Learning non-Swedish speech sounds
A study of Swedish students’ pronunciation and ability to learn English phonemes

Att lära sig utomsvenska språkljud: En studie om svenska elevers uttal och förmåga att lära sig engelska fonem

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Abstract

Previous research has shown that L2 students have difficulties producing and even recognising sounds that do not exist in their mother tongue. It has also been concluded that accented speech not only compromises intelligibility but also makes the listener negatively biased towards the speaker. The present study explores how proficient Swedish students are in producing the speech sounds /dʒ/, /j/, /v/, /w/, /ʃ/ and /tʃ/, of which /dʒ/, /w/ and /tʃ/ do not exist in Swedish. In addition, it explores whether their pronunciation of these sounds improves after a brief pronunciation lesson, if this improvement is lasting and whether they tend to learn the pronunciation of words as separate units or are able to generalise the rules of pronunciation and appropriately apply them. It also investigates whether a difference in the structure of the pronunciation lesson affects the students’ results. The study revealed that the students do have difficulties with correctly producing in particular /tʃ/, /dʒ/ and /j/. More specifically, they tended to confuse /dʒ/ and /j/ whereas many students appeared to have been unaware that /tʃ/ exists and used the /ʃ/-sound instead, which exists in Swedish. After the pronunciation lesson, however, the students significantly improved their pronunciation. This improvement was shown to be lasting and the students were generalising rules rather than learning words as separate units. What the study failed to show was a significant difference in results caused by a difference in the structure of the pronunciation lesson.

Keywords: Pronunciation, learning, speech sounds, non-Swedish phonemes

Sammanfattning på svenska


Nyckeord: Uttal, lärande, språkljud, icke-svenska fonem
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1. Introduction and aims

English is the lingua franca of international communication in today's world and is learned by a vast range of people of different backgrounds and cultures. This diversity inevitably gives rise to a great number of accented varieties of English; varieties that are natural extensions of the speaker’s L1, meaning that they exhibit certain defining features that deviate from the standard pronunciation of RP and GA. The intricate combination of such defining features are found in e.g. the Hispanic accent, the German accent, the French accent and the accent that is most relevant to this study: the Swedish accent. The goal of a learner is, however, to move away from accented speech, maybe to one day speak like a native, or at least to speak without making pronunciation errors that compromise intelligibility. This makes perfect sense from a communicative perspective, since accented speech not only makes a speaker difficult to understand – it is also prone to evoke a biased perspective in the native listener, who tends to perceive a speaker with an accent as less intelligent and competent etc. (Norell, 1991; Eisenhower, 2002; Pantos & Perkins, 2013: 4).

When teaching pronunciation, teachers have traditionally relied on students being able to listen, repeat and successfully mimic model pronunciation. Later, when pronunciation emerged as a field of study at the end of the 19th century, a more analytic approach was added to the traditional one; an approach that focused on phonetic explanation of speech (Celce-Murcia, et al. 1996: 2). In the Swedish upper secondary school clear communication is an explicit aim stated in the curriculum (Skolverket, 2013). It does seem, however, as Kelly (2000) proposes, that teachers tend to favour reactive teaching instead of more structured models, i.e., they react to and correct errors continuously as they hear students make them, rather than explaining the errors being made. How well this works – this which is yet another way of learning through listening and repeating – depends a great deal on whether the learners’ linguistic experience allows them to grasp the teacher's correction, which is far from certain. It has been shown in many studies that students, depending on their L1, tend not to distinguish sounds that do not exist in their native language – sounds they are supposed to mimic (Miyawaki et al., 1975; Major, 1987). This inability is based in deeply rooted cognitive mechanisms that obscure the gap between the student's interlanguage and the L1; and it is thus unlikely that the errors will just disappear after the teacher's correction, since the students are not aware of the errors in the first place. How then, should the teaching community approach this problem?
The aim of the current paper is to investigate whether it makes a difference to a student’s pronunciation if minimal or near-minimal sound pairs are used to highlight the difference between certain L2 sounds, that are predicted to be difficult for Swedish students, and similar L1 sounds. Furthermore, it is of interest to see whether this awareness may bring about a lasting difference to the student’s pronunciation of the sounds. Hence the questions to be addressed in this paper are:

1. Are Swedish students of English able to correctly produce the speech sounds /dʒ/, /j/, /v/, /w/, /ʃ/ and /tʃ/?
2. Does a brief pronunciation lesson help Swedish students of English improve their ability to produce these speech sounds?
3. Does the structure of the pronunciation lesson make a difference to how much students improve – if the sounds are played in a random order or in an order designed to highlight the difference between similar speech sounds?
4. Do students learn to pronounce words as separate units or are they able to generalise the rules of pronunciation of sounds and appropriately apply them to words they encounter?

2. Background

Languages are distinguished from one another by differences in phonology, grammar and vocabulary, and although there is no general consensus of how large these differences have to be in order for two languages not to be considered one, English and Swedish are certainly two quite distinct languages, although related. They are two languages that make use of two slightly different sets of sounds, i.e., some of the speech sounds are present in one but not in the other language, e.g. the sounds /tʃ/ and /dʒ/ exist in English but not in Swedish, whereas /oː/ exists in Swedish but not in English. Thus learners of one or the other language are bound to encounter challenging aspects of pronunciation during the learning process; more or less problematic, of course, depending on how these aspects are approached by the teacher.

2.1 Attitudes towards accented English

Usually, two varieties of English are used as native speaker models in Swedish schools. These two are British English (RP) and General American (GA). Apart from them, there are many
other L1 accents of English, such as Australian English, Canadian English and New Zealand English. Moreover, since English is the language of international communication, there are many English accents that are not spoken as mother tongues. One such example is Indian English, which is an official language in India and thus many Indians’ L2. Each of these English accents expresses defining linguistic features that in some cases are part of a stereotype. In other words, they trigger a set of emotions and beliefs about the speaker’s personality, competence etc., and thus influence how individuals are treated in different situations (Myers, 2009: 691). An example of when a particular accented variety of English became a trigger for a negative stereotype was in the aftermaths of September 11, 2001. The accent in question here is, of course, English spoken by Arabs (and other nationalities whose accents were similar).

