Høgskolen i Bergen

Masteravhandling

M120UND509

Predefinert informasjon

Startdato:	12-05-2016 17:06	**Termin:**	2016 VÅR
Avslutningsdato:	18-05-2016 12:00	**Karakterform:**	Norsk 6-trinnsskala (A-F)
SIS-kode:	M120UND509 1 MG	**Studiepoeng:**	45
Eksamensform:	Masteravhandling		
Intern sensor:	Monika Bader		

Student

Navn:	Anne-Lise Vang
Kandidatnr.:	102
HiB-Id:	h135253@hib.no

Informasjon fra deltaker

Jeg godkjenner avtalen om Valgt
tilgjengeliggjøring av
masteroppgaven min i
BORA:

BERGEN UNIVERSITY COLLEGE

Teaching Oral English in the Norwegian EFL Classroom
-With an explicit focus on the realisation of / z, v, w, dʒ, θ, ð /

Muntlig engelskundervisning i norske klasserom
- Med et eksplisitt fokus på uttalen av / z, v, w, dʒ, θ, ð /

Anne-Lise Vang

Master i undervisningsvitenskap med engelsk fagdidaktikk

Institutt/program for: Engelsk

Avdeling for lærerutdanning

Innleveringsdato: 18.05.2016

Abstract

The following research project focuses on young Norwegian learners of English as a foreign language, and their realisation of consonant speech sounds that typically create difficulties for Norwegian learners, namely /z, v, w, dʒ, θ, ð/. The research project is a quasi-experimental intervention in two seventh grade classes at a school in Norway. The intervention lasted for three weeks, following both the regular lesson plan and time schedule, however, pronunciation and phonemic symbols were included in order to see if the target sounds provide a problem, and if so, does explicit focus on pronunciation improve the realisation of the target sounds? In addition to the experimental group, a control group consisting of 11 participants from a different school participated. The research followed a pre-test/post-test design. For the pre-test, the participants read a list of 29 words consisting of one, maximum two, of the target sounds into a sound recorder, in addition to answering a questionnaire in order to map the participants' experience with phonemic symbols. The post-test was identical to the pre-test, however, with this group the questionnaire was left out. Both the experimental group and the control group participated for the tests. The control group did not receive any teaching from the researcher. The sound recordings were transcribed, and scored. An incorrect speech sound was given the score 0, whereas a correct speech sound was given the score 1. In total, more than 2500 tokens were analysed and transcribed. The participants from the control group improved their average realisation of the target sounds with about 2 %, whereas the average score for the experimental group was over 16 %. In order to measure the statistically significance for the results, a Mann-Whitney U test was conducted. The Mann-Whitney U test was used to measure the statistical significance of the findings. Although the test exhibited a statistically significant result for the speech sounds combined, it did not provide a statistically significant result for the speech sounds measured individually, and thus, the results from the significance test should be interpreted with caution. Nonetheless, the improvement of the realisation of the six speech sounds in the experimental group was 14 % higher than that of the control group.

Abstrakt

Dette forskningsprosjektet fokuserer på norske elevers uttale av de engelske konsonantlydene /z, v, w, dʒ, θ, ð/. Ettersom disse lydene ikke eksisterer i muntlig norsk byr de ofte på problemer for elever som skal lære seg engelsk. Forskningen er basert på en kvasieksperimentell intervensjon hos to syvendeklasser på en skole i Norge. Intervensjonen varte i tre uker, og den fulgte elevenes fastsatte timeplan og undervisningsplan, men uttale og enkelte fonemer ble introdusert for elevene, både for å fastslå om de aktuelle språklydene er et problem for elevene, og om så er tilfelle, om et eksplisitt fokus på uttale og fonemer kan bedre elevenes uttale av disse språklydene. I tillegg til testgruppen deltok også en kontrollgruppe bestående av elleve elever fra en annen skole. Forskningen fulgte et pretest/posttest design. Elevene leste en liste med 29 ord, hvor hvert ord inneholdt minst én, maksimum to, av de aktuelle språklydene. Det ble gjort opptak av dette ved hjelp av en digital diktafon. I tillegg fikk elevene utdelt et spørreskjema i et forsøk på å kartlegge deres kjennskap til fonemer, og i hvilken grad de snakket engelsk på skolen. Posttesten var identisk til pretesten, med unntak av at spørreskjemaet ble utelatt. Både testgruppen og kontrollgruppen deltok på begge testene. Kontrollgruppen ble ikke undervist i fonetikk eller uttale. Lydopptakene ble transkribert og tildelt poeng, der feil språklyd gav null poeng, riktig språklyd tilsvarte ett poeng. Totalt ble mer enn 2500 ord analysert og transkribert. Deltakerne fra kontrollgruppen forbedret den gjennomsnittlige uttalen av problemlydene med rundt 2 %, mens testgruppen forbedret sin uttale av de aktuelle lydene med et gjennomsnitt på over 16 %. En Mann-Whitney U test ble tatt i bruk for å måle om resultatene var statistisk signifikante. Til tross for at testen viste til et statistisk signifikant resultat bør dette leses med varsomhet, ettersom ingen av enkeltlydene tilsvarte signifikans. Likevel kan man slå fast at testgruppen forbedret uttalen sin betydelig sammenlignet med kontrollgruppen.

