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Bad or Bet?

**The Effect of Pronunciation Teaching on Dutch Secondary School Pupils' Production
and Perception of English phonemes**

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Abstract

Even though English has become a ‘core-subject’ in Dutch secondary school education and has therefore received more attention over the last few years, there is still little attention for pronunciation education. This study aims to demonstrate the value of pronunciation teaching for the curriculum of English in Dutch secondary schools. We tested whether explicit pronunciation teaching on English vowels and consonants could improve pupils’ production and perception of these phonemes. Pupils participated in a production and perception experiment before and after receiving three lessons on English pronunciation. A control group was included who did not receive pronunciation training, but writing and reading training instead. The pupils’ production was rated by native speakers of British English and the results showed a significant effect of pronunciation training. The pupils who received training improved their production of the English phonemes. Furthermore, their perception of the phonemes was, in a lesser extent, also indirectly improved. These results suggest that pronunciation teaching should be implemented more strongly in the curriculum to further strengthen the position and status of English education in the Netherlands and to improve the English language skills of Dutch secondary school pupils.

1. Introduction

1.1 English in Dutch Secondary School Education

In 2014, The English language became part of the core curriculum in Dutch secondary education. The Ministry of Education, Culture and Science regards English as essential for the pupils' further education and the development of their employment prospects (SLO Moderne Vreemde Talen, 2015). Together with Dutch and mathematics, the other core-subjects, the English curriculum has therefore received special attention over the last few years.

The English exam in Dutch secondary school education is split into two sections: the Central Exam (CE) and the School Exam (SE). The CE consists of a national reading exam, and forms fifty percent of the pupils' final grade. Therefore, most classroom time, especially in the final two years before the exams, is spent on practicing reading (Rupp, 2014). The SE covers the other fifty percent of the grade and focusses on three other language skills: writing, listening, and speaking. Schools are free to design their own SE exams and these are often designed according to the guidelines of the CEFR. This *Common European Framework of Reference for Languages: Learning, Teaching, Assessment* is designed to “provide a transparent, coherent and comprehensive basis for the elaboration of language syllabuses and curriculum guidelines, the design of teaching and learning materials, and the assessment of foreign language proficiency” (Council of Europe, 2017). The Ministry of Education, Culture and Science has based its *end terms* for the English final exams on this framework, and for the school-specific SE exams, the framework is used to formulate target levels. The CEFR furthermore describes six foreign language proficiency levels: A1/A2, B1/B2, and C1/C2. These levels have become the guiding force in designing the English secondary school curricula in the Netherlands.

When it comes to the skill ‘speaking,’ the *Handreiking schoolexamens* describes at which of these levels pupils should be when they are taking their SE speaking exam. For the

levels *HAVO* (Hoger Algemeen Voortgezet Onderwijs: higher general continued education) and *VWO* (Voortgezet Wetenschappelijk Onderwijs: preparatory academic education) the pupils should reach, respectively, a B1 and B2 level in their final school years. The domain of speaking skills, Domain C, is divided into two subdomains: oral interaction, domain C1, and oral presentation, domain C2 (Fasoglio, 2007). The *end terms* which describe the ‘can/do-statements’ of these domains place emphasis on general conversation and presentation skills. The focus is on being able to communicate content rather than on the form in which this happens. For example, the candidates must be able to express feelings, provide information, describe and defend arguments and use strategies to keep a conversation going. Successful communication is the main goal at this stage of speaking education, and the pupils’ English pronunciation is of lesser importance. A more detailed description of the B1 level, however, reads that pronunciation should be intelligible, and mispronunciations here and there are not a problem. The B2 level describes that pronunciation and intonation should be clear and natural. No mention is made of the type of accent that should be aimed at, or of how pronunciation could be trained and/or tested.

It is now clear that English pronunciation does not feature a prominent role in the curriculum of Dutch secondary schools, despite the recently enhanced status of the English language within Dutch education. In a study into pronunciation teaching in the Netherlands, Van Hattum (2014) states that there is a “lack of concrete targets for English pronunciation in Dutch secondary education and [a] concurrent lack of English pronunciation lessons” (p. 69). Course books such as *Stepping Stones*, *English in Mind*, and *Rules and Words* do not explain the pronunciation of phonemes, but rather focus on the goals which are described in the *end terms*.

1.2 Debate on the Value of Pronunciation Teaching

The lack of attention for pronunciation teaching in the curriculum is reflected in the current debate on whether to include pronunciation teaching in the curriculum of Dutch secondary schools. Since practically all European pupils are learning English in school, and a ‘European English,’ with more speakers than inhabitants in the UK, is evolving (Lowie, 2004), one may wonder whether there is even a point in teaching English pronunciation to Dutch pupils.

According to Lowie, Dutch pupils already have a rather good pronunciation and are understandable. It would therefore be pointless to try to achieve a native-like accent.

Nevertheless, Lowie argues for teaching pronunciation, because it will in fact lead to better English pronunciation. He writes that the form and content of pronunciation teaching should focus on three main aspects. Firstly, suprasegmental elements, such as intonation and rhythm, secondly, the position of the speaking organs, and thirdly, individual sounds. Only when all these subjects are covered, and the goal of the pronunciation training is based on the target audience, pronunciation teaching could improve the pupils’ English pronunciation.

The place of English as a world language has led to an increasing number of English speakers, who are all using English in different contexts. Jenkins (2000) argues that English has become the *Lingua Franca*, and has proposed a way of teaching this language by writing down a *Lingua Franca Core* (LFC). Her proposal acknowledges that non-native speakers of English have their own legitimate regional accents. Rather than regarding deviation from RP/GA accents as ‘errors,’ she redefines English pronunciation suitable for all speakers of English. Sociolinguistic facts are being considered, because the main point of this type of English is often international communication between non-native speakers of English with different mother tongues. The LFC would make it easier for teachers of English all around the world to focus on the most important aspects of pronunciation, so that time does not have to be wasted on teaching the lesser important parts of pronunciation to non-native speakers. Her

idea of this type of English focusses on a segmental part and a suprasegmental part (in: Van Essen, 2001). Two examples of her core programme include replacing all variants of /r/ by the American /r/, and choosing the British intervocalic /t/ rather than the American /t/ in words like ‘matter.’

Van den Doel (2006), however, challenges Jenkins’ idea that non-native speakers of English would mainly want to communicate with other non-natives. In his view, Dutch speakers of English should still try to obtain a near-native accent for when they want to communicate with native speakers. In his elaborate research into native-speaker judgements of foreign-accented British and American speakers, he states that some of the elements that Jenkins regards as lesser important are, in fact, regarded as very important by native speakers of English (p. 295). Van den Doel presents a hierarchy of the speech errors made by Dutch speakers of English on which teachers should focus during pronunciation lessons.

Whatever the arguments in the current debates on the place of pronunciation in the curriculum, as described above, one point that these academics seem to leave out is the relation of pronunciation teaching to other language skills. Rupp’s (2014) hypothesis is that pronunciation teaching will have positive effects on other skills in the L2 classroom, such as reading and listening. Pronunciation teaching should not be a goal on itself, but could be embedded in teaching to help develop the other skills, she argues. Little research has been carried out on this idea so far, but some publications show positive correlations between pronunciation and other language skills.

Walter (2008), for example, shows that phonological representations of L2 phonemes can help L2 reading comprehension. L2 readers can use the *phonological loop*, which is a “short-term memory mechanism that stores information in phonological form” (p. 457), to decode words in L2 texts. For poor L2 readers, difficulties in reading a text may be the result of a “lack of a well-elaborated L2 phonological inventory in long-term memory” (p. 459).

Teaching learners L2 phonemes and ways of recognising them will improve pupils' L2 reading comprehension faster. Walter proposes that teachers focus on "activities that improve recognition of minimal pairs, stress patterns in words, and generally the phonological characteristics of the language" (p. 470), because those will prepare learners to read better. Walter's study shows that the integration of pronunciation teaching, or at least of teaching phonology, can have serious benefits for L2 learners. Besides, pronunciation teaching might also benefit the development of perceptive skills in a foreign language. L2 production and perception are often found to be dependent on one another, and to influence each other constantly (Piske, 2001; Flege, 1995; Best, 1995).

In conclusion, it is of great importance that English pronunciation education is included in the Dutch secondary school curriculum to improve pupils' pronunciation and to support and enhance the development of other language skills. To demonstrate this importance, the current study has investigated whether it would be profitable for Dutch secondary school pupils to receive explicit pronunciation training by testing whether their production and perception of non-native phonemic contrasts could improve after having received training on the pronunciation of English phonemes. The non-native phonemes which were the focus of this study are the English /æ-e/ vowel contrast and English word-final [±voice] plosive consonant contrast. Both features were deemed necessary to teach to pupils by Dutch teachers of English in the questionnaire in Van Hattum's study (2014, p. 75). They were also named by Van den Doel (2006), Koster and Koet (1993) and Lowie (2004) as specifically problematic phonemes for Dutch learners of English.

2. Previous Research

2.1 Production and Perception of L2 Sounds

Pupils in secondary school foreign language education often struggle with speaking in a second language. Besides the anxiety some pupils might experience when speaking in a different language, the production of specific non-native sound can cause a range of difficulties for the L2 learner, which often results in a foreign accent. Native speakers might detect a foreign accent in an L2 in the form of deviations from the norm of segmental and suprasegmental features of that language. Researchers have proposed different explanations for such a foreign accent, including an inaccurate perception of L2 sounds, a reduced ability to add or adapt sensorimotor programmes for producing the sounds of an L2, and other reasons such as a lack of motivation, having received inaccurate input and individual psychological causes (Flege, 1995). However, the primary reason for limits on acquiring non-accented L2 speech is usually neurological maturation i.e. the passing of the Critical Period for speech learning. When an individual is young when beginning the L2 acquisition process, this process will move easier and faster than when the individual is older. Scovel (1969) singled out speech and pronunciation as the only areas that were subject to the constraints of age. He stated that it would be impossible for an adult L2 learner to sound fully native-like and to acquire a native accent in all aspects of pronunciation and prosody, despite the amount of time spent on acquiring the language. However, others have found opposing results in studies in which L2 speakers were judged native-like by native speakers of a certain language. Bongaerts (1999), for example, showed cases of Dutch learners of British English with high attainment who were evaluated by native listeners as being native speakers of British English. These Dutch learners had all began studying English intensively at university, so long after the end of the Critical Period. Formal instruction had started in their secondary school environment, but massive exposure and input of English began at university. Bongaerts

interpreted the results as “evidence suggesting that claims concerning an absolute biological barrier to the attainment of a natively-like accent in a foreign language are too strong” (p. 154). It was noted that all the speakers in this study were highly motivated to attain a native-like accent. Bongaerts suggested that personal motivation is an important factor in the degree to which native-like accent can be attained. Furthermore, some adults are very good at imitating L2 sounds (Flege, 1995), which may speed up the acquisition process of their L2 production.

Similar to the challenges pupils experience with producing a second language, listening to a second language can also be rather difficult. The foreign language may seem like an indecipherable stream of sounds, especially compared to listening to their native language. According to Broersma (2005, p. 3), listening to L2 speech is hard on multiple speech processing levels. The listener may not be able to recognise and distinguish separate words, and perceives confusing speech sounds, words, and expressions. Also, the meaning of a sentence might still be unclear, even when all separate items are understood. Besides the challenges of speech segmentation, non-native listeners may also struggle to distinguish phonemes that are unfamiliar to their native language. Since all languages contain different sounds, it is likely that an L2 will feature non-native phonemes which do not yet fit in one of the existing phonemic categories. In addition, some of these non-native phonemes might form a phonemic contrast with another L2 phoneme; a minimal pair. The meaning of a word changes if one phoneme is faultily perceived as another, which might cause confusion in communication.

Differentiating and discriminating between such non-native phonemic contrasts is especially difficult for individuals who began acquiring an L2 after the Critical Period (Lenneberg, 1967; Scovel, 1969). They may never fully acquire the difference between certain L2 phonemes that, to their L1 ears, sound similar to each other. Flege (1987) explains this through the equivalence classification theory (EC), in which he states that EC is “a basic

cognitive mechanism,” (p. 49) which permits humans to assemble different acoustic exemplars of a phoneme under the same category. Flege (1995) defines a phonemic category as a “long term memory representation” of a phoneme, in which a wide range of different phones (i.e. a distinct speech sound) are identified as ‘the same’. Humans can distinguish phonemes from one category from those from another category. Once phonemic categories are established for the L1, it can be very difficult to change or add categories for an L2, especially after the end of the Critical Period.

EC explains that even though different speakers might realise the phoneme /p/ differently under varying circumstances (e.g. the speaking rate, degree of stress, the speaker’s age and gender and their speaking style and clarity) the listener classifies all instances as /p/, because there is a phonemic category for that in the inventory of L1 phonemes in which all exemplars are included (Flege, 1995). When children start acquiring their L1, they “gradually attune their perceptual processing of speech” (p. 50) to the sounds that they hear in the language spoken around them, which is their L1. This enables young infants to categorise phones to be part of the same phonemic category, regardless of it being spoken by different interlocutors or in varying phonetic contexts, and therefore allows them to efficiently acquire the sound system of their L1. L2 learners, on the other hand, are already in the possession of their own L1 phonemic inventory, and might transfer their L1 categories onto their L2. This means that when L2 learners hear a non-native phoneme, they classify it as belonging to an already existing L1 category. Flege (1987) introduced this as the distinction between *new* and *similar* sounds. The *new* L2 sounds have no counterpart in the L1, and are acoustically completely different from all L1 sounds. For an L2 listener, these sounds are easiest to acquire, because they will not be put in an existing category. A new phonemic category is created for these sounds. An example of a *new* sound is the *clicks* from African languages, which are not found in any other language family. These sounds are typically easier to acquire

for the L2 learner, because they clearly do not fit into any of the already existing L1 phonemic categories. A study by Best, McRoberts & Sithole (1988) confirmed the hypotheses that AE speakers' discrimination of one type of clicks would be very good, despite the lack of earlier exposure to these speech sounds.

However, the *similar* L2 sounds are like an L1 sound, but differ systematically. One of the many examples are the English vowels /ʊ/ (as in *foot*) and /u:/ (as in *goose*), which are often both perceived as Dutch /u/ (as in *moe*) by Dutch speakers. The two English vowels are put in the same Dutch category, and are therefore perceived as the same vowel. Dutch has nothing near English /ʊ/ (Collins & Mees, 2003), and that makes it difficult for Dutch learners of English to acquire this phoneme. Dutch learners of English have to expand their phonemic categories to create a new one in which this phoneme can be placed. This process takes time, input and practice, but the perception of non-native sounds can be improved.