In her doctoral dissertation, Eisenhower (2002: 44-45, 73-74) concluded, after having investigated the attitudes of college students, not only that U.S. American speakers of English favour GA (which may not come as a surprise) but also that they tended to make negative judgements about ethnic speakers’ personality, based only on how they spoke. A similar study investigated the attitudes that British English speakers (both adults and schoolchildren) hold towards the Swedish accent, guided by the question: “How does this speaker sound to you?” The participants in this study rated one of their own countrymen, based on this person’s pronunciation, as significantly more competent, intelligent, dependable, pleasant, energetic and domineering than a speaker with a Swedish accent, who was rated as significantly more dull, irritating and lazy (Norell, 1991: 123-124). Moreover, although some people would claim that they do not display a negative attitude towards accented speech (such as one group in Norell’s study) it has been shown that explicit and implicit attitudes are two quite different things. In other words, someone may say that he or she does not fall for the traditional stereotypes and yet appears to be under their influence when interacting with people whose background, cultural expression etc. are included in the stereotype (Pantos & Perkins, 2013).

The idea of finding motivation to improve one’s pronunciation in fear of being judged on the basis of stereotypes inevitably gives rise to the question if not the fault lies with the listener? If we were to rid ourselves of letting our thinking be guided by stereotypes, speaking with an accent would just be a matter of intelligibility. So why not focus on the stereotypes instead of adapting to them? The answer is that until the high flying dream of stomping out stereotypes has been achieved, the individual does benefit from playing the game of social life, however wrong the prejudiced views may seem.
2.2 Common Swedish pronunciation errors

Languages are complicated and so are accents, which consist of an intricate interaction of sounds that come together as a particular accent along with intonation and stress. Swedish English, being a variety of English that is spoken by non-native speakers, Swedes, is to a great extent phonetically defined by what can be considered as errors in relation to model speech. These errors more or less compromise intelligibility and are made both by early learners and university students (Norell, 1991: 6).

In her doctoral dissertation, Pia Norell (1991) studied pronunciation errors commonly made by Swedish students of English. By consulting a group of upper secondary school and university teachers, Norell narrowed down the 11 most common errors, which she lists in no particular order:

1. /v/ realised as /w/
2. /j/ realised as /dʒ/
3. /dʒ/ realised as /j/
4. <e+r> realised as /ær/
5. /z/ realised as /s/
6. /ʒ/ realised as /ʃ/
7. /ɪ/ and /i:/ - pronounced too close
8. /d/ pronounced too dentally
9. /t/ pronounced too dentally
10. [I] pronounced [I]
11. absence of vowel reduction

How much these errors contribute to the Swedish accent is for obvious reasons quite difficult to determine. They are, however, without doubt, aspects of the Swedish accent that will make a speaker difficult to comprehend and/or categorised as having certain not very flattering characteristics (i.e., subjected to a negative stereotype). The errors that are prone to cause most confusion are when /v/ is pronounced /w/, when /dʒ/ is pronounced /j/ and when /j/ is pronounced /dʒ/. Low intelligibility also appears to strongly correlate with negative judgements about speakers’ personality (Norell, 1991: 118, 125-126).
2.3 Transfer from L1 to L2

The initial stages of developing a language, whether the learner is a child or an adult, run largely on autopilot, according to Corder (1992: 20), i.e., independent of external influences such as teaching method and/or environment. This statement is consistent with the creative construction theory (Dulay & Burt, 1974), which builds on Chomsky’s idea of there being an internal mechanism in human beings that facilitates the development of language – what Chomsky refers to as Universal Grammar (UG). However, as Corder (1992: 21) continues, when the learner is an adult, what if there are internal processes that influence learners’ UG and thus the learning process? May one such internal process be the cognitive framework of the learner’s mother tongue?

It has been a topic of much discussion in linguistics to what extent it is and what aspects of our mother tongue are transferred to the L2, and thus impede or aid our learning of this new language. Language is, after all, at the core of our cognitive frameworks (many researchers even suggest that it is the tool we use to think (Slobin, 1996)). To confirm that the mother tongue does make an impact on how difficult or easy it is for a person to learn a certain foreign language, one only has to look at the difficulty for e.g. Chinese learners to learn English relative to that of e.g. Swedish learners (whose L1 is far more closely related to the L2).

An aspect of L1 transfer that is highly relevant to this study is that invoked by perceptual reorganization. This concept involves how people perceive sound; more specifically, how linguistic experience changes our perception of sound (Werker & Tees, 1984: 49-50). A well-known example of when this occurs can be observed in Japanese L2 learners of English. Studies have shown that they tend to be oblivious of the distinction between the speech sounds /r/ and /l/ (Miyawaki et al., 1975: 334-336). Japanese infants, however, can make this distinction (despite no prior experience of the /r/ sound) but by age four they have lost this ability as an effect of their linguistic experience (Werker & Tees, 1984: 733). A similar study focused on native speakers of Brazilian Portuguese (Major, 1984); it found that this group has difficulties to distinguish and produce the sounds /e/ as in let and /æ/ as in hat. Since Portuguese only has one vowel that is similar to these (but closer to /e/) the learners unknowingly seemed to make the assumption that only one sound exists in English too. Subsequently, as the students got to practice the (from their point of view) more difficult sound /æ/, they instead tended to overgeneralise this sound and for a time, instead of overusing /e/, they overused /æ/.
Seeing that perceptual reorganization affects Japanese learners as well as Portuguese learners of English it can be readily assumed that it affects L2 learners of other nationalities as well, whose linguistic experience has wired their perception in a way that makes it difficult to distinguish speech sounds that are more unfamiliar to them. That something has been lost, however, implies that it can be retrieved, as made apparent by the many Japanese speakers who do master the distinction between /l/ and /r/ as well as by the Portuguese learners who learn to correctly use /e/ and /æ/. So how does pronunciation teaching take on the challenge?

