D. (Writers). (2017). Praat: doing phonetics by computer [Computer program]: Version



6.0.35, retrieved December 2016 from
<http://www.praat.org/>.

- Cruttenden, A. (2014). *Gimson's pronunciation of English*. New York: Routledge.
- Dauer, R. (2005). The lingua franca core: A new model for pronunciation instruction? *Tesol Quarterly*, 39(3), 543-550.
- Derwing, T., & Munro, M. (1997). Accent, intelligibility, and comprehensibility. *Studies in second language acquisition*, 19(1), 1-16.
- Derwing, T., & Munro, M. (2005). Second language accent and pronunciation teaching: A research-based approach. *Tesol Quarterly*, 39(3), 379-397.
- Flege, J. (1987). The instrumental study of L2 speech production: Some methodological considerations. *Language Learning*, 37(2), 285-296.
- Flege, J. (1995). Second language speech learning: Theory, findings, and problems. In W. Strange (Ed.), *Speech perception and linguistic experience: Issues in cross-language research* (Vol. 233-277 pp. 233-277). Timonium, MD: York Press.
- Flege, J., & MacKay, I. (2011). What accounts for “age” effects on overall degree of foreign accent? In M. Wrembel, M. Kul & K. Dziubalska-Kolaczyk (Eds.), *Achievements and perspectives in the acquisition of second language speech: New Sounds 2010* (Vol. 2, pp. 65-82). Bern, Switzerland: Peter Lang.

- Flege, J., & Port, R. (1981). Cross-language phonetic interference: Arabic to English. *Language and speech*, 24(2), 125-146.
- Flege, J., Yeni-Komshian, G., & Liu, S. (1999). Age constraints on second-language acquisition. *Journal of memory and language*, 41(1), 78-104.
- Foote, J., Trofimovich, P., Collins, L., & Urzúa, F. (2016). Pronunciation teaching practices in communicative second language classes. *Language Learning Journal*, 44(2), 181-196.
- Hameed, P., & Aslam, M. (2015). Pronunciation as a stumbling block for the Saudi English learners: an analysis of the problems and some remedies. *Theory and Practice in Language Studies*, 5(8), 1578-1585.
- Ingham, B. (1994). *Najdi Arabic: Central Arabian*. Amsterdam: John Benjamins Publishing.
- Jenkins, J. (2004). Research in teaching pronunciation and intonation. *Annual review of applied linguistics*, 24, 109-125.
- Lado, R. (1957). *Linguistics across cultures: Applied linguistics for language teacher*. Ann Arbor, MI: The University of Michigan Press.
- Major, R. (2008). Transfer in second language phonology: A review. In J. H. Edwards & M. L. Zampini (Eds.), *Phonology and second language acquisition* (pp. 63-94). Philadelphia: John Benjamins.
- Munro, M., Derwing, T., & Thomson, R. (2015). Setting segmental priorities for English learners: Evidence from a longitudinal study. *International Review of Applied Linguistics in Language Teaching*, 53(1), 39-60.



- Munro, M. J., & Derwing, T. M. (1995). Foreign accent, comprehensibility, and intelligibility in the speech of second language learners. *Language Learning*, 45(1), 73-97.
- Piske, T., MacKay, I., & Flege, J. (2001). Factors affecting degree of foreign accent in an L2: A review. *Journal of phonetics*, 29(2), 191-215.
- Prochazka, T. (1988). *Saudi Arabian Dialects*. New York: Routledge.
- Roach, P. (2000). *English Phonetics and Phonology-Practice course*. Cambridge: Cambridge University press.
- Roach, P. (2004). British English: Received Pronunciation. *Journal of the International Phonetic Association*, 34(02), 239-245.
- Setter, J., & Jenkins, J. (2005). State-of-the-art review article: Pronunciation. *Language teaching*, 38(01), 1-17.
- Thomson, R., & Derwing, T. (2015). The effectiveness of L2 pronunciation instruction: A narrative review. *Applied Linguistics*, 36(3), 326-344.
- Wells, J. (1982). *Accents of English*. London: Cambridge University Press.

Appendix

Recorded Sentences (bold and underlined letters correspond to the sounds examined):

1. The cat left the bed and sat on the **ch**air.
3. He is **r**ead**ing** the **p**age about the story of the **y**an.