When the production of an L2 is improved through training, it will also influence the L2 perception, and vice versa. Production and perception of an L2 can influence and improve each other substantially. For adults who learn an L2 the articulatory errors might have a perceptual basis: faulty perception of L2 sounds causes faulty production of L2 sounds. In Flege's Speech Learning Model (SLM), he accounts for the limits on attaining native-like production of vowels and consonants by proposing a set of hypotheses on L2 sound acquisition. In this model, which draws further on the distinction between *new* and *similar* sounds, it is explained why perception might underlie accent: "if a new phonemic category is not formed for an L2 vowel or consonant, the phonetic properties of the L2 sound and the corresponding L1 sound will be merged into a 'composite' L1-L2 category, which will result in an accented production of the L2 sound" (in Piske *et al.*, 2001).

A study by Rochet (1995) explored the inaccurate perception of L2 sounds as the cause of mispronunciations. When the listener can hardly distinguish certain contrasting L2

phonemes, it will also be more difficult to produce them. However, the perception of L2 phonemes can be improved through training, and the study by Rochet showed that “brief treatment with structured sets of synthetic stimuli can lead to improvement in perception performance [...] with carryover to perception of natural stimuli,” and that “improvement in perception performance can, in turn, translate into improvement in production performance” (Rochet, 1995, p. 401). If a new category is established, the production of an L2 phone may change (Flege, 1995). This is also shown in a study by Hirata (2004), in which subjects who were trained in the production of Japanese words and sentences not only improved their production but also their perception of Japanese. Implicitly, the production training influenced perceptual learning of the subjects. Furthermore, a study by Catford and Pisoni (1970) indicated that subjects who received articulatory training to produce exotic sounds improved their perception of these sounds more than subjects who only received perceptual training. In addition, a study by Smorenburg *et al.* (2015) on the effects of explicit training on the prosodic production of L2 sarcasm showed that the Dutch subjects significantly improved their sarcastic production in English after receiving explicit instructions on how to do so.

In conclusion, the perception and production of an L2 is a complex process in which a variety of mechanisms is involved. Often, a faulty perception of non-native phonemes stands in the way of non-accented speech. However, (short) periods of training can improve L2 production of suprasegmental and segmental elements which often also leads to an indirect improvement in perception. Vice versa, perceptual training can lead to an improvement in both perception and, indirectly, in production. The indirect effect may be less strong than the direct effect, as shown in Rochet (1995). In this study, the effect of perception training on production was only significant in some areas, while the effect on perception was significant in all areas (p. 400).

2.2 Specifics of the /æ-e/ Vowel Contrast

The British English /æ-e/ vowel contrast has been claimed to be notoriously difficult for Dutch speakers of English (Koet, 2007). In a study on the influence of the Amsterdam dialect on the acquisition of English pronunciation compared to standard Dutch pronunciation, Koet concluded that the mispronunciation of these two vowels by Dutch students was the most serious of several mispronunciations (pp. 54-55). This was found for the Amsterdam students as well as for those originating outside Amsterdam. These two English vowels are “similar” sounds to the Dutch /ɛ/, and are placed in this phonemic category in perception and production of the vowels. Generally, most Dutch speakers would produce the Dutch open-mid, front, unrounded vowel /ɛ/ as a substitute for both English vowels. This might be a close and sufficient substitute for the English above open-mid, unrounded /e/ vowel, but it cannot be an acceptable substitute for English /æ/, which is an open vowel. Since perception precedes production in Flege’s Speech Learning Model, it can be assumed that Dutch speakers who produce /e/ or /ɛ/ instead of /æ/, perceive /æ/ as exemplars of /e/ or /ɛ/ in the first place.

Figure 1 shows the vowel quadrilateral for Dutch and English. From this figure, it becomes even more visible what the quality differences between the three vowels are. Dutch has no close equivalent to English /æ/ and there is an empty spot in the Dutch vowel chart where, in English, the /æ/ vowel would be. English /æ/ is more open than /e/ and /ɛ/, and this openness of the mouth is the most dominant difference. Besides, /æ/ is moving towards the

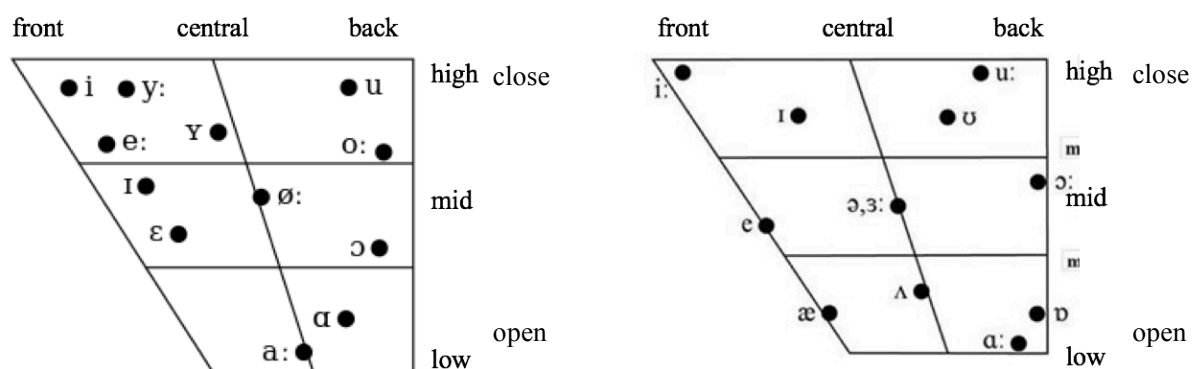


Fig. 1. Vowel quadrilateral for Dutch (left) and English (right).

middle part of the tongue, whereas /e/ is fronted. According to Collins and Mees (2003), in the production of the two English vowels, Dutch speakers can realise the contrast by using these distinguishing qualities of /æ/, so by opening the mouth more, lengthening the vowel slightly and by adding a creaky voice (pharyngeal constriction). This will cause their attempts at /æ/ to be more clearly separated from /e/.

2.3 Specifics of the Word-Final [±Voice] Consonant Contrast

In English, there is no constraint on the occurrence of voiced plosives in word-final position. Voicing refers to the vibration of the vocal cords. When producing a voiced sound, the vocal cords vibrate, and when producing a voiceless sound, they do not vibrate. The vibration can be felt in the glottis. Voiced plosives /b d g/ can occur in initial and final position, for example /b/ in /bɔ:l/ (*ball*; initial position) and /klʌb/ (*club*; final position). Voiced fricatives like /v/ and /z/ can also occur in final position, for example in /seɪv/ (*save*) and /raɪz/ (*rise*). It is a distinctive feature, as minimal pairs exist which only differ in final voicing quality: *back-bag* and *height-hide* are examples of this. Final voicing is thus an acceptable phonemic phenomenon in English. However, in Dutch this word-final [±voice] feature does not exist. Only devoiced consonants can occur in word-final position (Collins & Mees, p. 48). Dutch spelling might suggest the opposite though, for example in the spelling of the words *noot* (E: nut) and *nood* (E: emergency). Both words are acoustically identical and are pronounced as /not/; they are homophones. This explains the difficulty for Dutch learners of English in producing final voiced consonants. The ‘d’ in the spelling of, e.g. English *bid* does not necessarily give a cue to the Dutch speaker that a voiced final consonant should be produced and it is likely that, instead, /bit/ will be produced.

In Dutch, voicing occurs in word-initial position and may occur in syllable-final position within a word. /g/ is not a native phone in Dutch, but appears in loanwords (*goal*) and

in native words when voicing assimilation occurs. For example, in the Dutch word *zakdoek* (E: handkerchief): ['zakduk]. Voicing assimilation can occur only in syllable-final position, so word-final /g/, as in English, is not known by speakers of Dutch.

The vowel length of the vowel preceding the word-final consonant is an indicator of the [±voice] feature in many languages: vowels are shorter before voiceless consonants than before voiced consonants. Vowel duration functions as an indicator of the [±voice] feature of the following consonant in multiple languages (Chen, 1970). It was measured in 376 spectrograms that a longer vowel was produced when preceding a voiced consonant in English, French, Russian and Korean. In English, the difference between vowel lengths before a voiced or devoiced consonant varied more than in the other languages: the vowel before a voiceless consonant being less than 2/3 of its counterpart before a voiced consonant (p. 138). For Dutch learners of English, vowel length is therefore a useful cue to acquire and use in their speech. Even though the final consonant might not be fully correctly voiced, a longer vowel can give the suggestion that it is.

Applying Flege's SLM to this [±voice] consonant contrast leads to the assumption that Dutch learners of English might also perceive a final /p t k/ instead of final /b d g/ when listening to English speech. These phonemes are then 'similar' and put in the already existing categories for the voiceless consonants.

2.4 Integrating Pronunciation Teaching

Integrating pronunciation teaching as a third component of oral communication in teaching English as a second language besides speaking and listening has been endorsed by many (Dickerson, 1985; Morley, 1991; Murphy, 1991; Pennington & Richards, 1986; Stevick, 1978). Murphy (1991), for example, claims that the conjunction of these three components is "viewed as indispensable to any coherent curriculum" (p. 51). According to Murphy, pronunciation is not a major skill area like speaking or listening, but rather it "encompasses

subsets of both speaking and listening skill development” (p. 52). Having an accurate representation of the English sound system can aid both pupils’ perceptual and productive skills (Dickerson, 1985). Phonological accuracy is placed next to a broader aspect of interpersonal communication: i.e. general fluency. Furthermore, Stevick (1978) noted that improved pronunciation will counter the students’ embarrassment which they might experience when using the L2, which will in turn aid the general L2 acquisition process.

Despite the demonstrated value of integrating pronunciation teaching in the programme, it has proved rather difficult to do so. Teachers “have little sense of how to weave [pronunciation] effectively into a listening and speaking or all-skills course so that it consists of more than ad hoc corrections, but does not take up so much time that the communicative goals of the course are neglected” (Levis & Grant, 2003, p. 14). Teachers’ insecurities towards teaching pronunciation might be caused by the inadequate preparation they received in their educational training. Pronunciation as such has been marginalised, and therefore barely any formal training on teaching it exists (Derwing & Munro, 2005, p. 389). Teachers, then, now often act on their intuition and experience on teaching pronunciation, even when some of their strategies might be useless or even counterproductive.

Over the past two decades, more research has been conducted on how to integrate pronunciation teaching into the ESL programme. Differences between approaches are ample, but most stress the importance of including both segmental (phonology) and suprasegmental (stress, rhythm, intonation) features of language. Five or six step plans that have been designed for teaching pronunciation generally move from “raising awareness of an aspect of pronunciation,” to “perception or focussed listening,” to “oral practice” (Levis & Grant, 2003, p. 13). The oral practice starts with a focus on teaching phonology, which later shifts towards a focus on both form and meaning. Teachers might use this framework to move from controlled practice to less structured practice, or to move from less structured speaking

exercises towards specific pronunciation (p. 13). Either way is usually insufficient and pupils miss out on important activities for improving their speaking and pronunciation.

3. Research Questions and Hypotheses

In previous L2 production and perception studies, it has been looked at what the effect of production training can be on production. However, very little studies have looked at the effect of production training on both production and perception. Furthermore, the participants in these studies were often older students or adults. No studies have yet looked at the effects of training on much younger participants, even though this age group will be submitted to any changes in the educational field which such studies might cause. Also, no specific studies were found on the effects of pronunciation teaching to secondary school students in the Netherlands.

Therefore, the present study was conducted to test whether pronunciation training can improve Dutch pupils' production and perception of English non-native phonemes. Taking the current lack of pronunciation teaching in the Dutch secondary school curriculum as a point of departure, this study investigates the effects of explicit pronunciation teaching on Dutch secondary school pupils' production and perception. There were two main questions in this study. First, it was of interest to establish whether the pronunciation training would improve the pupils' production of the selected phonemic contrasts. The first research question was thus as follows:

RQ₁: Can explicit classroom instruction on the English pronunciation of non-native phonemic contrasts to Dutch pupils improve their production of these phonemic contrasts?

Based on previous research on explicit pronunciation training in second language acquisition (Hirata, 2004; Catford & Pisoni, 1970; Bongaerts, 1999; Smorenburg *et al.*, 2015), a positive effect of pronunciation training was expected. Regardless of whether the training was on suprasegmental or segmental elements of the L2, it was shown that even short periods of training almost always improved the subjects' production skills. The following hypothesis was formulated:

H₁: The pupils' production of the selected non-native phonemes will improve after explicit classroom instruction on the English pronunciation of these phonemes.

It was also expected that the pupils would show a tendency to produce vowels and consonants that are part of the Dutch phonemic inventory rather than the non-native counterparts. So, it was expected that pupils would produce more /e/ than /æ/ vowels and more word-final voiceless consonants than word-final voiced consonants. The expectation was that the number of /e/ vowels and voiceless word-final consonants would decrease after training, and instead pupils would accurately produce /æ/ vowels and word-final voiced consonants.

Furthermore, we were interested in whether explicit pronunciation teaching could improve the pupils' perception of these phonemes, i.e. whether there could be a transfer of skills from production to perception. This was also a highly relevant question, because if pronunciation teaching positively affects other language skills, stronger arguments can be made for integrating pronunciation teaching in the curriculum. Many studies have been conducted on the effects of perceptual training on production, since it is usually assumed that perception precedes production (Flege, 1995). However, only few have looked at the effects of production training on perception. The second research question was therefore:

RQ₂: To what extent can the received explicit classroom instruction on English pronunciation improve the pupils' perception of the two phonemic contrasts?

Based on the results of the few studies on the relation between pronunciation teaching and perception (Hirata, 2004; Catford & Pisoni, 1970), it was expected that the perception of phonemic contrasts of the pupils who received pronunciation training would improve. These studies showed that subjects who were trained in the production of certain aspects of a foreign language, showed significant improvements in perception of these aspects as well. In our study, pupils might recognise word-final /b/ as an exemplar of /p/, but after training they might have formed the beginnings of a new category for English word-final /b/ (Flege, 1995). However, similarly to Rochet's study (1995), it was expected that perceptual improvement would be less than the improvement in production. Therefore, the second hypothesis was formulated as such:

H₂: The pupils' perception of the non-native phonemes will improve after explicit classroom instruction on the English pronunciation of these phonemes, but to a lesser degree than production.