Contents

0.0 Tables and figures

1.0 Introduction

There are several sources of inspiration for this masters' thesis. The English pronunciation of some Norwegian high-profiled politicians and athletes indicate that pronunciation should be a point of focus during primary education. Another great source of inspiration (and frustration) came from my own mother, and I quote "there are three words I struggle with. /tɔt/, /tɔt/ and /tɔt/" for the words <though>, <thought> and <tough>. It could also be noted that pupils, during my practise teaching periods, have stated that they do not like to speak English because they cannot say words such as "the number [holding up three fingers] in English". In addition, warning signals regarding the focus on pronunciation were provided by the Norwegian Royal House, when the Norwegian Crown Prince in 2014 decided to move his children from a public school to a private school, arguing that it was important that his children learned how to think and speak English (Skrede, Lilleåsen, Gaganis, & Lydersen, 2014).

This problem is not unique to Norway, in fact, similar research projects, dealing with the same speech sounds, can be found as far away as China (Chan, 2010), and, although not focusing on the same speech sounds, in Japan (Saito, 2013). Closer to home, one can mention two research projects conducted by Kåre N. Rugesæter (1995 and 2012), where the realisation of, amongst other speech sounds, /s, z, v, w/ is in focus. With the exception of Rugesæter (2012), the four research projects mentioned focus on advanced students of English as a foreign language (EFL). The current research project is one of very few that focus on the young language learners, where the aim is to improve their pronunciation during an intervention. The research project where both the target sounds and research methods are nearly identical is a bachelor thesis, Vang (2014) where the aim was to improve the English pronunciation of /z, v, w, dʒ, θ, ð/ during a practise teaching period. The five research projects will be further discussed in chapter 2.

The National Curriculum for Knowledge Promotion in Primary and Secondary Education and Training (LK06) is the guideline every teacher in Norway has to follow (and thus their teaching is based on LK06). The competency aims after year 7 do not mention pronunciation or phonetics in a direct way, however, there are several broader formulations regarding communication.

According to the oral goals after year 7 in LK06, pupils should be able to "use listening and speaking strategies" (The Norwegian Directorate for Education and Training, n.d.) after year

7, however, they do not say anything regarding what they put into the term speaking strategies. Other competency aims state that the pupils should be "[…] able to express [themselves] to obtain help in understanding and being understood in different situations, express and give grounds for own opinions about familiar topics, and introduce, maintain and terminate conversations related to familiar situations" (The Norwegian Directorate for Education and Training, n.d.). The competency aims include both the skill of expressing oneself and that the pupils have to be able to obtain help and being understood, however, there is no mention of pronunciation as such, and difficult speech sounds for Norwegian learners. The closest one gets to a competency aim that focuses on pronunciation is that the pupils should be "[…] able to use basic patterns for pronunciation, intonation, word inflection and different types of sentences in communication" (The Norwegian Directorate for Education and Training, n.d.). Even though this aim focuses on pronunciation, it seems like the main foci in the curricula are based on other aspects, with vocabulary as one of the most important factors.

A learning goal that receives much attention is (of course) the art of writing, where learning strategies, grammar, and vocabulary are mentioned (The Norwegian Directorate for Education and Training, n.d.). However, the focus on writing, which of course is important, may interfere with the focus on oral language learning. When language learners of any age are performing a writing task, at work, at school, or even when communicating with friends, they have one advantage oral language users do not possess, namely time. Writing is seen as a planned action, whereas speaking occurs spontaneously (Jenkins, 2006, p. 116). It should be mentioned that written communication as a whole has changed since 2006, with the rapid development of social media such as Snapchat and Facebook, where written communication is based on rapid response in contrast to traditional writing. However, there are nonetheless situations where writing still is a planned action, and the advantages of the writer is that s/he can find useful help in a dictionary, something the speaker cannot, unless the speaker has at least some knowledge of phonetics.

1.1 Hypothesis and research questions

The null hypothesis (H_0) for this thesis is that *teaching with an extensive focus on both phonetics and correct pronunciation of /z, v, w, dʒ, θ, ð/ will not improve the participants' pronunciation of these speech sounds*, whereas the alternative hypothesis (H_a) is that *teaching*

with an extensive focus on both phonetics and correct pronunciation of /z, v, w, dʒ, θ, ð/ will improve the participants' pronunciation of these speech sounds.