2.4 How pronunciation is taught

Comparatively little research has, according to Baker and Murphy (2011: 37), been conducted in the area of pronunciation teaching in the classroom and, traditionally, active pronunciation teaching relies heavily on teachers’ intuition and individual beliefs about what is possible and necessary to learn in order to speak intelligibly (Levis, 2005: 369). Teaching resources, in the shape of textbooks, CD:s, videos, internet resources etc., have, however, flooded the teaching environment in the last two decades and have doubtlessly affected the ways in which teachers teach pronunciation (Baker & Murphy, 2011: 37). Due to lack of research, however, many of these resources are unlikely to be backed up by a sufficient amount of empirical research. Moreover, Kelly (2000) suggests that the active pronunciation teaching that does occur to a great extent consists of so called reactive teaching, which means that the role of the teacher is merely to sporadically correct errors that he or she perceives in a student’s pronunciation.

Highly relevant to this study is the debate regarding the idea that imitation of native speakers’ pronunciation is outdated. It is argued that English is a language that “belongs” to everyone. In other words, native speakers should not be considered the norm deciding what is right and what is wrong regarding English use, since native speakers are no longer the largest group of English speakers in the world. As it turns out, most people are more likely, when putting the English they have learned to use, to communicate with other L2 speakers of English (Jenkins, 2001: 7-11). Why, then, should the accent of the largest groups of native speakers be the model for L2 learners, as is the case today? The main reason for this is the need for mutual understanding, and without a common model, mutual understanding would soon be compromised. Addressing this, Jenkins (2001: 123) proposes a phonological core, i.e., a model for the teaching of English as an international language, a model where aspects of English are given more or less focus depending on what they mean to intelligibility as well as how teachable they are. That speech sounds like those in this study can impede intelligibly
if not pronounced correctly should be clear already (as shown by Norell’s (1991) research). How learnable these particular sounds are will be discussed in the light of what the study reveals. Thus, to conclude, although this study uses RP and GA as model speech, using an international English model would have worked just as well, despite the fact that there is no such model yet, at least none that is established.

2.5 The individual’s inability to recognise pronunciation errors

Research has shown that however deeply we sometimes think we know ourselves and our abilities, it is far from always that we do. As it turns out, whether it comes to intellectual, social or more practical endeavours, people have a strong tendency to overestimate their abilities, i.e., if someone has an average IQ-level (of 100) he or she will, generally, rate him-or herself as being above the average IQ-level (Myers, 2009: 586-589). This unconscious mechanism is something researchers have come to call self-serving bias, which consists of cognitive mechanisms that, in essence, allow us to perceive what we want or need to perceive to protect our ego (Donelson, 2008). In addition to this, the less able someone is at performing a task, the less able this person is at rating his or her performance. This means that (let us use another example) the lower someone’s score is on a test on language proficiency, the better he thinks he scored in relation to his actual score. Thus incompetence brings a double burden, of the incompetence in itself as well as the inability to recognise it (Kruger & Dunning, 1999: 1031; Maki et al., 1994:128). This, in turn, brings a double burden upon those that are oblivious of certain sounds in a language they are learning, in that this mechanism, together with the previously mentioned perceptual reorganisation, obscures the fact that their pronunciation is flawed.

So in much the same way that it is difficult for someone who has never tried wine to distinguish one kind from the other, it is difficult for a language learner to distinguish the difference between familiar speech sounds and similar but different and more unfamiliar speech sounds (as shown by Japanese learners’ difficulty with the /r/ sound). That the learner at the same time may be confident that there is no difference naturally makes things even more difficult. The question is, if someone who had never tried wine were to try two different wines in sequence, would this someone be able to taste the difference? Would, analogously, L2 learners of English, be better able to distinguish their interlanguage pronunciation from model speech if minimal or near-minimal pairs are used to highlight the contrast between the relevant sounds?
3. Methods

As stated in the introduction, the aims of this paper are to investigate whether Swedish students of English are able to produce certain sounds that exist in English but not in Swedish and whether taking part in a brief pronunciation lesson helps students to improve their ability to produce these sounds. Moreover, it examines whether a difference in the structure of the pronunciation lesson makes a difference to how much the students improve their pronunciation as well as if they are able to generalise the rules of pronunciation.

This particular section aims to describe how the experiment used in this study was devised and performed. Section 3.1 describes who the informants for the study were and how they were selected; 3.2 describes what material was used during the experiment and how it was used; 3.3 describes the different steps which the experiment included; and, finally, 3.4 discusses ethics with regards to the experiment.

3.1 Participants

The participants in the present study were a convenience sample of 30 (N=30) students at a Swedish upper secondary school. Their age ranged between 16 and 17 and they belonged to one of two Natural Science classes which had the same teacher in English. In one of the classes the students were in their first year of upper secondary school, taking English 5. A sample of about half this class (N=13) participated in the study; a sample that was randomised through the act of selecting the first 13 students on an alphabetically ordered list of their names. In the second class, who were in their second year of upper secondary school, taking English 6, all the students participated (N=17). After the data was screened for missing scores, this sample came down to 29 students (N=29), of whom 12 were in English 5 and 17 in English 6. Moreover, 15 of these 29 students were girls and 14 were boys.

These Swedish students were deemed to be an appropriate sample for this study as they are at a stage in their English education where they should have been able to have picked up the sounds which the study focuses on. Furthermore, they have arrived at an age where they have long since been able think abstractly and thus grasp concepts that are outside their immediate awareness; in this case, of sounds which do not exist in their mother tongue.

Before beginning the interviews, the students were told that the study was about English pronunciation and that participation was completely voluntary.
3.2 Material

The study was set up using an experimental design where the participants were tested on their ability to produce the relevant speech sounds. To test them, the participants had to be incited to use these sounds, which can be achieved in several ways. One way would be to make the participants use words containing the sounds in the context of a casual conversation. As this would create the sense of a somewhat informal situation that resembles life outside the experimental arena, it would render data of the highest quality. Doing this would, however, be extremely time-consuming as the conversation would have to be very long for all sounds to be included a sufficient number of times. It would also put a great deal of faith in the researcher’s ability to maintain a casual conversation while prompting the participants to use the “right” words. The researcher would then have to make the following interviews more or less replicas of the first in order to achieve a satisfactory level of scientific reliability. Another alternative would be to let the participants read texts that would include words containing the sounds being investigated. This would also produce high quality data which, however, would not to the same extent reflect the participants’ natural language use. This alternative would also be far more time-consuming than the design of the current study.