Similarly to the expectations of the production experiment, it was also predicted that overall, the pupils would perceive more phonemes that are similar to L1 phonemes than the non-native L2 phonemes. So, it was expected that pupils would think to perceive more /e/ than /æ/ vowels and more word-final voiceless consonants than word-final voiced consonants. These phonemes are part of the Dutch phonemic inventory and therefore Dutch listeners are likely to classify the non-native phonemes as exemplars of an L1 category.

4. Method

This study consists of four major parts: (1) a production experiment, (2) a perception experiment, (3) pronunciation training and (4) a rating experiment. In the first experiment, production of non-native English sounds was elicited from Dutch learners of English on two occasions: in week one (pre-test) and in week four (post-test). In the second experiment, the participants' perception of the non-native phonemes was tested on two occasions: in week one (pre-test) and in week four (post-test). In between the test sessions, the participants in the experimental group received training on the pronunciation of the non-native phonemes, which consisted of three lessons of 60 minutes. The control group received regular lessons on English writing and reading, but did not spend classroom time on speaking, pronunciation, or listening. In the rating experiment, the recordings from the pre- and post-test were rated by L1 British English listeners in a forced choice test.

4.1 Production Pre- and Post-test

4.1.1 Participants

Forty-five Dutch secondary school pupils (15 males, 30 females, $M_{age}=15.1$ years, $SD = 0.43$) participated in the production experiment. Twenty-three participants came from class 3HC, which was the experimental group. Twenty-two participants came from class 3HD, which was the control group. They were all third-year pupils at *HAVO* level at the same secondary school in the middle area of the Netherlands. All participants had received almost three years of formal English education at the moment of the experiment. For almost all participants, Dutch was the L1 and English the L2. Two participants from 3HC and one participant from 3HD spoke a Berber language at home in addition to Dutch.

4.1.2 Materials

For this study, a list of 68 English non-words was composed, which was used in the production and perception experiment. The list contained items for the /æ-e/ vowel contrast and items for the word-final [±voice] consonant contrast.

The vowel stimuli were 16 words containing the /æ/ vowel and 16 words containing the /e/ vowel with a CVC structure. The consonants used in initial and final position were /p, t, k, f/. These consonants were voiceless so that consonantal voicing would not be an issue in the production of vowel items. Each of these consonants occurred in final and final position for both vowels, creating 32 vowel stimuli.

The consonant stimuli were non-words with VC structure. The vowels were English /i, i:, ɒ, ɔ:, ʊ, u:/ and the consonants were voiceless /p, t, k/ and voiced /b, d, g/. The vowels were chosen based on height/backness and length. Two vowels are produced in the front of the mouth (/i, i:/), two in the middle (/ɒ, ɔ:/) and two in the back (/ʊ, u:/) of the mouth. From each pair, one is a short vowel and the other is a longer vowel. This way, the vowels vary in such a way that influence on the production of the final consonants was controlled for. The consonants that were chosen as the focus in the experiments were all plosives and differed in place of articulation. One bilabial pair (p-b), one dental pair (t-d) and one velar pair (k-g) was included. Each of the six vowels occurred in combination with all consonants, creating 36 consonant stimuli.

In the production experiment, each participant was given a list of 16 English non-words in the pre- and post-test. The list was randomised and contained four vowel items and 12 consonant items. All test items were spelled in IPA, so that regular spelling could not be an influence during the experiment. Because of time constraints, not every participant could read out the 68 test items. Therefore, participants were divided over six participant groups and the Latin square design was used to efficiently distribute the test items over the groups.

Participants read out different items in the pre- and post-test, creating a complete set of well-distributed production data (see Appendix 1).

4.1.3 Procedure

The pre- and post-tests were conducted individually in a quiet room in the school during one of the pupils' regular English classes. The sessions were recorded using a Zoom H1 digital recorder.

First, the participants were given written instructions in Dutch. After reading the instructions, the participants could ask questions about the task. Then, the participants read out the list of items, also including the preceding digit in English. Following each item, a tip on how to pronounce the phonetic symbol was shown, which included three examples of real English words with that particular sound. Occasionally, additional explanation was given to pupils who did not understand the task while they were doing it. Extra explanation mostly concerned reading the phonetic symbols.

The participants' productions were extracted from the recordings using Praat (Boersma & Weenink, 2014). When participants had made multiple attempts at producing the same response, the final attempt was chosen.

4.2 Perception Pre- and Post-test

4.2.1 Participants

Thirty-three pupils (7 males, 26 females, $M_{\text{age}} = 15.0$ years, $SD = 0.46$) participated in the perception experiment. Twenty-one participants came from the experimental group, class 3HC, and twelve participants came from the control group, class 3HD. All pupils who participated in the perception experiment had also participated in the production experiment

(see Appendix 3). Due to some technical and practical limitations, not all participants from the production experiment in 3HD were able to participate in the perception experiment.

4.2.2 Materials

The perception experiment consisted of all 68 test items described above. Thirty-two of these test items formed the vowel stimuli and 36 the consonant stimuli. All test items were recorded by a male native British English speaker of 24 years old. This speaker was a monolingual who had lived in the UK all his life before coming to the Netherlands 1 year and 9 months prior to the recordings and had no relevant L2 experience. The recordings were extracted using Praat (Boersma & Weenink, 2014) and coded and saved as separate files. The test items were randomised for the perception experiment.

4.2.3 Procedure

The perception test was done individually by pupils on a computer with earphones. The participants were presented with recordings of the 68 test items (see Appendix 2), followed by a question. For vowel stimuli, the question was: *Which vowel do you hear in this word?* For both vowels, some examples were included to give participants a clearer idea of the intended vowels. The questions for the consonant items was (depending on the consonant type of the particular test item): *What do you hear at the end of this word?* Figure 2 shows what the participants saw on the screen.

One practice item was included at the beginning of the test so pupils could get familiar with the test and the volume of the audio. In the pre-test, participants completed the perception experiment by filling in an online Google Form file. Test items were included as sounds in YouTube videos, and instructions were presented at the top of the form in English. Unfortunately, some technical problems occurred here and therefore the post-test was done in

a more analogue manner. Pupils were sent a PowerPoint presentation which included each test item and question on a different sheet. They were given a paper answer sheet on which they could circle their answer. The order of items was the same in the post-test as in the pre-test.

3. What do you hear at the end of this word? *

- a "b" sound
- a "p" sound

Sound clip 3



4. Which vowel do you hear in this word? *
⋮

- the 'a' like in English 'can', 'bad', 'sad'
- the 'e' like in English 'leg', 'bed', 'men'

Sound clip 4



6. What do you hear at the end of this word? *

- a "d" sound
- a "t" sound

Sound clip 6



10. What do you hear at the end of this word? *
⋮

- a "g" sound
- a "k" sound

Sound clip 10



Fig.2: Examples of each type of question as presented to the participants in the Google Forms perception test.

4.3 Pronunciation Training

In week two, the participants from the experimental group, class 3HC, began receiving pronunciation lessons. The pupils from the other class, 3HD, the control group, did not receive any pronunciation training but instead practiced reading and writing skills. The training consisted of three lessons: (1) a general introduction to pronunciation, (2) the /æ-e/ vowel contrast and (3) the [±voice] word-final consonant contrast. The lessons were given by the pupils' regular English teacher on three consecutive Tuesday mornings in May and were

sixty minutes each. The lesson plans were designed by the author and based on theories on teaching pronunciation by Murphy (1991), Levis and Grant (2003) and Van Hattum (2014). For example, the five-step plan that Levis and Grant describe which starts with raising awareness and then moves to focussed listening and oral practice has been applied in the design of the lessons. Minimal pairs were often used as examples, because Lowie (2004) suggested this would be an efficient way of explaining specific phonemic contrasts. Furthermore, the exercises in the lessons and the reader are loosely based on those in Ann Baker's *Ship or Sheep? An Intermediate Pronunciation Course*. Even though ear training was a small part of the second and third lesson, the focus of the lessons was always on production rather than perception.

In the first lesson, the pupils were given a general introduction to pronunciation and the vocal tract. The main goals of this lesson were raising the pupils' awareness of their native and non-native pronunciation and the vocal tract, making pupils think about the importance of pronunciation and becoming aware of the differences between languages.

During the second lesson, there was a clear focus on the /æ-e/ vowel contrast. The pupils learned the theory behind the pronunciation of these vowels, listened to examples and practiced on how to make a clearer distinction between the vowels themselves.

In the third lesson, the focus was on the [±voice] word-final plosive consonant contrast. Similarly to the second lesson, the pupils were first introduced to some theoretical knowledge about voicing and the consonants, before listening to examples and receiving instructions on how to produce the non-native phonemes.

In Appendix 4, all lesson materials can be found. This includes all PowerPoint Presentations, the pupils' reader, and the teacher's guide which was written to prepare the teacher on executing the lessons successfully. The audio files included in the PowerPoint Presentations were recorded by the same native speaker who recorded the stimuli for the

perception test. After the lessons were given, some minor revisions in the lesson materials were made because observations during the lessons gave reason to add or change small parts of the lessons. The finalised materials are included in the appendix, and the revisions are underlined in the lesson plans.

4.4 Rating Experiment

4.4.1 Participants

Three listeners of British English (3 males, $M_{\text{age}} = 27.7$, $SD = 6.4$) were recruited as raters in the experiment. All were monolingual speakers of English that were brought up and educated in the UK and were considered to speak standard British English. They had been living in the Netherlands for 1.5-2.0 years, and had limited knowledge of and experience with Dutch. They received €10,- per hour for their participation in the experiment.

4.4.2 Materials

The material that was evaluated in the rating experiment was the participants' production of the non-words in the pre- and post-test of the production experiment. In total 1424 items were evaluated. Of these items, 356 concerned the vowel contrast, 356 concerned the /p-b/ contrast, 356 the /t-d/ contrast and 356 the /g-k/ contrast. The author and the native listeners marked 79 vowel items and 70 consonant items as off-target, because these items matched neither of the phonemes from the contrast. For instance, pupils produced /ix/ instead of /ig/ and /ki:k/ instead of /kæk/. These items were not included into the rating experiment. In the analysis of the data, these items were coded as inaccurate productions in further analysis.

4.4.2 Procedure

The rating task was a forced choice test and set up in ZEP, an experiment control software application (Veenker, 2014). The raters received written instructions which told them they were going to listen to non-native speakers of English' production of non-words. For each item, the raters were asked to choose from two options what they heard. For example, a participant's production of /ib/ was evaluated as ending in /b/ or in /p/, and a production of /kæk/ was evaluated as containing the vowel /æ/ or /e/. Raters started the experiment by completing three practice trials on the specific contrast of that part of the experiment. Each participant rated the items in two separate sessions of one hour. The data was saved by ZEP for further analysis.

5. Results

5.1 Production and Rating Experiments

The pupils' production of English non-words was rated by three native British English listeners. In the analysis, the answers of the three participants were taken together: if two or three of the three listeners had perceived the intended phoneme, the item was marked as accurately produced. If two or three of the three listeners had not perceived the intended phoneme, the item was marked as inaccurately produced. A binomial logistic regression analysis with the forced entry method was conducted in SPSS, in which the final rating of the three raters was the dependent variable or the outcome variable (accurate production vs. inaccurate production), and the moment of testing (pre-test vs. post-test i.e. before vs. after training for the experimental group) the predictor variable. Separate analyses were run for the production of vowels and the production of consonants. In the analyses of the production of consonants, consonant type (labial, dental-labial, and velar) was also a predictor variable. Both the main effects of the predictor variables and the interaction effects of the two predictor variables were specified as the covariates in the model.

5.1.1 Production of Vowels

Both groups improved their production of the non-native vowels /æ-e/ in the post-test relative to the pre-test (Table 1). The binomial logistic regression analysis revealed that only the improvement made by the experimental group in the production of vowels was statistically significant (see Table 2). The odds ratio shows that the pupils in the experimental group were 2.35 times more likely to accurately produce vowels in the post-test relative to the pre-test. Although there was an increase in number of accurately produced vowels in the control group, their increase did not reach significance.

Furthermore, most of the produced items (85.3 % of all on-target vowel items from both tests in both groups) were identified by the native listeners as exemplars of /e/, as was hypothesised. This confirms the assumption that the pupils would produce /e/ (or Dutch /ɛ/) rather than /æ/, because the latter vowel is not part of the Dutch phoneme inventory. In the post-test, pupils from the experimental group accurately produced three times as many /æ/ vowels as they did in the pre-test, which shows that the pronunciation lessons had successfully taught them how to accurately produce this non-native vowel.

Taken together, these results show that the pupils get better at their pronunciation of non-native vowels over time, but that the pronunciation training has clearly led to a more substantial improvement.

Table 1

Percentages of accurately produced vowels in both groups.

	Pre-test	Post-test	Increase
Experimental group	36.96 %	57.95 %	+20.99*
Control group	51.14 %	62.50 %	+11.36

*significance

Table 2

Summary of the results of the binomial logistic regression analysis in both groups on the production of vowels. The moment of testing (post-test relative to pre-test) was a significant predictor in the model for the experimental group, but not for the control group.

Production of vowels		B(SE)	Sig.	95% Confidence interval for odds ratio		
				Lower	Odds ratio	Upper
Exp. group ¹	Moment of testing	.855(.305)	.005	1.292	2.351	4.279
	Constant	-.534(.216)	.013		.586	
Control group ²	Moment of testing	.229(.303)	.450	.694	1.257	2.277
	Constant	.045(.213)	.831		1.047	

1. Note: 8.02 (Chi-square), 240.96 (-2LL), .044(Cox & Snell), .058 (Nagelkerke)

2. Note: .57 (Chi-square), 242.30 (-2LL), .003 (Cox & Snell), .004 (Nagelkerke)

5.1.2 Production of Consonants

Only the experimental group improved their production of all consonant types in the post-test relative to the pre-test (Table 3). The binomial logistic regression analysis showed that the pupils in the experimental group were 2.62 times more likely to correctly produce consonants in the post-test relative to the pre-test, which can be seen in Table 4. Consonant types (labial, dental-labial, and velar) did not significantly predict the outcomes in the model. This indicates that the pupils performed equally at all consonant types. Furthermore, no significant interaction was found between consonant types and training, which indicates that training improved the production of all consonant types equally. According to these results, the pupils could generalise the articulatory skills they acquired during the lessons to all consonant types.