In order to either accept or reject the null hypothesis, two research questions were formed:

1) Do Norwegian 7th grade learners of English as a foreign language struggle with the pronunciation of /z, v, w, dʒ, θ, ð/?

2) Can teaching with a strong focus on pronunciation and phonemic symbols improve the participants' pronunciation of these problem sounds?

In addition, the second research question has an additional sub-question; *in what way, if any, does the participants prior experience with the oral English language, phonemic symbols and the target words influence the participants' realisation of the target sounds*?

The first research question will be answered in light of previous research, both Rugesæter (2012) and Vang (2014), combined with the pre-tests conducted for the current research project. The second research question will be answered by measuring and comparing the pre-test and the post-test both in the control group and the experimental group. In addition, the results will be discussed in light of similar research projects. The sub-question will be answered by combining the participants' response to the questionnaire with the sound recording from the pre-test.

The main limitation is, of course, the fact that 20 of the participants from the control group chose to not participate in the pre-test. Combined with this, the delayed post-test could not be conducted as the participants from the experimental group's teacher could not find a suitable date for the test. In an ideal situation, the research project would have equally sized groups. A delayed post-test would be interesting in order to see if the participants had really acquired the target sounds, or if the results are based on something that was fresh in their memories.

Another limitation that may have altered the results is that the researcher had to use Norwegian as the language of instruction, and in that way, the participants lost the meaningful context pronunciation should be taught in. In addition, as the participants spoke Norwegian, their training was limited. As some of the participants stated in the questionnaire, they chose not to speak English as they were afraid to make a mistake, and that they did not know how to pronounce different words. Hopefully, participating in the current research have made them more aware of how to pronounce words, and thus removed some of that anxiety.

The fact that a total of approximately 90 minutes were used for pronunciation practise may not have been enough, and it would be interesting to conduct a similar research project covering more time than three weeks of teaching. On the other hand, the main idea is that spending a few minutes on pronunciation every lesson may have an effect. Furthermore, this approach is not something that is meant to be focused on for a short period of time, as will be discussed further in chapter 2.

1.2 Why is correct pronunciation important?

Learners of English should be able to use English in communication (Nilsen & Rugesæter, 2009, p. 149), and the pronunciation should be clear and consistent in order to avoid misunderstandings. An incorrect speech sound may not necessarily cause misunderstandings, however, the focus may shift from what the speaker is saying to how it is said, (Rugesæter, 2012, pp. 120-121), something that, according to Kenworthy (1987, p. 4), may lead to irritation from the listener, and communication depends on the listener's tolerance and patience. This can be illustrated by the example sentence <I can see you with my ice>, /aɪ kən siː ju wɪð maɪ aɪs/, instead of the correct /aɪ kən siː ju wɪð maɪ aɪz/. It is highly unlikely that a native speaker would think that you could see him with your ice, however, it may remove the focus from what you are trying to say, namely that you can see someone with your eyes, and instead place the focus on how the utterance is pronounced. Alderson & Bachman claims that "our personality, our self image, our knowledge of the world and our ability to reason and express our thoughts are all reflected in our spoken performance in foreign language" (Alderson & Bachman, 2009, p. ix). This claim is supported by Joanne Kenworthy (1987, p. 98), stating that fear of making a mistake may be the reason why German learners of English overgeneralize their pronunciation of /w/.

Another reason why it is becoming increasingly important for Norwegian young language learners of EFL to master the oral English language is the status of English as a lingua franca, which makes it the most important language for communication in international matters (Rugesæter, 2012, p. 120). There are several Norwegian corporations today where English is the main language, both in writing and in oral communication.

It is important to note that in order for any learner of English as a foreign language to fully master the oral language, several aspects have to be considered. It is not enough to master the different sounds in Received Pronunciation (RP), General American (GA) or one of the many other world Englishes, one would also have to know the basic patterns of intonation and

where to place the stress in utterances. And even if one is to accomplish these goals, one needs to be aware of the fact that very few use RP in Britain when they speak English. The sounds for this thesis are nonetheless speech sounds that occur in most English-speaking accent and dialects. To teach all of these parts of the oral English language in a short period of time would be impossible, as the participants might be confused instead of learning, and the focus for this thesis is therefore on segmental phonetics as a starting point.

1.3 Overview

This research project will have the following structure: Chapter 2, theory and background, where the focus is on second language acquisition, pronunciation goals, a description of the production of the different speech sounds, teaching points and similar research projects. Methods used will be presented in chapter 3. The analysis will be presented in chapter 4, starting with an analysis of the questionnaire before the analysis of the participants' pronunciation of the six speech sounds. Chapter 5 will contain the thesis' discussion, before the conclusion in chapter 6.