This study makes use of word lists, i.e., lists of words that the participants read in order for the researcher to record their pronunciation of relevant speech sounds. Using word lists does, according to Labov, make the participants use a more formal language than when e.g. reading a text or taking part in a conversation (Mesthrie et al., 2009: 84), which could somewhat skew the data. In this case, however, where the participants are L2 learners of English and the context is a classroom, where a degree of formality is more or less present all the time, the difference between informal and formal speech is less pronounced than if the participants would be random native speakers. With this and the time factor taken into consideration, word lists became the obvious choice for this particular study. More specifically, four printed lists of words were used when collecting data for the study, as well as a printed page with a brief phonological explanation of the sounds which the study focuses on. In addition to this, four audio recordings of native speech were used as model pronunciation.

To highlight the contrast between the relevant sounds, the word lists were made up by minimal or near-minimal pairs, i.e., word pairs whose difference in meaning is completely or to a large extent determined by one particular phonological element. In this case, the difference lies in /dʒ/ contra /ʃ/, /v/ contra /w/ and /j/ contra /tʃ/. To exemplify, in the /dʒ/ - /j/ category the following pairs were devised: *job - yob, jaw – yawn* and *jeans - yeast*. These sound pairs were selected as they were expected to be problematic for the participants but
not too problematic to detect any improvement. Using minimal or near-minimal pairs was
the logical choice for two reasons: (1) because minimal and near-minimal pairs are expected
to shift the participants’ attention towards relevant sounds; and (2) because of the possibility
that these speech sounds are more or less difficult to get right depending on which
combination of phonemes constitutes the rest of the word, i.e., the following vowel may for
example contribute to the way the initial consonant is pronounced. Moreover, regarding how
the words were selected, the sounds occur at the beginning of the words and, in the six words
representing each sound, a minimum of four different vowel sounds were selected to follow
the initial consonant.

The first word list, Word List A (see Appendix 1) was used to test the participants’ initial
ability to produce the speech sounds. It consists of 36 words (18 minimal or near-minimal
pairs) presented in random order, of which the speech sounds /dʒ/, /ʃ/, /v/, /w/, /ʃ/ and
/tʃ/ are represented in six words each.

After having read Word List A (henceforth referred to as the pre-test) the pronunciation
lesson commenced, which started with the researcher presenting and explaining the
pronunciation of the relevant sounds. During this part a simplistic and straightforward
explanation sheet (see Appendix 2) was used. It presented the letters that are usually used for
the speech sounds that were tested, i.e., v, w, sh, ch, y and j, along with an exemplifying word
for each sound.

Word List B (see Appendix 3) and Word List C (see Appendix 4) were used together with
recordings of model pronunciation. Half the group used Word List B and half the group used
Word List C. More specifically, these two lists were read by a native speaker while the
participants were able to see the written words on the lists as the native speaker pronounced
them. Both lists contained the same words, which were half the words on Word List A (three
words of each sound were randomly selected). The reason why Word List B and C do not
contain all of the words on Word List A was to get an idea of whether the participants learned
to pronounce each word individually or whether they would be able to generalise the
pronunciation rules to new words. The difference between Word List B and C lies solely in the
structure of how the words are presented (and thus read by the native speaker). Word List B
presents the words in random order whereas Word List C presents the words of each minimal
or near-minimal pair next to each other, i.e., yob – job, veil – whale and so forth. This
difference between Word List B and C is the independent variable in this study (i.e., the
variable that is expected to be the cause for a potential difference between the results of the
two conditions) and is predicted to show the importance of logic and contrast when it comes
to learning pronunciation. In other words, the students with whom Word List C were used during the pronunciation lesson were expected to do better on Test 2 and the post-test (more on these two tests further down). 14 students (N=14) used Word List B (of whom 6 were in English 5 and 8 in English 6) and 15 students (N=15) used Word List C (of whom 7 were in English 5 and 8 in English 6). Of these two groups, the former will be referred to as the random-lesson (those who used Word List B) and the latter as the contrast-lesson (those who used Word List C).

As mentioned above, there were two separate recordings of model pronunciation, one based on Word List B and one on Word List C. These recordings were put together by taking the recorded pronunciation of words from Collins Dictionary online.¹ For the convenience of the participants, they could choose to listen to either a British English reading or an American English reading (thus four recordings were used in total in this study but only one for each participant).

Word Lists A, B and C were all used during Session 1, which occurred two weeks before Session 2. During Session 2, the fourth word list, Word List D (see Appendix 5), was used to investigate whether the pronunciation lesson in Session 1 had had any effect on the students’ pronunciation (the reading of Word List D is referred to as the post-test). Word List D included the words from Word List B and C along with 36 additional words (18 word pairs), i.e., in total, there were 54 words in random order. The reason for not letting the participants simply read Word List A again was (as with Word Lists B and C) to see whether they had learned to pronounce each word individually or were able to generalise the pronunciation rules to new words.

To record sound, an omnidirectional stand microphone was used with the software Audacity for Windows. To play sound, a Toshiba laptop (Aspire E1-571G) was used with the software Video Lan Converter (VLC).

### 3.3 Procedure

The study consisted of two sessions with each participant (N=29). The first session tested the participants’ initial ability to correctly produce the sounds in focus and also included a brief pronunciation lesson, which was slightly different in the two conditions (the random-lesson and the contrast-lesson). At the end of the first session the participants’ ability to pronounce the sounds in question was tested again. The second session took place two weeks after the

first and was devised to test the participants’ ability to produce the same sounds a second time in order to see whether the pronunciation lesson of Session 1 had had any effect on the participants’ pronunciation.

**Session 1**

One at a time, the participants were interviewed in a small room adjoining their classroom. They were first asked to read an information sheet (Appendix 6) with some general information about the nature of the study and brief instructions. If the participant was willing to take part in the study, he or she was asked to sign a consent form (see Appendix 7), which all students did (N=29).