Furthermore, as expected, the pupils from both groups generally produced more voiceless than voiced word-final consonants (72.8 % voiceless vs. 27.2 % voiced of all on-target items from both tests in both groups). This confirms that speakers of Dutch have difficulty producing word-final voiced consonants, since such phonemes are not part of the Dutch language. The pupils who received training produced more voiced word-final consonants in the post-test and improved their production of the consonants significantly.

All in all, the results of this part of the experiment indicate that the pronunciation training on the production of voiced and voiceless word-final consonants improved the pupils' pronunciation of these consonants significantly. Improvement was seen for all consonant types, which means that the lessons were effective and the pupils could generalise their new knowledge on voicing to all consonant types. Without training on the correct pronunciation of these non-native phonemes, no consistent improvement in production was made.

Table 3

Percentages of accurately produced word-final consonants in the experimental group.

	Pre-test	Post-test	Increase
Labial /p-b/	59.78 %	63.64 %	+3.86
Dental-labial /t-d/	60.87 %	69.32 %	+8.45
Velar /k-g/	56.52 %	77.27 %	+20.75

Table 4

Summary of the results of the binomial logistic regression analysis in both groups on the production of consonants. The moment of testing was a significant predictor in the model for the experimental group, but not for the control group.

Production of consonants		B(SE)	Sig.	95% Confidence interval for odds ratio		
				Lower	Odds ratio	Upper
Exp-group ¹	Moment of testing	.961(.330)	.004	1.370	2.615	4.994
	Constant	.262(.210)	.212		1.300	
Control-group ²	Moment of testing	-.158(.292)	.589	.482	.854	1.513
	Constant	.372(.206)	.071		1.450	

1. Note: 12.24 (Chi-square), 686.49 (-2LL), .022(Cox & Snell), .031 (Nagelkerke)

2. Note: 2.04 (Chi-square), 731.54 (-2LL), .004 (Cox & Snell), .005 (Nagelkerke)

5.2 Perception Experiment

The pupils' answers to the 68 questions in the pre- and post-test in the perception experiment were analysed by conducting a binomial logistic regression analysis with the forced entry method. The pupils' judgement of the sounds was the dependent variable (incorrect perception vs. correct perception) and the moment of testing (pre-test vs. post-test i.e. before vs. after training for the experimental group) was entered as the predictor variable. Similar to the analysis of the data in the production experiment, the analysis of the perceived consonants

also included consonant type (labial, dental-labial, and velar) as a predictor variable. Both the main effects of the predictor variables and the interaction effects of the two predictor variables were specified as the covariates in the model.

5.2.1 Perception of Vowels

In percentages, both groups perceived more vowels correctly in the post-test than in the pre-test (Table 5). In both tests, they perceived more than half of the sounds correctly, but the fact that they perceived a substantial number of the sounds incorrectly suggested that the pupils did not have clear phonemic categories for the English /æ/ and /e/ vowels. Theoretically, a native listener would score near 100 % correctly perceived items. Furthermore, contrary to the expectations, the pupils did not perceive substantially more /e/ than /æ/ vowels.

Despite the pupils' improvement, the training that the experimental group received was not a statistically significant predictor for the outcome of the model, which means that the pupils' perception of vowels did not improve significantly due to the pronunciation training (Table 6). The pupils in the control group also perceived more vowels correctly in percentages, however in a lesser extent than the experimental group. Their improvement was also not statistically significant (Table 6). These results suggest that generally, the perception of vowels improved over time. However, the training on the pronunciation of the non-native vowels appeared not to be extensive enough to lead to a significant improvement in the perception of these vowels. Since production of these vowels did improve, it seems that longer and more extensive training would be necessary to also improve perception.

Table 5
Percentages of correctly perceived vowels in both groups.

	Pre-test	Post-test	Increase
Experimental group	52.53 %	56.25 %	+3.72
Control group	56.77 %	59.38 %	+2.61

Table 6

Summary of the results of the binomial logistic regression analysis in both groups on the perception of vowels. For both groups, the moment of testing was not a significant predictor in the model.

Perception of vowels		B(SE)	Sig.	95% Confidence interval for odds ratio		
				Lower	Odds ratio	Upper
Exp. group ¹	Moment of testing	.150(.111)	.176	.935	1.162	1.444
	Constant	.101(.077)	.190		1.107	
Control group ²	Moment of testing	.107(.146)	.465	.835	1.113	1.483
	Constant	.273(.103)	.008		1.313	

1. Note: 1.83 (Chi-square), 1807.07 (-2LL), .001 (Cox & Snell), .002 (Nagelkerke)

2. Note: .55 (Chi-square), 1044.03 (-2LL), .001 (Cox & Snell), .001 (Nagelkerke)

5.2.2 Perception of Consonants

The pupils in the experimental group improved their perception of word-final consonants in the post-test relative to the pre-test on group level. Statistical analysis showed that the moment of testing (pre-test vs. post-test i.e. before vs. after training) was a significant predictor in the model (Table 8). The pupils were 1.8 times more likely to correctly produce word-final consonants in the post-test relative to the pre-test. These results show that due to the pronunciation training, the pupils' overall perception of the consonants significantly improved. However, the pupils were not able to generalise the improvement to all consonant types, because further analysis showed that the improvement only occurred for dental-labial and velar consonants (Table 7). For the perception of labial consonants, the pupils performed worse in the post-test than in the pre-test; a decrease of 9.44%. One explanation for this result might be that this consonant contrast is less clear to the pupils. Furthermore, contrary to the expectations, the pupils did not perceive substantially more voiceless consonants than voiced consonants.

In the control group, the pupils also perceived more consonants correctly in the post-test than in the pre-test, but this improvement did not reach significance (Table 8). These results show that the perception of non-native word-final consonants can improve over time,

but that pronunciation training on an accurate production of such consonants clearly leads to a more significant improvement in perception.

Table 7

Percentages of correctly perceived word-final consonants in the experimental group.

	Pre-test	Post-test	Increase
Labial /p-b/	69.44 %	60.00 %	-9.44
Dental-labial /t-d/	58.73 %	78.75 %	+20.02
Velar /k-g/	59.92 %	72.92 %	+13.00

Table 8

Summary of the results of the binomial logistic regression analysis in both groups on the perception of consonants. The moment of testing was a significant predictor in the model for the experimental group, but not for the control group.

Perception of consonants		B(SE)	Sig.	95% Confidence interval for odds ratio		
				Lower	Odds ratio	Upper
Exp-group ¹	Moment of testing	.588(.194)	.002	1.231	1.801	2.634
	Constant	.402(.129)	.002		1.495	
Control-group ²	Moment of testing	.174(.241)	.470	.742	1.190	1.910
	Constant	.336(1.69)	.047		1.400	

1. Note: 38.87 (Chi-square), 1842.88 (-2LL), .026 (Cox & Snell), .036 (Nagelkerke)

2. Note: 8.28 (Chi-square), 1137.93 (-2LL), .010 (Cox & Snell), .013 (Nagelkerke)

6. Discussion and Conclusions

6.1 Pronunciation

One of the main objectives of this study was to examine whether explicit classroom instruction on the English pronunciation of non-native phonemic contrasts could result in an improved pronunciation of these phonemes by Dutch secondary school pupils. Statistical analysis showed a significant increase in accurately produced vowels and consonants for the post-test relative to the pre-test. The control group showed slight improvements in their production too, however, none of these reached significance. The first hypothesis is thus supported.

The results indicate that pupils' English pronunciation improves over time, but that specific lessons about the pronunciation of English sounds is far more effective. They further

imply that, to improve pupils' English pronunciation, such lessons should be integrated in the curriculum of Dutch secondary schools.

6.2 Perception

Another objective of this study was to examine whether explicit classroom instruction on the English pronunciation of non-native phonemic contrasts could indirectly improve pupils' perception of these contrasts. It was hypothesised that the improvement in perception would be smaller than in production. The statistical analysis showed that the experimental pupils' perception of vowels did not improve significantly, while their perception of almost all word-final consonants did. This is similar to what Rochet (1995) found in his study, and confirms the hypothesis. These results suggest that perception is more difficult to alter than production when training only focussed on production. Furthermore, they suggest that perception is harder to generalise than production, because improvement only occurred in three of the four areas. Since the participants in this study started acquiring English near the end of the Critical Period, the phonemic categories in their minds are set for their L1, Dutch. The results show that it takes less effort for pupils to learn how to use the articulators in new ways than to add a phonemic category to their phonemic inventory. It takes longer to improve perception than production, because the phonemic categories are much less flexible and changeable and the articulators. These results can be explained by Flege's model of Equivalence Classification (1995). According to the basic principles of EC, it becomes difficult to alter phonemic categories after the Critical Period. The participants in this study have passed this Critical Period of language acquisition, and therefore will need more and longer perceptual training to improve their perception of non-native phonemes.

6.3 Potential Implementations

The results of this study can be placed in the current debate on the value of pronunciation teaching. Even though the pupils' perceptive skills did not improve as much as their productive skills, the study showed that pronunciation training can lead to both an improvement of productive and perceptive skills. This study therefore further strengthens the argument that pronunciation teaching should be regarded as an indispensable part of the curriculum, like Van Hattum (2014), Rupp (2014) Lowie (2004), and Van den Doel (2006) already argued. The perception of specific phonemes is of course only a small part of broader L2 listening skills, but a better phonemic perception will cause less confusion over speech sounds and can, in the long term, improve the pupils' listening skills.

The participants in this study were at a *3HAVO* level, which is the middle of three educational levels at Dutch secondary school education. Pronunciation teaching initiated progress for them, and when the lessons would be adjusted to the lower (*MAVO*) and higher (*VWO*) level, it could benefit pupils there too. The current study demonstrates the positive influences on productive and perceptive skills, but other language skills might also benefit from pronunciation teaching. The "lack of concrete targets for English pronunciation" (p. 69) that Van Hattum (2014) described could be resolved once there is a clear goal to which pronunciation teaching could contribute. A better phonemic inventory of the English language will likely affect all major language skills for pupils throughout all levels. Since English has become a core-subject in Dutch secondary school education, pupils' all-round language acquisition can be improved by teaching pronunciation.

6.4 Limitations

In this section, some of the limitations of the current study are discussed.

Firstly, the perception data set for the control group was not complete. Only 12/22 pupils from this class participated in the perception test, due to technical and practical difficulties. A separate analysis on the production data from the 12 pupils who participated in the perception experiment showed that their production did not significantly improve, similar to the production results of the 21 pupils. This suggests that the perception data from the 12 pupils may be generalised for the whole control group.

Secondly, the task which the pupils had to execute during the production pre- and post-test proved too difficult for a few participants. The non-words were presented to them in phonetic transcription. Even though tips were included on the pronunciation of the symbols, some pupils could not quite grasp the sounds they had to produce. Their production of some items was off-target and these have been marked as inaccurate productions in the analysis.

Thirdly, time constraints lead to a less ideal design of the production experiment. Ideally, all pupils would have read out the same 68 items as were presented to them in the perception test. However, all pupils from one group had to be recorded within one hour and therefore this could not be done. The design that was chosen is still statistically accountable, but the originally intended design would have given a more complete set of data. The present study can only draw conclusions on group level, and not on an individual level.

6.5 Future Research

The current study has shown that pronunciation teaching should be integrated into the curriculum of English teaching at Dutch secondary schools, because of its significant influences of the production and perception of non-native sounds. It would be useful to find out what transfer can take place from pronunciation teaching to other language skills, such as reading and writing. Walter (2008) already showed that better phonological representations of

L2 phonemes can help L2 reading comprehension, but no substantial research has been conducted on the influences on writing in the L2.

Furthermore, research could be done into different ways of teaching pronunciation to Dutch secondary school pupils. The lesson material which is presented in Appendix 4 to this study is merely one way teaching pronunciation effectively. These lessons were 60 minutes and intensive, but integrating small 'blocks' of pronunciation training within more lessons over a longer period could be even more effective. Also, it would be interesting to research in which grade it would be best to start giving pronunciation lessons. The participants in this study had already completed almost three years of formal English education. It will thus be useful to find out whether effects could be even bigger when pronunciation education starts in the first grade of secondary school.

References

- Baker, Ann. (2006) *Ship or Sheep? An Intermediate Pronunciation Course*. Cambridge.
- Best, C., McRoberts, G., Sithole, N. (1988). Examination of perceptual reorganization for non-native speech contrasts: Zulu click discrimination by English-speaking adults and infants. *Journal of Experimental Psychology: Human Perception and Performance* 14.3, 345-360.
- Best, C. (1995). A direct realist perspective on cross-language speech perception. In: Strange W, (ed). *Speech Perception and Linguistic Experience: Theoretical and Methodological Issues in Cross-language Speech Research*. (pp. 167–200). York: Timonium, MD.
- Boersma, P., Weenink, D. 2014. Praat: Doing phonetics by computer. Computer programme version 5.3.62. <http://www.praat.org/>.
- Bongaerts, T. (1999). Ultimate attainment in L2 pronunciation: the case of very advanced late L2 learners. In D. Birdsong (ed.), *Second Language Acquisition and the Critical Period Hypothesis*. (pp. 133-159). London: Lawrence Erlbaum.
- Broersma, M. (2005). Phonetic and lexical processing in a second language. (Doctoral dissertation). Wageningen: Ponsen & Looijen BV.
- Catford, J.C., & Pisoni, D.B. (1970). Auditory vs. articulatory training in exotic sounds. *Modern Language Journal*, LIV(7), 477–481.
- Chen, M. (1970). Vowel length variation as a function of the voicing of the consonant environment. *Phonetica* (22): 129-159.
- Collins, B & Mees, I. M. (2003). *The Phonetics of English and Dutch*. Brill: Leiden.