The participants were then asked to read Word List A while being recorded. After the pre-test was finished, the pronunciation lesson began with the interviewer clarifying which sounds the study was focusing on and, subsequently, the participants were given a brief phonological explanation of each of these speech sounds (with the help of the explanation sheet). This first part of the session was devised to emphasize the difference between the sounds in each sound pair. As for the second part of the pronunciation lesson, it involved the participants listening to model pronunciation. The participants in the random-lesson group were given Word List B and listened to the model pronunciation of the same list. The contrast-lesson group, on the other hand, were given Word List C and listened to the model pronunciation of Word List C. All students were told to listen carefully for the difference between the speech sounds and listened to the recording three times without interruption. At the end of session 1, the participants read Word List A once again in order to detect a potential short term effect of the pronunciation lesson (this second reading is henceforth referred to as Test 2).

**Session 2**

The second session took place in the same room as the first session and all participants were asked to read Word List D while being recorded. After having finished the post-test they were thanked for their participation and encouraged to ask questions, if they had any.

**3.4 Ethical considerations**

To make sure that the participants did not feel forced to participate they were informed, before doing the interviews, that participation was voluntary. This information was also handed out to them in writing, which all students read. Before the experiment began, the participants were asked to sign a consent form, which informed them that all data would be
treated confidentially. It also informed them that parts of the interview would be recorded and that they could withdraw from the study at any time. To ensure that they understood the information they were given, the language of the material was simple and straightforward. Moreover, the participants were encouraged to contact the researcher through e-mail or by phone if any questions regarding the study should arise.

4. Results and analysis

The present study aimed to investigate Swedish students’ ability to produce the English speech sounds /j/, /dʒ/, /v/, /w/, /ʃ/ and /tʃ/, of which /dʒ/, /w/ and /tʃ/ were predicted to be more difficult for the students to learn, since these sounds do not exist in the Swedish language. It also aimed to investigate what effect a brief pronunciation lesson had on the students; if it improved their pronunciation and if one of the two conditions was more effective, the random-lesson or the contrast-lesson. Moreover, it explored whether students learn words as separate units or if they generalise the rules of pronunciation and apply them accordingly.

When analysing the data (in IBM SPSS Statistics), a correctly pronounced speech sound was given 1 point whereas an incorrectly pronounced speech sound was given 0 points. No consideration was taken to how a word was pronounced apart from the relevant sound. To test the data for statistical significance, T-tests were used, either a Paired Samples T-test or an Independent Groups T-test.

The first results presented, in section 4.1, are those regarding whether students tend to learn to pronounce words individually or the rules governing the pronunciation of sounds, since clarifying this is relevant to the validity of the rest of the study. Subsequently, the main findings of the pre-test are presented in section 4.2, the main findings of Test 2 presented in section 4.3 and the main findings of the post-test in section 4.4.

4.1 Learning the words or the rules

To see whether the participants learned the pronunciation of words as separate units or if they learned the rules governing the pronunciation of the speech sounds, the words on the lists were divided into two sub-categories: familiar words and unfamiliar words. The familiar words are in the present study defined as the words which the students listened to as they were pronounced during the pronunciation lesson, i.e., the familiar words category consisted
of the 18 words that were on Word Lists B and C, i.e., the same words that were added to the 36 new words on Word List D. The unfamiliar words are defined as words which the students did not listen to during the pronunciation lesson. During the pre-test and Test 2 the unfamiliar words category consisted of the words which were on Word List A but not on B and C. On the post-test, the unfamiliar words category consisted of three words of each sound (i.e., 18 words) that were selected randomly from the 36 new words on Word List D. To further clarify, the familiar words category contained the same 18 words throughout the whole study, whereas the 18 words in the unfamiliar words category were the same only in the pre-test and Test 2. In the post-test, however, they were replaced by 18 other unfamiliar words. These two categories were compared to see whether the familiar words were correctly pronounced to a greater extent than the unfamiliar words. The mean scores for each of these two sets, the familiar words (F) and the unfamiliar words (UF), are presented for each of the three tests below (the pre-test = 1, Test 2 = 2 and the post-test = 3).

Figure 1. Showing the mean scores for the unfamiliar versus the familiar sounds (max score = 18).

As seen in Figure 1 it does not appear to be the case that the participants learned the words rather than the rule. The most important results here are the UF – 2 (M=15.55, SD= 2.05) and F – 2 (M=15.48, SD=2.05) as well as UF – 3 (M=15.59, SD=2.26) and F – 3 (M=16.03, SD=2.18). As shown, the difference between the scores of the familiar versus the unfamiliar words is almost non-existing and thus it can be concluded that in this case the participants did not learn the words as units but the rules governing the pronunciation of the relevant sounds.
4.2 Results on the pre-test

On the pre-test the students could get a maximum score of 36 points of which 18 points represented their pronunciation of the sounds which are not found in the Swedish language, /dʒ/, /w/, and /tʃ/, each giving a maximum of 6 points. The mean score on the pre-test was 26.90 (M=26.90, SD=3.93). Furthermore, the students’ (N=29) scores for the non-Swedish sounds (M=11.83) were significantly lower than for the familiar sounds (M=15.07), t(28)=4.7, p<0.05. This suggests that the students do have difficulties producing the sounds which this study focuses on. The errors that were made, however, were not distributed evenly between the speech sounds, as shown in Table 1 below.

Table 1. Speech sound means for the pre-test.

<table>
<thead>
<tr>
<th>sound</th>
<th>mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>/v/</td>
<td>5.45</td>
</tr>
<tr>
<td>/w/</td>
<td>5.14</td>
</tr>
<tr>
<td>/j/</td>
<td>4.03</td>
</tr>
<tr>
<td>/dʒ/</td>
<td>4.48</td>
</tr>
<tr>
<td>/ʃ/</td>
<td>5.59</td>
</tr>
<tr>
<td>/tʃ/</td>
<td>2.21</td>
</tr>
</tbody>
</table>

The /tʃ/-sound appeared to be the most difficult sound to produce (M=2.21, SD=2.16), followed by the /ʃ/-sound (M=4.03, SD=1.55) and third comes the /dʒ/-sound (M=4.48, SD=1.66). That the /ʃ/-sound causes this much difficulty first appears surprising; however, examining the data reveals that the reason is likely because the pronunciation of these sounds are often confused, i.e., in many cases /ʃ/ (y) was pronounced as /dʒ/ (j) and vice versa. Thus it appears that, when it comes to these two sounds, most students know how to produce them but do not know when to use which sound. The same appears to be true for /v/ and /w/, though not to the same extent. The /ʃ/-sound and the /tʃ/-sound, however, stood out in the sense that they usually were not confused with one another. Rather, most students did not appear to be aware that the unfamiliar /tʃ/-sound even exists. To illustrate this, Figure 2 presents the distribution of the students’ /tʃ/-scores on the pre-test.
Figure 2. Showing students as a function of their /tʃ/-scores on the pre-test.

As shown in Figure 2, the mode score for the /tʃ/-sound was 0 (N=10) which means that a majority of participants did not pronounce the /tʃ/-sound correctly even once. Instead they tended to use the /ʃ/-sound which, in contrast, was produced correctly on an overwhelming majority of occasions (M=5.59, Mode=6). As already mentioned, this suggests that many participants were not aware that the /tʃ/-sound exists. The /j/ sound (M=4.03) and the /dʒ/ sound (M=4.48) were, in contrast, much more evenly prone to incite an error in the participants’ pronunciation, and the vast majority of students were able to produce these two sounds. Figure 3 and Figure 4 show the distribution of /dʒ/-scores and /j/-scores.

Figure 3. Showing students as a function of their /dʒ/-scores on the pre-test.
As shown in Figure 3, only one student was not able to correctly produce the /dʒ/-sound in a single word and, not surprisingly, all students were able to produce the more familiar /j/-sound. What is slightly surprising, as already mentioned, is the number of students who make errors on the /j/-sound – which should not be difficult to produce for Swedes. This indicates that many students are more or less oblivious of the rules governing the pronunciation of the /dʒ/ and /j/-sounds and that, when it comes to these sounds, they may have learned the pronunciation of individual words rather than the rules that can be applied to the pronunciation of words. Another possibility is that overgeneralization is at work, i.e., the students overuse the more recently acquired sound, /dʒ/. Yet another possibility is, of course, that they both learn the words rather than the rules and that they overgeneralise their use of the /dʒ/-sound. Previous results do, however, indicate that students generally do not learn the pronunciation of words as separate units, which leaves the possibility of overgeneralisation.

To summarize the results of the pre-tests, the students had a mean score of 26.90 (M=26.90, SD=3.93) and, as expected, scored significantly lower on the non-Swedish sounds. The /tʃ/-sound (M=2.21, SD=2.16) was pronounced incorrectly by the highest number of students whereas the /j/ versus /dʒ/-sounds were most often confused with one another.

### 4.3 Results on Test 2

After having read Word List A, i.e., completed the pre-test, the participants took part in one of two slightly different types of pronunciation lessons, either the random-lesson condition (N=14) or the contrast-lesson condition (N=15). Afterwards the participants read out Word
List A once again (a reading referred to as Test 2) which provided a second set of scores and thus data to give an idea of a possible short term effect of the pronunciation lesson. Test 2 rendered a significantly higher result (M=31.08, SD=3.7) for the group as a whole (N=29) than the pre-test (M=26.90, SD=3.93), t(28)=-7.0, p<0.05, suggesting that the pronunciation lessons did make a difference.

**4.3.1 Distribution of improvement on Test 2**

Table 2 shows the mean score for each sound on Test 2, and Table 3 shows the mean improvement for each sound on Test 2, in relation to the pre-test.

**Table 2.** Speech sound means for Test 2.

<table>
<thead>
<tr>
<th>Sound</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>/v/</td>
<td>5.66</td>
</tr>
<tr>
<td>/w/</td>
<td>5.59</td>
</tr>
<tr>
<td>/j/</td>
<td>4.83</td>
</tr>
<tr>
<td>/dʒ/</td>
<td>5.17</td>
</tr>
<tr>
<td>/ʃ/</td>
<td>5.79</td>
</tr>
<tr>
<td>/tʃ/</td>
<td>4.00</td>
</tr>
</tbody>
</table>

**Table 3.** Improvement on Test 2 in relation to the pre-test.

<table>
<thead>
<tr>
<th>Sound</th>
<th>Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>/v/</td>
<td>.21</td>
</tr>
<tr>
<td>/w/</td>
<td>.45</td>
</tr>
<tr>
<td>/j/</td>
<td>.79</td>
</tr>
<tr>
<td>/dʒ/</td>
<td>.69</td>
</tr>
<tr>
<td>/ʃ/</td>
<td>.21</td>
</tr>
<tr>
<td>/tʃ/</td>
<td>1.79</td>
</tr>
</tbody>
</table>

As these tables show, the participants’ mean scores improved on each of the sounds tested. Their pronunciation improved most, however, on the words containing the /tʃ/-sound, followed by the /j/-sound and the /dʒ/-sound, which is logical as these sounds left the largest room for improvement after the pre-test. It is also promising because these sounds appeared to be most problematic for the participants on the pre-test. Below is a bar chart showing the distribution of the participants’ scores on the /tʃ/-sound, to further illustrate the nature of the participants’ improvement.
**Figure 5.** Showing students as a function of their /tʃ/-scores on Test 2.

As shown in Figure 5, only two participants did not use the /tʃ/-sound even once on Test 2, in comparison to ten participants on the pre-test. This suggests that the participants’ frame of reference, relating to English pronunciation, may have begun to change to encompass this non-Swedish sound as well. Moreover, Figure 5 shows that a total of 16 participants now used the speech sound correctly on five or six out of six instances, compared to only six participants on the pre-test. Figure 6 and Figure 7 show the same data but for the /dʒ/- and /j/-sound.

**Figure 6.** Showing students as a function of their /dʒ/-scores on Test 2.
Figure 7. Showing students as a function of their /j/-scores on Test 2.

Here as well, the participants’ improvement is apparent and significant. The /j/-sound was now pronounced correctly in four out of six words or more by 27 participants, compared to 18 on the pre-test, while the /dʒ/-sound was pronounced correctly in four out of six words or more in 23 words, compared to 27 participants on the pre-test. In other words, after the pronunciation lesson the vast majority of the students appear to be well on their way to mastering the use of these speech sounds – if they have not done so already. Interestingly, on average the participants scored higher (again) on the non-Swedish /dʒ/-sound (M=5.17) than the sound which ought to be easier for them to produce, the /j/-sound (M=4.83), which again suggests a noticeable degree of overgeneralisation when dealing with these two speech sounds.