- Council of Europe*. (2017). Common European Framework of Reference for Languages: Learning, Teaching, Assessment (CEFR). Retrieved from: <http://www.coe.int/en/web/common-european-framework-reference-languages/>
- Derwing, T. & Munro, M. (2005). Second language accent and pronunciation teaching: a research-based approach. *Tesol Quarterly*, 39.3: 379-397.
- Dickerson, W. B. (1985). The invisible Y: A case for spelling in pronunciation learning. *TESOL Quarterly*, 19(2), 303-316.
- Doel, R.Z. van den. (2006). *How Friendly are the Natives? An Evaluation of Native-speaker Judgements of Foreign-accented British and American English*. (PhD thesis). LOT: Utrecht.
- Essen, A.J. van. (2001). Het Engels als lingua franca. *Levende Talen Tijdschrift* (1), 3-10.
- Fasoglio, D. & Meijer, D. (2007). *Handreiking schoolexamen moderne vreemde talen havo/vwo*. Enschede: SLO.
- Flege, J.E. (1987). The production of "new" and "similar" phones in a foreign language: Evidence for the effect of equivalence classification, *Journal of Phonetics* 15: 47-65.
- Flege, J. E. (1995). Second Language Speech Learning: theory, findings, and problems. In: Strange W, editor. *Speech Perception and Linguistic Experience: Theoretical and Methodological Issues in Cross-language Speech Research*. (pp. 229-273). York: Timonium, MD.
- Hattum, J. van. (2014). Effectief Engels Uitspraakonderwijs. *Levende Talen Tijdschrift*. (3), 22-24.
- Hirata, Y. (2004). Computer Assisted Pronunciation Training for Native English Speakers Learning Japanese Pitch and Durational Contrasts. *Computer Assisted Language Learning* 17: 357-376.

- Jenkins, J. (2000). *The phonology for English as an international language*. Oxford: Oxford University Press.
- Koet, T. (2007). *Polder English in Dutch ears: empirical studies on the evaluation of the pronunciation of English as a foreign language*. University of Amsterdam.
- Koster, Cor J. and Koet, Ton. (1993). The Evaluation of Accent in the English of Dutchmen. *Language Learning* 43, 69-92.
- Lenneberg, E. (1967). *Biological foundations of language*. New York: Wiley.
- Levis, J & Grant, L. (2003). Integrating pronunciation into ESL/EFL classrooms. *Tesol Journal*, 12.2, 13-20.
- Lowie, W. (2004). De zin en onzin van uitspraakonderwijs. *Levende Talen Tijdschrift*, (1), 3-12.
- Murphy, J. M. (1991). Oral communication in TESOL: integrating speaking, listening and pronunciation. *Tesol Quarterly*, 25.1: 52-76.
- Morley, J. (Ed.). (1991). Current perspectives on pronunciation. *TESOL Quarterly*, 25 (3), 481-520.
- Pennington, M. C., & Richards, J. C. (1986). Pronunciation revisited. *TESOL Quarterly*, 20 (2), 207-226.
- Piske, T., McKay, I.R.A. and Flege, J.E. (2001). Factors affecting degree of foreign accent in an L2. A review. *Journal of Phonetics* 29: 191-215.
- Rochet, B.L. (1995). Perception and production of L2 speech sounds by adults. In W. Strange (ed.), *Speech Perception and Linguistic Experience: Theoretical and Methodological Issues in Cross-Language Speech Research*. (pp. 379-410). Timonium, MD: York Press Inc.
- Rupp, L. (2014). Begrijpelijk Engels; aandacht voor uitspraakonderwijs. *Levende Talen Magazine* (2), 4-8.

- Scovel, T. (1969). Foreign accents, language acquisition, and cerebral dominance. *Language Learning*, 19, 245-253.
- SLO *Moderne Vreemde Talen*. (2015). Engels als kernvak. Retrieved from <http://mvt.slo.nl/thema-overzicht/engels-als-kernvak>
- Smorenburg, L., Rodd, J., and Chen, A. (2015). The effect of explicit training on the prosodic production of L2 sarcasm by Dutch learners of English. In *Proceedings of the 18th International Congress of Phonetic Sciences*. Glasgow, UK: University of Glasgow.
- Stevick, E. W. (1978). Toward a practical philosophy of pronunciation: Another view. *TESOL Quarterly*, 12 (2), 145-150.
- Veenker, T. J. G. 2014. The Zep Experiment Control Application. Computer programme version 1.8. Beexy Behavioral Experiment Software. <http://www.beexy.org/zep/>.
- Walter, C. (2008). Phonology in second language reading: not an optional extra. *TESOL Quarterly*, (42), 455-474.

Appendix 1: List of Items in Production Tests

Pre-test	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
1	it	it	ip	ip	ik	ik
2	kæk	kæk	kæk	kek	kek	kek
3	u:g	u:g	u:d	u:d	u:b	u:b
4	i:d	i:d	i:b	i:b	i:g	i:g
5	ɒb	ɒb	ɒg	ɒg	ɒd	ɒd
6	fef	fef	fef	fæf	fæf	fæf
7	i:t	i:t	i:p	i:p	i:k	i:k
8	ɒp	ɒp	ɒk	ɒk	ɒt	ɒt
9	tet	tet	tet	tæt	tæt	tæt
10	id	id	ib	ib	ig	ig
11	ɔ:g	ɔ:g	ɔ:d	ɔ:d	ɔ:b	ɔ:b
12	ɔ:p	ɔ:p	ɔ:k	ɔ:k	ɔ:t	ɔ:t
13	ɔ:k	ɔ:k	ɔ:t	ɔ:t	ɔ:p	ɔ:p
14	pæp	pæp	pæp	pep	pep	pep
15	ɔ:b	ɔ:b	ɔ:g	ɔ:g	ɔ:d	ɔ:d
16	u:k	u:k	u:t	u:t	u:p	u:p

Post-test	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
1	ip	ik	it	ik	it	ip
2	kek	kek	kek	kæk	kæk	kæk
3	u:d	u:b	u:g	u:b	u:g	u:d
4	i:b	i:g	i:d	i:g	i:d	i:b
5	ɒg	ɒd	ɒb	ɒd	ɒb	ɒg
6	fæf	fæf	fæf	fef	fef	fef
7	i:p	i:k	i:t	i:k	i:t	i:p
8	ɒk	ɒt	ɒp	ɒt	ɒp	ɒk
9	tæt	tæt	tæt	tet	tet	tet
10	ib	ig	id	ig	id	ib
11	ɔ:d	ɔ:b	ɔ:g	ɔ:b	ɔ:g	ɔ:d
12	ɔ:k	ɔ:t	ɔ:p	ɔ:t	ɔ:p	ɔ:k
13	ɔ:t	ɔ:p	ɔ:k	ɔ:p	ɔ:k	ɔ:t
14	pep	pep	pep	pæp	pæp	pæp
15	ɔ:g	ɔ:d	ɔ:b	ɔ:d	ɔ:b	ɔ:g
16	u:t	u:p	u:k	u:p	u:k	u:t

Appendix 2: List of Items in Perception Tests

- | | | | |
|-----|-----|-----|-----|
| 1. | pæp | 42. | ɒk |
| 2. | pek | 43. | ɔ:k |
| 3. | ib | 44. | ʊg |
| 4. | fet | 45. | tæk |
| 5. | ɔ:b | 46. | ket |
| 6. | u:d | 47. | pæf |
| 7. | ʊt | 48. | i:b |
| 8. | kæf | 49. | ʊp |
| 9. | it | 50. | kef |
| 10. | ig | 51. | kæt |
| 11. | ʊb | 52. | pæk |
| 12. | u:t | 53. | u:k |
| 13. | tet | 54. | fæp |
| 14. | tep | 55. | pæt |
| 15. | ɒb | 56. | ɔ:t |
| 16. | ik | 57. | pet |
| 17. | u:p | 58. | tæt |
| 18. | ɔ:d | 59. | ɒp |
| 19. | id | 60. | fæf |
| 20. | pef | 61. | kæp |
| 21. | tek | 62. | ɔ:g |
| 22. | i:g | 63. | i:d |
| 23. | ʊd | 64. | fek |
| 24. | fep | 65. | ɒt |
| 25. | tæf | 66. | kæk |
| 26. | ɒg | 67. | fef |
| 27. | i:t | 68. | i:p |
| 28. | pep | | |
| 29. | u:b | | |
| 30. | i:k | | |
| 31. | kek | | |
| 32. | tef | | |
| 33. | tæp | | |
| 34. | ʊk | | |
| 35. | ip | | |
| 36. | fæt | | |
| 37. | fæk | | |
| 38. | ɔ:p | | |
| 39. | ɒd | | |
| 40. | u:g | | |
| 41. | kep | | |

Appendix 3: List of Participants

Production experiment			
3HC pre-test	3HC post-test	3HD pre-test	3HD post-test
P1 (3HC_1.1)	P1 (3HC_1.1)	P1 (3HD_1.1)	P1 (3HD_1.1)
P2 (3HC_1.2)	P2 (3HC_1.2)	P2 (3HD_1.2)	P2 (3HD_1.2)
P3 (3HC_1.3)	P3 (3HC_1.3)	P3 (3HD_1.3)	P3 (3HD_1.3)
P4 (3HC_1.4)	P4 (3HC_1.4)	P4 (3HD_1.4)	P4 (3HD_1.4)
P5 (3HC_2.1)	P5 (3HC_2.1)	P5 (3HD_2.1)	P5 (3HD_2.1)
P6 (3HC_2.2)	P6 (3HC_2.2)	P6 (3HD_2.2)	P6 (3HD_2.2)
P7 (3HC_2.3)	P7 (3HC_2.3)	P7 (3HD_2.3)	P7 (3HD_2.3)
P8 (3HC_2.4)	P8 (3HC_3.1)	P8 (3HD_2.4)	P8 (3HD_2.4)
P9 (3HC_3.1)	P9 (3HC_3.2)	P9 (3HD_3.1)	P9 (3HD_3.1)
P10 (3HC_3.2)	P10 (3HC_3.3)	P10 (3HD_3.2)	P10 (3HD_3.2)
P11 (3HC_3.3)	P11 (3HC_3.4)	P11 (3HD_3.3)	P11 (3HD_3.3)
P12 (3HC_3.4)	P12 (3HC_4.1)	P12 (3HD_3.4)	P12 (3HD_3.4)
P13 (3HC_4.1)	P13 (3HC_4.2)	P13 (3HD_4.1)	P13 (3HD_4.1)
P14 (3HC_4.2)	P14 (3HC_4.3)	P14 (3HD_4.2)	P14 (3HD_4.2)
P15 (3HC_4.3)	P15 (3HC_4.4)	P15 (3HD_4.3)	P15 (3HD_4.3)
P16 (3HC_4.4)	P16 (3HC_5.1)	P16 (3HD_4.4)	P16 (3HD_4.4)
P17 (3HC_5.1)	P17 (3HC_5.2)	P17 (3HD_5.1)	P17 (3HD_5.1)
P18 (3HC_5.2)	P18 (3HC_5.3)	P18 (3HD_5.2)	P18 (3HD_5.2)
P19 (3HC_5.3)	P19 (3HC_6.1)	P19 (3HD_5.3)	P19 (3HD_5.3)
P20 (3HC_6.1)	P20 (3HC_6.2)	P20 (3HD_5.4)	P20 (3HD_5.4)
P21 (3HC_6.2)	P21 (3HC_6.3)	P21 (3HD_6.1)	P21 (3HD_6.1)
P22 (3HC_6.3)	P22 (3HC_6.4)	P22 (3HD_6.2)	P22 (3HD_6.2)
P23 (3HC_6.4)			

Perception experiment

3HC pre-test	3HC post-test	3HD pre-test	3HD post-test
P1 (3HC_3.3)	P1 (3HC_3.3)	P1 (3HD_2.3)	P1 (3HD_2.3)
P2 (3HC_4.1)	P2 (3HC_4.1)	P2 (3HD_5.4)	P2 (3HD_5.4)
P3 (3HC_1.1)	P3 (3HC_1.1)	P3 (3HD_3.1)	P3 (3HD_3.1)
P4 (3HC_3.4)	P4 (3HC_3.4)	P4 (3HD_2.2)	P4 (3HD_2.2)
P5 (3HC_1.4)	P5 (3HC_1.4)	P5 (3HD_1.3)	P5 (3HD_1.3)
P6 (3HC_1.3)	P6 (3HC_1.3)	P6 (3HD_5.3)	P6 (3HD_5.3)
P7 (3HC_1.2)	P7 (3HC_1.2)	P7 (3HD_6.2)	P7 (3HD_6.2)
P8 (3HC_3.2)	P8 (3HC_3.2)	P8 (3HD_4.4)	P8 (3HD_4.4)
P9 (3HC_4.3)	P9 (3HC_4.3)	P9 (3HD_5.1)	P9 (3HD_5.1)
P10 (3HC_5.3)	P10 (3HC_5.3)	P10 (3HD_3.2)	P10 (3HD_3.2)
P11 (3HC_2.4)	P11 (3HC_2.4)	P11 (3HD_1.2)	P11 (3HD_1.2)
P12 (3HC_4.4)	P12 (3HC_4.4)	P12 (3HD_5.2)	P12 (3HD_5.2)
P13 (3HC_6.4)	P13 (3HC_6.4)		
P14 (3HC_6.1)	P14 (3HC_6.1)		
P15 (3HC_2.2)	P15 (3HC_2.2)		
P16 (3HC_2.1)	P16 (3HC_2.1)		
P17 (3HC_4.2)	P17 (3HC_4.2)		
P18 (3HC_5.4)	P18 (3HC_5.4)		
P19 (3HC_2.3)	P19 (3HC_2.3)		
P20 (3HC_6.2)	P20 (3HC_6.2)		
P21 (3HC_5.2)	P21 (3HC_5.2)		

Teaching the pronunciation of the /æ-e/ vowel contrast and the word-final voiced/voiceless consonant contrast

Pronunciation lessons: Teacher's Guide

Developed by Margreet Pieper, May 2017

Introduction

The lesson series presented here was designed as part of a study into the production and perception of two non-native phoneme contrasts for Dutch *3HAVO* pupils. The phoneme contrasts which are the focus of this lesson series are the /æ-e/ vowel contrast and the word-final [±voice] contrast for /t-d, p-d, k-g/. The lessons were designed to raise awareness of pronunciation in pupils and teach them ways of improving their pronunciation of said non-native phoneme contrasts. The study itself looked at the effect of these pronunciation lessons on the pupils' perception and production of the phonemic contrasts.

In this teacher's guide, a detailed description and step-by-step lesson plan of each lesson can be found. Besides, a pupils' reader was made in addition in which instructions and exercises can be found as well as PowerPoint presentations for each lesson including audio and video.