As for the third non-Swedish sound, the /w/-sound, the scores were slightly improved on Test 2. However, as the vast majority of students did get a full score on the pre-test (N=21) this sound does not appear to be one which students in general find particularly difficult.

4.3.2 The random-lesson versus the contrast-lesson on Test 2

On average, participants who belonged to the contrast-lesson group scored higher on Test 2 (M=31.73, SE=1.08) than those who belonged to the random-lesson group (M=30.29, SE=0.84). This difference, however, turned out to be non-significant, t(27)=-1.04, p>0.05 (in other words, the null-hypothesis cannot be rejected, i.e., the difference between the sample means may be due to chance and not to an actual difference between the population means).
4.4 The post-test

The post-test (M=31.45, SD=4.02) showed a significant improvement of the participants’ ability to correctly produce the relevant sounds, in relation to the pre-test (M=26.90, SD=3.93). Figure 8 shows the sample means for the pre-test and the post-test with 95 % confidence intervals.

A paired samples T-test was conducted and, as shown by the non-intersecting confidence intervals in Figure 8, there is a significant difference, t(28)= -6.09, p<0.05, between the means of the pre-test and the post-test, suggesting that taking part in the pronunciation lesson did make a difference to the participants’ pronunciation. The improvement, however, is, just like in the case of Test 2, not evenly distributed between the speech sounds in the study. Some sounds the students already seemed to be able to produce without any difficulties, whereas others were much more difficult.

4.4.1 Distribution of improvement on the post-test

Table 4 shows the mean scores of the participants for each of the speech sounds on the post-test. Table 5 shows how much they improved their performance in relation to the pre-test and Table 6 shows how much the participants improved on each sound between Test 2 and the post-test.
Table 4. Speech sound means for the post-test.

<table>
<thead>
<tr>
<th>/v/</th>
<th>/w/</th>
<th>/j/</th>
<th>/dʒ/</th>
<th>/ʃ/</th>
<th>/tʃ/</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.72</td>
<td>5.76</td>
<td>5.45</td>
<td>4.62</td>
<td>5.86</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Table 5. Improvement on post-test in relation to the pre-test.

<table>
<thead>
<tr>
<th>/v/</th>
<th>/w/</th>
<th>/j/</th>
<th>/dʒ/</th>
<th>/ʃ/</th>
<th>/tʃ/</th>
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<td>.62</td>
<td>1.41</td>
<td>.14</td>
<td>.28</td>
<td>1.79</td>
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</table>

Table 6. Improvement on the post-test in relation to Test 2.

<table>
<thead>
<tr>
<th>/v/</th>
<th>/w/</th>
<th>/j/</th>
<th>/dʒ/</th>
<th>/ʃ/</th>
<th>/tʃ/</th>
</tr>
</thead>
<tbody>
<tr>
<td>.07</td>
<td>.17</td>
<td>.62</td>
<td>-.55</td>
<td>.07</td>
<td>.00</td>
</tr>
</tbody>
</table>

These tables show a distribution that to a large extent reflects the results on Test 2, which suggests that the effect Test 2 showed appears to be lasting. The /j/-sound and the /tʃ/-sound show the largest improvement in relation to the pre-test, probably because they were the two sounds that initially caused most problems. When looking at Table 6, what stands out is undoubtedly the /j/-scores as well as the /dʒ/-scores, in that the former has significantly increased, t(28) = -3.19, p<0.05, and the latter has decreased (this decrease, however, was slightly below being statistically significant, t(28)=1.98, p>0.05). The increase of the /j/-scores in relation to the pre-test suggests that those who initially overgeneralised their use of the /dʒ/-sound may have been ushered past this tendency by the pronunciation lesson. In other words, they appear to have learned when not to use the /dʒ/-sound.

4.4.2 The random-lesson versus the contrast-lesson on the post-test

In line with the results of Test 2, participants who belonged to the contrast-lesson group scored higher (M=31.93, SD 3.75) than the random-lesson group (M=30.93, SD 4.50). Again, however, this difference was non-significant, t(27) = -0.66, p>0.05.
5. Discussion

The main findings of this study were the difficulty students had to pronounce the /tʃ/-sound and how they tended to confuse the /j/-sound with the /dʒ/-sound, but also the significant degree to which they were able to improve their use of these sounds. Many of the students learned to use the /tʃ/-sound and what appeared to be a strong tendency to overgeneralise the use of /dʒ/ abated significantly after only a brief pronunciation lesson. Thus the results of this study suggest that acquiring the rules for pronunciation is in fact fairly easy for the given population.

What the study failed to show, however, was a statistically significant difference between the two different ways to structure the pronunciation lesson. The reason for this can only be speculated about. It could, of course, be because it really does not matter how it is structured; or the sample was too small to show a difference; or the pronunciation lesson was too short and thus the students’ improvement too limited to leave room for differences large enough to detect an impact of the structure of the pronunciation lesson.

As with all research, the purpose of this study is for its results to be put to use, in this case in the classroom. The question is how to go about doing that? To sit in a room and coach each student individually does, for obvious reasons, not quite work in most schools. However, there is no reason as to why a pronunciation lesson similar to the one in the current study (but preferably more thorough) cannot be given with a full class of students. As always, the potential specific needs of each student have to be taken into consideration before putting together the material for the class. This study and others before it, along with similar future studies, however, should give an idea of what aspects of pronunciation Swedish students of English are more likely to have difficulties with, and so it should not be difficult for teachers to narrow down the aspects of pronunciation that are necessary for their students to work on.

Needless to say, it is promising how easy it appears to be for students to learn phonemes that are not part of their native language. What is not as promising is how this implies that pronunciation training may previously have been neglected in their English classrooms – when such little effort is required for improvement. Furthermore, as the results of this study suggest, the students are perfectly able to generalise the rules of pronunciation, which further indicates that they are able to learn pronunciation quite easily. With this in mind, and after having done this study and become more familiar with previous research on the topic, I ask myself if not a little (because a little seems to be all that is necessary) more effort should be put into teaching pronunciation? The main reason for learning English is after all for the world to come together and communicate through a mutual language in which speaking
naturally plays a key role. Pronunciation is, as has been mentioned several times, a matter of being understood but, I believe, it is also important in order for students to gain confidence in their ability to communicate orally, and thus in initialising conversations with people they meet in the world.