Lesson 1: An introduction to pronunciation

Introduction

In this lesson, pupils will first start thinking about *pronunciation*. The main goal of this lesson is to make pupils become aware of their pronunciation and the role that different parts of the vocal tract can play in this. In the last part of this lesson it will be discussed that different languages are made of different sounds, which will be a stepping stone to the specific differences between Dutch and English, which will be the focus of lesson 2 and 3.

Lesson plan table

Date: 16 May 2017		Class: 3HC	Room: 24	Topic: General introduction to pronunciation	
Learning objectives pupils			Lesson material, media		
At the end of the lesson, the pupils have thought about the importance of pronunciation.			- Powerpoint presentation on screen, loudspeakers in classroom. - Pupils' readers.		
At the end of the lesson, the pupils are aware of their pronunciation and vocal tract.					
At the end of the lesson, the pupils are aware of sound differences between languages.					
Starting situation class					
The class has done some basic speaking exercises and a presentation, but has never spent much specific attention on the pronunciation of English phonemes.					
Time	Lesson part	Teacher activity	Pupil activity	Work form	
2 min	Opening	Teacher lets the pupils into the room, sets up lesson material.	Pupils enter the classroom, take a seat and get their materials. They put away phones and tablets.		
7 min	Introduction	Teacher gives introduction for the lesson series, shows lesson goals and hands out reader. Discuss meaning of 'pronunciation;' what do pupils think it is/entails?	Pupils listen to the introduction.	Plenary	
10 min	Videos + class discussion	Teacher shows 3 videos of Dutch speakers of	Pupils look at and listen to the videos, and think of their opinion	In pairs, then plenary	

		English (1min each) and discuss their accent. Pupils discuss statements presented on the PPT in pairs, then in class. How do pupils think it's possible to move from one accent to another?	on the statements. They actively think about whether and how it would be possible to improve your accent. They make notes in the reader (p.2).	
5 min	Word-web/brainstorm	Teacher asks pupils: what body parts do you think you use when speaking? Make word-web on the board with pupils.	Pupils think about how they speak and participate in the activity. They fill in their answers in the reader (p.2).	Plenary
10 min	Vocal tract	Teacher shows picture of the vocal tract, explains the different parts. Teacher shows video of MRI while speaking and <u>instructs pupils to circle the parts they see moving in their reader.</u>	Pupils look at the picture of the vocal tract in the reader (p.3) and the video and ask questions.	Plenary, individually.
12 min	Exploring speech	Teacher talks pupils through the most important parts of the vocal tract. Pupils experiment with what happens when they change around lips/tongue/etc. After giving the pupils some time, teacher recaps what has been learned so far about the vocal tract.	Pupils explore the workings of their vocal tract by listening to the teacher's explanation and by doing the exercises in the reader (p.4).	Plenary / in pairs
10 min	Differences between languages: bridge to upcoming lessons.	Teacher discusses fact that languages are made of different sounds. Listening to Koshian speakers; clicking sounds. Initiating thought about differences between EN and DU specifically.	Pupils learn about differences between languages, think about differences they already know. They listen to Koshian language and discuss Dutch and English.	Plenary
3 min	Summary + preview	Teacher summarises the lesson, checks whether lesson goals have been	Pupils think back about the new material, and ask questions if they have them.	Plenary

		met and gives a short preview to the next lesson.		
1 min	Ending	Teacher ends the lesson, lets pupils go.	Pupils hand in the reader, pack their bags and leave the classroom.	Plenary

Lesson plan step-by-step

Opening: Lesson opening like the teacher prefers.

Introduction: The teacher explains that the three upcoming lessons will be about pronunciation. Lesson goals for this lesson can be found in the PPT. The teacher hands out the readers to the pupils. Then, the teacher shows the word 'pronunciation' to the pupils and asks them what they think it means or what it makes them think about. Answers are discussed in class, and pupils are encouraged to take notes in their reader.

Videos + class discussion: The teacher shows 1 min of three videos: 1) Louis van Gaal speaking English, 2) Rob van Geus speaking English and 3) Frans Timmermans speaking English. For each video, the teacher writes on the board what pupils think about their accent. The teacher shows three statements on the PPT and gives pupils the activity of discussing the statements in pairs. After having done so for 3 or 4 minutes, the teacher will ask a few pupils to share their comments. The teacher asks the pupils whether and how they think it's possible to improve from one accent to another.

Word-web: Teacher asks the pupils which parts of their body they think they use when speaking. This can be put in a word-web on the board, and pupils can also write this in their reader. Pupils can be asked to walk to the board and add things themselves. When all things are written down (no longer than 5 minutes), the teacher shows the picture of the vocal tract, which is also printed in the reader.

Vocal tract: The teacher talks the pupils through the parts of the vocal tract, and gives Dutch translations when needed. Pupils should be encouraged to feel the parts in their mouth with their tongue or fingers. Teacher explains that all these parts play an important role when

speaking, singing, humming, etc. Additionally, the teacher shows a short clip of someone's head while speaking. Clip can be shown multiple times (it's 15s).

THE VOCAL TRACT ENGLISH-DUTCH

Lips: lippen

Teeth: tanden

Nostril: neusgat

Tongue: tong (puntje, voorkant, achterkant, wortel)

Oral cavity: mondholte

Nasal cavity: neusholte

Alveolar ridge: kaakkam

Hard palate: harde gehemelte

Velum (soft palate): zachte gehemelte

Uvula: huig

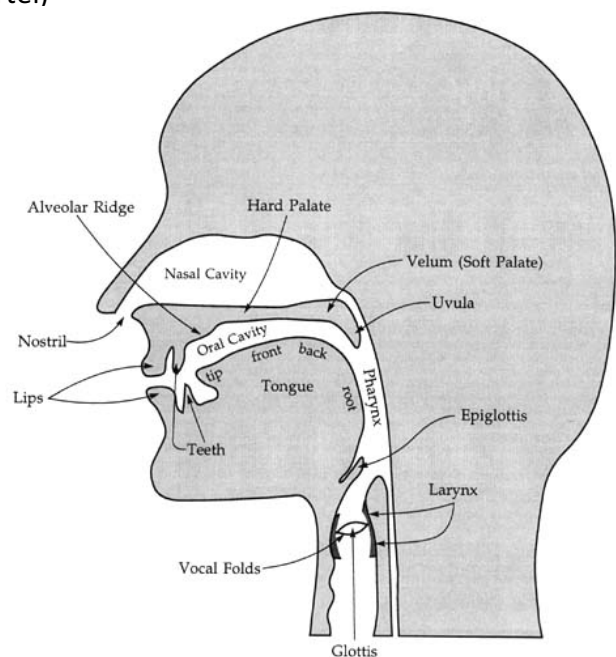
Pharynx: keelholte

Epiglottis: strotklep

Larynx: strottehoofd

Vocal folds: stembanden

Glottis: stemspleet/glottis



Exploring speech: The teacher explains that there are two types of sounds: vowels and consonants (klinkers en medeklinkers). What are examples of both? Next, a few of the parts of the vocal tract will be discussed in more detail: the lips and tongue for vowels and the nasals and plosives for consonants. In pairs, pupils will explore the different possibilities. The teacher recapitulates.

Differences between languages: After rounding up the part of the lesson on the vocal tract, the teacher explains that there are differences between languages, that not all languages are 'made' of the same sounds. To illustrate this, a clip is shown of Koshian speakers, an African clicking language. What do pupils think of this? The fact that languages are so different can make it hard to learn a new language. The teacher asks if anyone speaks another language, or

of what differences they can think between the languages that they know. What sounds are different? The discussion moves to specific differences between Dutch and English. What sounds are unique for these two languages? Pupils might think of the 'th' sound, for example. What makes it so hard for us to pronounce that? The answer is that we never learned these sounds in our own language. This part of the lesson is meant to spark pupils' awareness of English sounds, as a bridge for the next lesson.

Summary + preview: The teacher will shortly summarise the contents of this lesson, and check whether lesson goals have been met and whether there are any more questions. The teacher will explain what will happen in the next two lessons in which we will be looking at two English sounds that Dutch speakers struggle with.

Ending: Ending the lesson like the teacher prefers. Readers will be given back to the teacher.

Lesson 2: the /æ-e/ vowel contrast

Introduction

In the second lesson, the focus will be on the /æ-e/ vowel contrast. Both English vowels do not occur in Dutch. However, English /e/ (as in *pen*) is a lot like Dutch /ɛ/ (as in *zet*). The main goal of this lesson is to make clear the difference between the vowels to the pupils, and to teach them how they can produce the vowel contrast themselves. The goal of the lesson is NOT that at the end, pupils can perfectly produce the two vowels. Focus will be on raising awareness and on practice.

Lesson plan table

Date: 23 May 2017		Class: 3HC	Room: 24	Topic: The /æ-e/ vowel contrast	
Learning objectives pupils			Lesson material, media		
Pupils understand what the /æ-e/ vowel contrast is, from theory as well as from audio.			<ul style="list-style-type: none"> - PowerPoint Presentation on screen, loudspeakers in classroom. - Pupils' readers. 		
Pupils know how to produce the vowel contrast and can listen critically to a classmate doing the same.					
Starting situation class					
This is the second lesson in the lesson series. The previous lesson focussed on making pupils aware of pronunciation in general, now this lesson will zoom in on one English vowel contrast.					
Time	Lesson part	Teacher activity	Pupil activity	Work form	
2 min	Opening	Teacher lets the pupils into the room, sets up lesson material.	Pupils enter the classroom, take a seat and get their materials. They put away phones and tablets.		
7 min	Introduction + activating prior knowledge	Teacher explains lesson goals of this lesson, asks questions about previous lesson to activate pupils' prior knowledge.	Pupils listen to the introduction and lesson goals.	Plenary	
5 min	Game with pictures	Teacher presents pupils with 4 minimal pairs (see PPT), plays all words, and then pupils chose which picture represents the sound. Discuss: why is it so difficult to hear which one it is?	Pupils listen to the minimal pairs and circle their answer in the reader (p.5), and think about what could make it so difficult to hear the difference between the vowels.	Plenary, in pairs	

10 min	Explain phonemes	Teacher explains that Dutch doesn't have the sound, shows vowel chart, explains that Dutch people hear only 1 thing. Stress the difference is important because of difference in meaning. There is a list of examples to play in the ppt. Interactive, ask pupils to try it.	Pupils listen to the teacher's explanation, ask questions, answer questions.	Plenary
10 min	Ear training + listen & repeat	Two exercises will be done. 1) small ear training practice, pupils tick boxes of what they hear in reader. 2) listen & repeat.	Pupils listen to the pronunciation training and participate in the two activities. They answer the questions in the reader (p.5+6).	Plenary, in pairs
15 min	Practice time	Teacher instructs pupils to do the practice exercises from the reader (p.6), walks around to assist and answer questions.	Pupils work in pairs and do the practice exercises in the reader (p.6). They listen to each other and give feedback, or ask the teacher's help when needed.	In pairs
5 min	Game with pictures again/ear training exercise	Teacher presents the pupils with the same game as at the start of the lesson. Will pupils be able to do it better now?	Pupils listen to the minimal pairs and actively participate in the game, now realising what it is that they are listening to.	Plenary, in pairs
5 min	Summary + preview	Teacher summarises the lesson, checks whether lesson goals have been met. Short preview to next lesson.	Pupils think back about the new material, and ask questions if they have them.	Plenary

Lesson plan step by step

Opening: Lesson opening like the teacher prefers.

Introduction: The teacher hands out the readers to the pupils. Discuss what was learned yesterday, and activate prior knowledge by discussing the pictures from yesterday's lesson. Then, move on to tell the pupils what will be learned today. Show lesson goals.

Game with pictures: Play audio of minimal pairs dad/dead, man/men, and/end. Ask pupils to raise their hand/stand up for the picture they think belongs to the audio. Probably, pupils will be about equally divided over what picture it should be. Take this a 'proof' that it's difficult for us/them to hear the difference. Ask pupils why they think it is so difficult to hear it. If they

can't think of why, refer to the first lesson in which we talked about how languages are made up of different sounds. Steer the answers in the direction of something like: it's difficult for us because Dutch does not have the two different vowels. Say this yourself if pupils can't think of it.

Explain phonemes: In this part, the teacher explains the two phonemes to the pupils. It's important that this is done right and clearly, because it sets the stage for the rest of the lesson. You can use the following text:

The two vowels here are two different vowels in English. (ask: what are vowels again?) They are written down in a phonetic transcription. Symbols are used to describe what you hear, because spelling cannot always be trusted. One vowel /æ/ is the one we heard in 'dad' and /e/ is the sound in 'dead'. For Dutch people, the difference is very hard to hear! This is because in Dutch, we only have 1 vowel which is close to both English vowels. This is the vowel in words like 'zet' or 'pech'. The brain is programmed in such a way that you can only hear the sounds that belong to your language (broadly speaking). If they are different, your brain makes something of it. Funny how our brains work!

After that, explain that the difference might seem small and maybe insignificant, but it is in fact very important! It can change the meaning of a word, as is shown in the examples in the PPT (cattle vs. kettle, pan vs. pen). Audio is included so pupils can focus on hearing the difference. Stress again that pupils should know how to correctly pronounce the two vowels.

Vowel chart: show the two vowel charts to the pupils. Dutch vowels are shown in the left chart and the English vowels in the right chart. It looks a little complicated, so try to explain it as simple as possible. The idea is that pupils can visualise the difference between the two vowels, they don't have to know anything about the other vowels. Explain that the chart represents the mouth (front, central, back and high, mid, low). The vowels are placed where you pronounce them.

Ear training/listen&repeat: There are two exercises presented on the PPT. In the first exercise, pupils listen to a word and tick the right box for which one they think they hear. This is in their

reader. There are 10 items to listen to. It's a good idea to discuss the first 5 items directly, so that pupils get quick feedback on their listening. The final 5 can be done without pause and discussed afterwards. Stress that pupils shouldn't worry about the number of mistakes they made, that it is indeed a very difficult thing to hear. In the second exercise, pupils can listen to a word and repeat it. This can be done plenary. Each item can be played multiple times, so that pupils can try each word more than once.

Practice time: There are exercises in the reader that pupils can do to practice. Pupils will practice in pairs, and listen to each other. During practice time, walk around to listen in to pupils' production. Some might have questions, or you can give tips to them. The most important thing is that pupils practice, even though they might not be able to produce the vowels correctly yet.