6. Conclusion

The first and most central question which the present study set out to investigate was whether Swedish students in upper secondary school are able to produce and correctly use the speech sounds /dʒ/, /j/, /v/, /w/, /ʃ/ and /tʃ/, as well as whether taking part in a brief pronunciation lesson helped them to improve these abilities. The results showed that the students were initially able to produce, without much difficulty, the /v/-sound and the /ʃ/-sound. The rest of the sounds investigated, however, were prone to cause more or less trouble for the students, in particular /dʒ/, /j/ and /tʃ/. Furthermore, the pronunciation lesson did help the students to improve their pronunciation, both in the short term and in the long term. In addition to these questions, the study investigated whether the structure of the pronunciation model during the two pronunciation lessons made a difference to how much the students’ pronunciation improved. However, no significant difference was found between the two conditions (the random-lesson and the contrast-lesson). In order to explore the nature of the students’ improvement, the study also investigated whether the students learned the pronunciation of words as separate units or if they were able to generalise the rules governing pronunciation and subsequently apply them to words they encounter. As for this question, the results indicate that the students did learn the rules of pronunciation rather than words as separate units.

While conducting this experiment and putting together the results, a number of questions and ideas came to the surface, which could provide the foundation for further research on this topic. One such question is what is most important to the students’ improvement: phonetic explanation or listening to model pronunciation? Or does the combination exceed the sum of these two strategies? Another question is whether listening to their own faulty attempts to pronounce certain sounds, in connection with listening to model pronunciation, would further improve students’ performance? Yet another question is regarding those students who did not improve after the pronunciation lesson and those who improved the most. Who are they? Moreover, regarding those who did not improve, how successful would they have been at predicting their result, i.e., were they aware of their faulty pronunciation?

As the present study was limited to investigating only three sound pairs, an additional area
for further research involves the other sound pairs which Swedes are expected to have problems with, such as /s/ contra /z/, /ð/ contra /d/ and /θ/ contra /s/, /t/, or /f/.

In conclusion, there are infinitely more questions to be asked and answered in the field of pronunciation teaching, although two questions alone summarise quite well the main reason why other questions are even asked relating to this topic. Two simple questions that are obvious though extremely complicated to answer, and they are: What aspects of pronunciation do students need to learn and how do we teach them?
References


## Appendix 1 – Word List A

<table>
<thead>
<tr>
<th>Word</th>
<th>Word</th>
</tr>
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<tbody>
<tr>
<td>Wine</td>
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</tr>
<tr>
<td>Yob</td>
<td>Jealous</td>
</tr>
<tr>
<td>Jaw</td>
<td>Woke</td>
</tr>
<tr>
<td>Chimney</td>
<td>Whale</td>
</tr>
<tr>
<td>Shark</td>
<td>Chocolate</td>
</tr>
<tr>
<td>Jeans</td>
<td>Village</td>
</tr>
<tr>
<td>Shoe</td>
<td>Choose</td>
</tr>
<tr>
<td>Vault</td>
<td>Wax</td>
</tr>
<tr>
<td>Vocal</td>
<td>Yucky</td>
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<td>Shock</td>
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<td>Chart</td>
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</tr>
<tr>
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<td>Job</td>
</tr>
<tr>
<td>Junction</td>
<td>Ship</td>
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<td>Yearn</td>
<td>Yeast</td>
</tr>
<tr>
<td>Chip</td>
<td>Van</td>
</tr>
</tbody>
</table>
Appendix 2 – Explanation sheet

<V> and <W> as in Very and Wonder

<SH> and <CH> as in Short and Chew

<Y> and <J> as in Yippee and Janitor
Appendix 3 – Word List B

Jealous
Woke
Choose
Shimmer
Veil
Journal
Yellow
Village
Job
Yearn
Shock
Vocal
Willing
Yob
Shoe
Whale
Chocolate
Chimney
Appendix 4 – Word List C

Village - Willing
Vocal – Woke
Veil – Whale
Yob – Job
Yellow – Jealous
Yearn – Journal
Shoe – Choose
Shock – Chocolate
Shimmer – Chimney
# Appendix 5 – Word List D

<table>
<thead>
<tr>
<th>Shin</th>
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<tbody>
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<td>Yearn</td>
<td>Chug</td>
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<td>Wait</td>
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<td>Shore</td>
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<td>Jet</td>
<td>Joke</td>
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</table>
Appendix 6 – Information sheet

General information

The present study investigates students’ pronunciation of English words.

Your participation in the study involves two brief interviews. One of them takes place today and is estimated to take no more than 5 minutes. The second part is a short follow-up session (in about two weeks) and estimated to be completed in 2 minutes. Parts of both sessions will be recorded.

You have been asked to participate because you are particularly suitable to provide data for the study. Participation is, however, voluntary and at any time during the study you may withdraw. All material will be kept confidential and your results will not affect your grade in English.

If you should have any further questions, I encourage you to contact me at tommyre89@gmail.com or by phone: 0725059029.

Instructions

1. Shortly you will be given a list of words to be read out loud. Read the words without interruption. If you encounter a word which you do not know the meaning of, try to pronounce it anyway and ask when the session is finished what it means (if you want).

2. After having read this list of words you will receive feedback and listen to model speech, i.e. a native speaker reading the same words.

3. The first session will end with you reading the list of words one more time.

4. During the second session (about two weeks after the first) you will read another list of words.

THANK YOU FOR PARTICIPATING :)

Appendix 7 – The consent form

Consent Form

I……………………………………………….. agree to participate in Tommy Reinholdsson’s research study.

- The purpose and nature of the study has been explained to me in writing.
- I am participating voluntarily.
- I give permission for my interview to be recorded
- I understand that I can withdraw from the study, without repercussions, at any time, whether before it starts or while I am participating.
- I understand that confidentiality will be ensured.

Signed……………………………………..

Date………………..