Pictures: At the end of the lesson, after practice time, it's a good test to show the pictures again and play a sound. It will be interesting to see whether pupils can hear the contrast more clearly and correctly now.

Ending: Ending the lesson like the teacher prefers. Readers will be given back to the teacher.

Lesson 3: the word-final voiced/voiceless consonant contrast

Introduction

The final lesson in the lesson series focusses on the syllable/word-final [±voice] contrast of /t-d/, /p-b/ and /k-g/. Dutch does not have final voiced consonants, and therefore this is often problematic in the English pronunciation of Dutch speakers. The structure of the lesson will be similar to the previous lesson; explaining the phonemes first and then moving to practice.

Lesson plan table

Date: 30 May 2017		Class: 3HC	Room: 24	Topic: word-final voiced/voiceless contrast	
Learning objectives pupils			Lesson material, media		
Pupils understand what the syllable-final voiced/voiceless contrasts is.			<ul style="list-style-type: none"> - PowerPoint Presentation on screen, loudspeakers in classroom. - PRAAT on laptop. - Pupils' readers. 		
Pupils know how to realise a voiceless/voiced contrast in word-final position and can listen critically to a classmate doing the same.					
Starting situation class					
This is the third lesson in the lesson series. Previous lesson, pupils have learned about and practiced the /æ-e/ contrasts. This lesson, pupils will practice the consonant contrast.					
Time	Lesson part	Teacher activity	Pupil activity	Work form	
2 min	Opening	Teacher lets the pupils into the room, sets up lesson material.	Pupils enter the classroom, take a seat and get their materials. They put away phones and tablets.		
5 min	Introduction + activating prior knowledge	Teacher explains lesson goals of this lesson, asks questions about previous lesson to activate pupils' prior knowledge.	Pupils listen to the introduction and lesson goals.	Plenary	
3 min	Steenkolenengels	<u>Two video fragments from the first lesson will be shown, in which today's topic can be clearly heard.</u>	Pupils listen to the fragments and think about why it sounds so Dutch.	Plenary	
5 min	Introducing /t-d/	Teacher discusses the differences between /t-d/ in initial position in English. How do you realise the	Pupils listen to the teacher's explanation, ask questions, answer questions. They make notes in the reader.	Plenary, in pairs	

		difference? Then the discussion moves to the differences between /t-d/ in final position and examples will be discussed and practiced. Why is that more difficult?		
7 min	Explain voicing	Teacher explains that Dutch doesn't have the final /d/ sound, and why. Plays 2 videos which explain voicing contrast, plays samples. Encourages pupils to try and 'feel' voicing in their glottis. Explain that this also applies to /p-b/ and /k-g/.	Pupils listen to the teacher's explanation, ask questions, answer questions.	Plenary
10 min	Pronunciation training	Teacher goes into detail about how to correctly pronounce the consonants, explains vowel lengthening. Interactive, ask pupils to try different things, giving them time to explore the differences.	Pupils listen to the pronunciation training and learn how they can pronounce the two vowels. They practice and listen to each other.	Plenary, in pairs
5 min	PRAAT visualisation	Teacher asks a pupil to record a min. pair, shows visualisation in PRAAT on screen, so pupils can see the difference in vowel length and voicing.	One or two pupils will record something to be shown in PRAAT. Pupils will look at the chart, ask questions.	Plenary
15 min	Practice time	Teacher instructs pupils to do the practice exercises from the reader (p.7+8), walks around to assist and answer questions. <u>Pairs will move around the class so they can practice with other pairs.</u>	Pupils work in pairs and do the practice exercises in the reader (p.7+8). They listen to each other and give feedback, or ask the teacher's help when needed.	In pairs
5 min	Summary, final questions.	Teacher summarises the lesson(s), checks whether lesson goals have been met. If pupils have any remaining questions they can ask them. Pupils can go back to the statements of lesson 1 and check whether their opinion has changed. Discuss in class.	Pupils think back about the new material, and ask questions if they have them.	Plenary

1 min	Ending	Teacher ends the lesson, lets pupils go.	Pupils pack their bags and leave the classroom.	
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Lesson plan step by step

Opening: Lesson opening like the teacher prefers.

Introduction: The teacher hands out the readers to the pupils. Discuss what was learned during the previous lesson, and activate pupils' prior knowledge by asking some questions about the vowels. Then, move on to tell the pupils what will be learned today. Show lesson goals.

Introducing /t-d/: Start by discussing /t/ and /d/ in word-initial position. This difference will be easy for pupils to understand. Discuss the minimal pairs in the PPT, ask pupils to pronounce them. Then, go to the next slide and discuss /t/ and /d/ in word-final position. Ask pupils to pronounce these words as well, and ask some questions to start pupils' thoughts on these phones. Why is it more difficult to hear and pronounce the difference here? What do you think you could do to realise this difference? Additionally, explain that Dutch does not have this difference and show the examples. Finally, play the list of items that feature the final /t-d/ contrast.

Explain voicing: There are two videos included in the PPT which explain voicing. They are very clear and understandable. After watching the videos, show the vocal tract and point out the glottis. Encourage pupils to speak with each other while feeling their glottis, so they can actually feel it moving. Then, pupils will pronounce the phones listed on the slide. Explain here that the final /t-d/ contrast also applies to /p-b/ and /k-g/. Give pupils a few minutes to experience the difference in their glottis.

Pronunciation training: Now that pupils know what voicing is and having experienced what it feels like, it is time to explain how to realise the voicing difference in a word. The most important thing is vowel length before a final voiced consonant, which is a lot longer than before a voiceless consonant. This can be explained by listening to the samples. A general rule is that a syllable that ends in a *voiceless* consonant will be shorter than one that ends in a

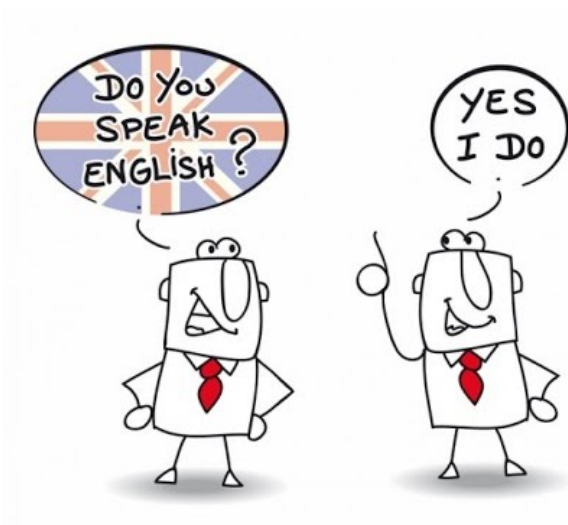
voiced consonant. This counts for all three consonant pairs (/t-d, p-b, k-g/). Lengthening the vowel will almost automatically make the final consonant sound like a voiced one. Give pupils some time to try this.

PRAAT visualisation: It might help to visualise the vowel length in PRAAT. Ask a pupil to record a minimal pair (*Record > Record mono sound*) and show in PRAAT (*View&Edit*) that the vowel length is different. This can also be used to practice, because you can see whether the produced vowel is longer.

Practice time: There are exercises in the reader that pupils can do to practice. Pupils will practice in pairs, and listen to each other. During practice time, walk around to listen in to pupils' production. Some might have questions, or you can give tips to them. The most important thing is that pupils practice, even though they might not be able to produce the consonants correctly yet. The pairs change table groups so that they can practice and listen to different classmates.

Summary/final questions: Since this is the final lesson of the lesson series, it would be nice to ask the pupils to think about everything they have learned. Maybe you could ask them what they remember most or thought was most interesting. Additionally, pupils can look in their reader at the statements from the beginning of lesson 1. They can discuss whether their opinion has changed or not, first in pairs and then plenary. If pupils have any final questions they can be asked.

Ending: Ending the lesson like the teacher prefers. Pupils can keep the reader and take it home, or return it to the teacher.



Pronunciation lessons

Reader

Name:

Class:

Lesson 1: An introduction to pronunciation

Date: 16 May 2017

1. Statements

Read the following statements, circle whether you agree or not and discuss your answer in pairs.

1. Accent in your second language is very important. AGREE/DON'T AGREE

.....
.....
.....

2. People with a good accent seem smarter/nicer/etc. AGREE/DON'T AGREE

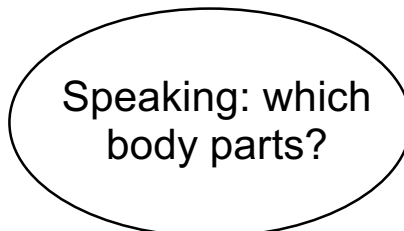
.....
.....
.....

3. I would like to have a better accent in English. AGREE/DON'T AGREE

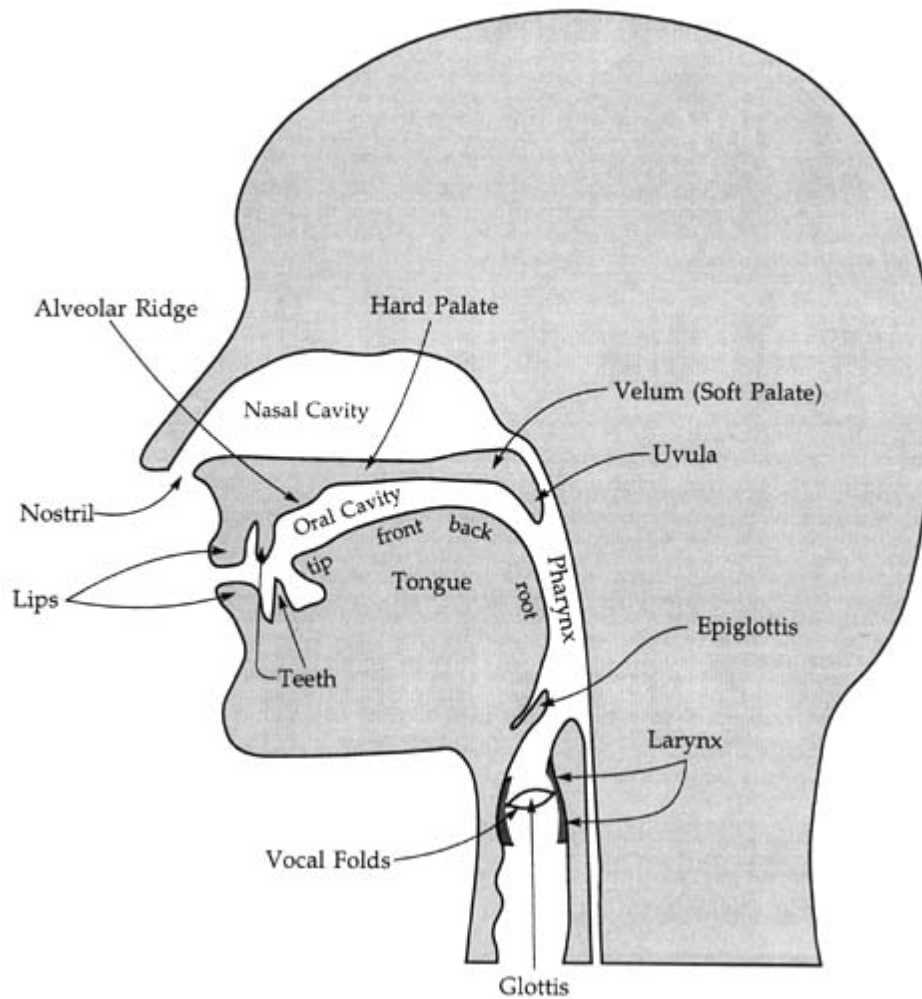
.....
.....
.....

2. Word-web

Complete the word-web.



3. The vocal tract (het spraakkanaal)



ENGLISH-DUTCH

Lips: lippen

Teeth: tanden

Nostril: neusgat

Tongue: tong (puntje, voorkant, achterkant, wortel)

Oral cavity: mondholte

Nasal cavity: neusholte

Alveolar ridge: kaakkam

ENGLISH-DUTCH

Hard palate: harde gehemelte

Velum (soft palate): zachte gehemelte

Uvula: huig

Pharynx: keelholte

Epiglottis: strotklep

Larynx: strottehoofd

Vocal folds: stembanden

Glottis: stemspleet/glottis

4. Discovering!

You can move around the different parts of the vocal tract (see picture) to influence your speech and pronunciation.

a) Vowels (klinkers): lips and tongue

Move your lips from a circle (O) to a bar (---) while making a neutral sound. What happens to the sound?

.....
.....

Start with a wide-open mouth and slowly close it while making a neutral sound. What happens to the sound?

.....
.....

Compare the vowel in 'beat' to the vowels in 'done' and 'move'. Which part of the tongue do you use for each?

.....
.....

b) Consonants (medeklinkers): nasal or plosive

Pinch your nose. What do you hear? When do you sound like this?

.....
.....

Say English /p/ /t/ /k/ /b/ /d/ /g/. How are these sounds different from /m/ and /n/?









.....
.....

Lesson 2: the /æ-e/ vowel contrast

Date: 23 May 2017

1. What do you hear?

Circle the picture of the word you think you hear.

	Picture 1	Picture 2
1		
2		
3		
4		

2. Ear training

Tick the words a) or b) that you hear.

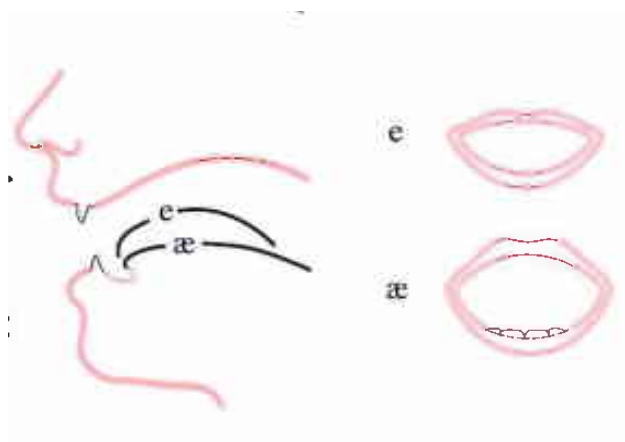
1. a) bat b) bet
2. a) sad b) said
3. a) shall b) shell
4. a) pat b) pet
5. a) bad b) bed

6. a) can b) Ken
7. a) sand b) send
8. a) Brad b) bread
9. a) gas b) guess
10. a) bag b) beg

3. Practice

How to make the difference between /æ/ and /e/:

- 1) for /æ/, the mouth is more open
- 2) for /æ/, the tongue is lower
- 3) /æ/ is slightly longer than /e/



Exercise:

Look at the words from Exercise 2 (*Ear training*). Use the three features described above to make the difference between /æ/ and /e/.

Listen to your partner and help each other.

Lesson 3: the word-final voiced/voiceless consonant contrast

30 May 2017

General rule: a syllable that ends in a voiceless consonant will be shorter than one that ends in a voiced consonant.

- /bet/ will be shorter than /bed/
- /rip/ will be shorter than /rib/
- /back/ will be shorter than /bag/

1. Vowel length

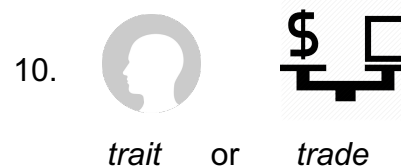
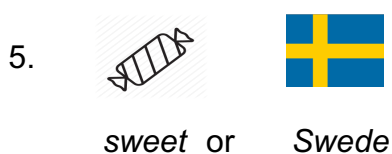
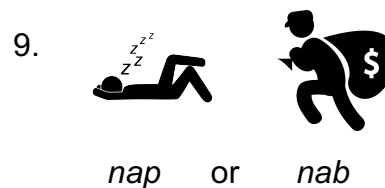
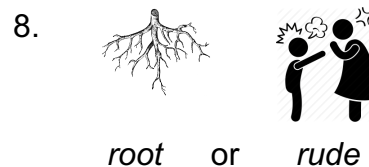
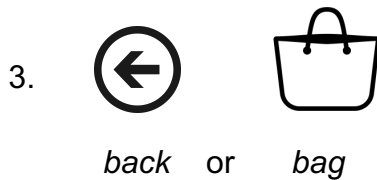
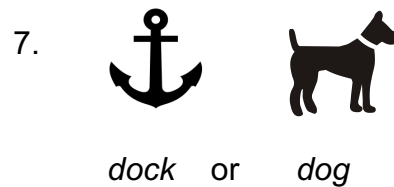
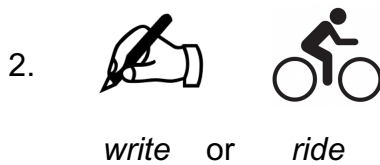
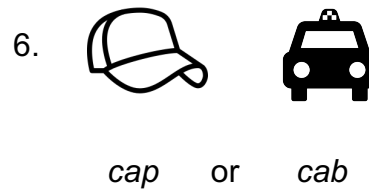
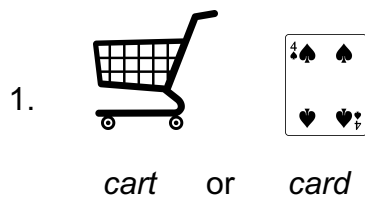
Pronounce these words, and pay extra attention to the length of the vowel. Lengthen the vowel for the right list of words. Listen to each other and give feedback.

	Short vowel	Long vowel
1	bit	bid
2	cop	cob
3	grit	grid
4	not	nod
5	hack	hag
6	but	bud
7	rip	rib
8	beat	bead
9	gap	gab
10	wick	wig

2. Guess what!

Work in pairs. Pronounce one of the two words but don't tell which one you are trying to say. The other person guesses which one you are saying. Can you pronounce it correctly?

When you have done them all, switch roles.



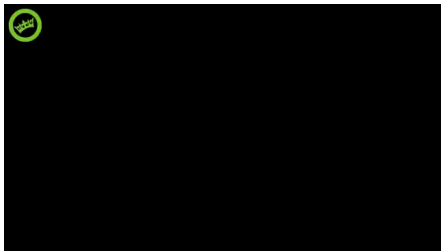
Introduction & lesson goals

Three lessons about English pronunciation.

Today's goals:

- Thinking about the importance of pronunciation.
- Becoming aware of your pronunciation and vocal tract.
- Becoming aware of differences between languages.

Pronunciation?



Discuss the following statements in pairs:

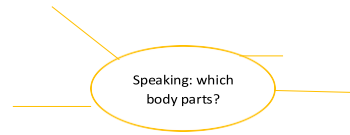
1. Accent in your second language is very important.
2. People with a good accent seem smarter/nicer/etc.
3. I would like to have a better accent in English.

 Reader p. 21

How?!

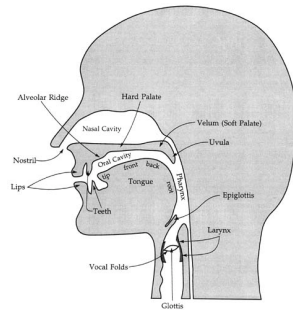


Word-web



Reader p. 2!

The vocal tract



The vocal tract in MRI



What can we do with the vocal tract?

- Two types of sounds: *vowels* and *consonants* (*klinkers* en *medeklinkers*).
- You can influence the sound by changing any part of the vocal tract.

Reader p. 3+4!

Vowels: lips

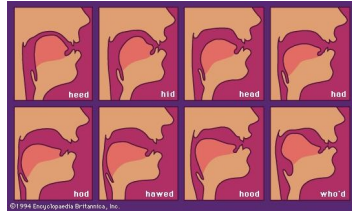
open vs. closed
rounded vs. unrounded



Vowels: tongue

Which part of the tongue is involved in these words?

- beat
- done
- move



Consonants: nasal sounds /m/ /n/

Pinch your nose!

When do you sound like this?

You can feel the vibration of your vocal cords by placing two fingers on your glottis (adamsappel).



Consonants: /p/ /t/ /k/ /b/ /d/ /g/

Other sounds only last a short moment: *plosive sounds*.

You let the air out after a temporary blocking.

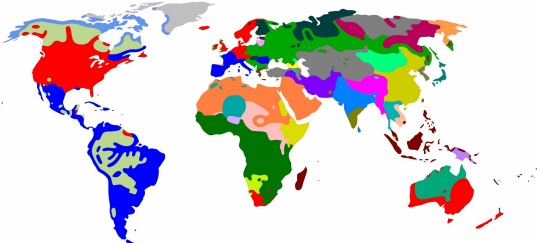


You can influence your speech by...

- Changing the shape of your lips.
- Changing the position of your tongue.
- Releasing more or less air.

Answer the questions on p.4

Differences between languages



Differences between languages

Not all languages are made of the same sounds.

The 'clicks' in Koshian languages are as different as /p/ and /t/!





Differences between languages

Who speaks a language besides Dutch or English?

Discuss!

Are there any sounds in there that Dutch doesn't have?



Dutch vs. English

Discuss!

What sounds are unique for Dutch and which are unique for English? Why are they so difficult to pronounce for others?



Next two lessons:

We'll be looking at two sounds that English has, but Dutch hasn't.

... and we'll practice it!

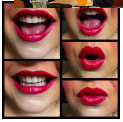
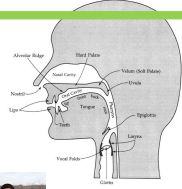
Pronunciation

Lesson 2

Last week...

- ... we talked about the importance of pronunciation.
- ... we became aware of our pronunciation and vocal tract.
- ... we became aware of differences between languages.

Last week...



Today...

... we will focus on two English vowels that are very difficult to hear and produce for speakers of Dutch.



Lesson goals:

- You will understand what the /æ-e/ vowel contrast is.
- You will know how to produce the vowel contrast.



 cattle



 kettle



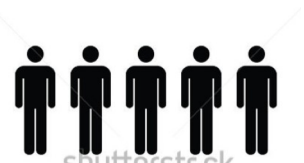
 pan



 pen



 man



 men

&



and

end

What do you hear?

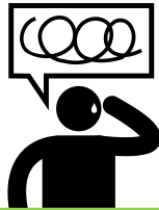
1)

2)

3)

4)

Why is it so difficult to hear?



The English /æ-e/ vowel contrast

- Two different vowels in British English.
- Both sound similar to Dutch speakers, because we only have one vowel: /ɛ/ (as in 'zet').
- Our ears are not used to the difference, instead we perceive the thing that we know. Our brains work in a funny way!



The English /æ-e/ vowel contrast

/æ/: cattle, pan, man, and,...

/e/: kettle, pen, men, end,...

The English /æ-e/ vowel contrast

• Important difference, because it changes meaning:

cattle vs. kettle



pan vs. pen



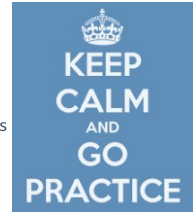
Exercise 2: listen & repeat

1. man 
2. men 
3. dad 
4. dead 
5. pan 
6. pen 





Time to practice!

- 1] pair up
- 2] go to p.6 in the reader
- 3] read the instructions and do the exercises

Teachers will walk around and listen.



What do you hear?

- 1) 
- 2) 
- 3) 
- 4) 

Next week...

...we'll look at two consonants (medeklinkers) that English has but Dutch hasn't.

Pronunciation

Lesson 3

Last week...

- ... we learned about the /æ-e/ vowel contrast.
- ... we practiced pronouncing the two vowels.

Lesson goals today:

- You will learn the difference between voiceless and voiced consonants.
- You will practice pronouncing these differences.

Steenkolenengels



Steenkolenengels

Rob Geus: "De **foet** is ferrie **bet**."

à The **food** is very **bad**.

Steenkolenengels



Steenkolenengels

Louis van Gaal:

"I'm ferrie **pliest** wiz you."

à I'm very **pleased** with you.







"I'm ferrie **prout** of my team."

à I'm very **proud** of my team.







Steenkolenengels

One of the most prominent things of Dutch-English accent:
pronouncing /t/ at the end of a word when it should be /d/.

/t-d/ in initial position: English

	/t/ too You too?	/d/ do You do?	
	train Does this train smell?	drain Does this drain smell?	
	trunk Is there a trunk outside?	drunk Is there a drunk outside?	

/t-d/ in final position: English

	sent You sent the emails?	send You send the emails?	
	cart Is the red cart hers?	card Is the red card hers?	
	write Can he write well?	ride Can he ride well?	

/t-d/ in final position: Dutch

• noot/nood:

- *Op de koek zit een noot.*
- *Help! Ik ben in nood.*

• hart/hard

- *Opa heeft last van zijn hart.*
- *De auto reed veel te hard.*

Final /t-d/examples

Batman is a superhero. His suit looks like a bat.

bat 

A superhero fights against bad people.

bad 

Final /t-d/examples

The lights are too bright in here, they are hurting my eyes.

bright 

The bride and the groom looked happy on their wedding day.

bride 

Final /t-d/examples

The Scotsman was wearing a kilt.

kilt 

The Scotsman had killed someone.


killed 

Final /t-d/examples

She's about average height.

height 

She used to hide her diary under her pillow.

hide 

Final /t-d/examples

My front bike light isn't working.

light 

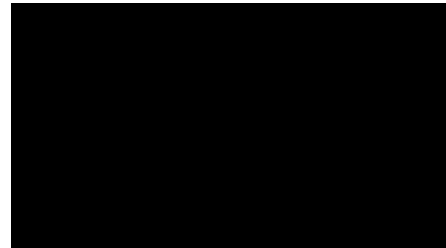
I think he lied to me.

lied 

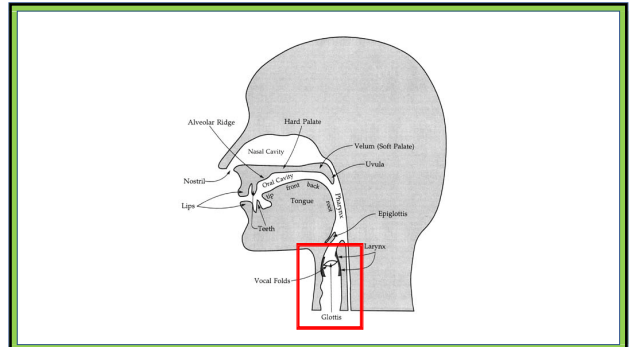
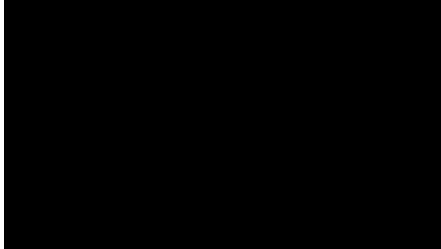
Final /t-d/examples

- *bat*  *bad* 
- *bright*  *bride* 
- *kilt*  *killed* 
- *height*  *hide* 
- *light*  *lied* 

Voicing



Voicing



Voicing



Put two fingers on your glottis.
Say these sounds:

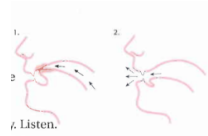
/t/
/d/

/p/
/b/

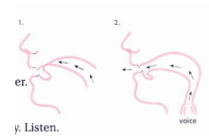
/k/
/g/

Adamsappel

How?



/t/

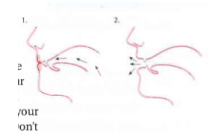


/d/

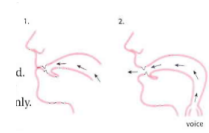
Try in these sentences:

- I'm very **proud** of my team.
- The **food** is very **bad**.

How?



/p/

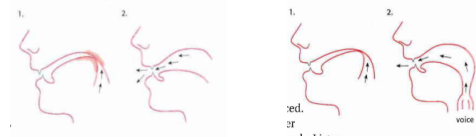


/b/

Try in these sentences:

- I broke my **rib**.
- We took a **cab** home.

How?



/k/







/g/

Try in these sentences:

- I'm walking the **dog**.
- I put my keys in my **bag**.

Vowels

Listen to the vowels (klinkers) before the final /t-d/, /p-b/ and /k-g/.

- write  ride 
- rope  robe 
- back  bag 

What do you hear?

Vowel lengthening

General rule: a syllable that ends in a voiceless consonant will be shorter than one that ends in a voiced consonant.

- /bet/ will be shorter than /bed/
- /cup/ will be shorter than /cub/
- /back/ will be shorter than /bag/

PRAAT visualisation

Time to practice!

- 1] pair up
- 2] go to p.7+8 in the reader
- 3] read the instructions and do the exercises



Pronunciation lessons: conclusion

Go back to the statements from Lesson 1 (p.2)

Has your opinion changed?

Discuss in pairs.