2.0 Theory and background

The following chapter will provide the theoretical foundation for this thesis. First and foremost, it will start with some basic views on foreign language acquisition in general, before discussing teaching English as a foreign language (EFL), and the traditions behind teaching English in Norway. Some general theory regarding the different speech sounds will be presented, followed by some teaching points. Finally, some previous research projects will be presented, amongst them, the pilot on which the current research is based.

2.1.1 Second language acquisition

As the second research question focuses on the teaching of pronunciation and phonemic symbols, this sub-chapter will discuss the difference between language learning and language acquisition and whether Norwegian learners of English should be defined as learners of English as a second language (ESL) or English as a foreign language (EFL). In addition, some of the key principles of second language acquisition (SLA) will be discussed, combined with a historical overview of language learning. The following will also include theory on oral SLA. As the current research project is based on an intervention, and the second research question focuses on *teaching*, a pedagogical foundation is needed.

When defining second language acquisition in Norway, the discussion cannot avoid the question of whether Norwegian learners of English should be viewed as L2 speakers, EFL speakers, or speakers of English as a Lingua Franca (ELF). Speakers of ELF can be defined as "[…] English users from, for example Europe and Japan [who] speak English more frequently as a contact language among themselves than with native speakers of English" (Jenkins, 2006, p. 4). Jenkins furthermore points out that people from places such as Scandinavia can be defined as speakers of English as an intranational language, where the language is used country internal and not as just EFL/ELF. The latter view can find support in the fact that several Norwegian corporations use English as their language of communication, regardless of the employees' nationality and first language. In order to further illustrate how difficult it is to decide between ESL and EFL, the following two definitions differ in meaning. By using a dictionary definition, English as a foreign language is "English as taught to people whose main language is not English and who live in a country where English is not the official or main language" (Cambridge Dictionaries Online, n.d.), a definition that is quite fitting regarding Norway. However, SLA may be defined as learning a language after the first language is acquired (Hummel, 2014, p. 6). Hummel does however mention that there, in some cases, are differences between the acquisition of ESL and EFL, for example the contrast between immigrants coming to an English speaking country learning ESL, and language learners living in a country where English is not an official language, and thus, contact with native speakers of English is limited (Hummel, 2014, p. 7). However, to avoid confusion, EFL will be used as an umbrella term. Although the current thesis uses the EFL terminology, it is important to be aware of the different terms as they, in some cases, differ in their teaching points.

It should be noted that there have been attempts at separating the terms *language* and *acquisition*, so that SLA differs from second language learning. According to Stephen D. Krashen & Tracy D. Terrell (1983, p. 18), learning is a conscious act, whereas acquisition is acquiring knowledge sub-consciously. One of the factors necessary in order to acquire a language is comprehensible input (Krashen & Terrell, 1983, p. 19). There are four principles behind the natural approach and language acquisition, the first being that listening and reading precedes production skills (i.e. speaking and writing) (Krashen & Terrell, 1983, p. 20). Krashen & Terrell (1983, p. 20) also claim that production should emerge in stages from simple one-word response to complex sentences. The third principle states that the goal for classroom activities should not focus on grammatical structures, but on topic. The forth

principle is that the classroom activities should cover interesting topics that encourage students to participate (Krashen & Terrell, 1983, p. 21). In addition, Krashen & Terrell (1983, pp. 20-21) claim that the target language should be the same as the language of instruction, that students should speak only when they feel ready, and that a classroom with a low level of anxiety is important.

Krashen's theory has been criticized for claiming that knowledge that has been learned cannot be acquired, due to the fact that he does not offer proof, and that there is a lack of a clear distinction between the two terms (Hummel, 2014, p. 76). Nonetheless, some of his claims find support amongst other researchers and language teachers, such as the claim that the target language should be the language of instruction (Birketveit & Rugesæter, 2014, p. 61). One should note that there are both teachers and researchers disagreeing with the claim that one should teach L2 by using the target language. Oka, cited in Owolabi (2014, p. 191) claim that L1 is more efficient than L2 when learning and understanding grammar rules and abstract terms. This does, of course, require that the language learners are familiar with the grammar rules and terms in their L1. Another argument for using the L1 when teaching L2 is that

> […] it can be seen that L1 has a place in effective L2 pedagogy, only if those concerned reconsider the old fallacy and avail themselves of some of the advantages L1 offers in effective L2 teaching/learning process, especially by non-native-speakers in non-native environments. (Owolabi, 2014, p. 194)

It may be argued that Krashen's focus on reading and listening instead of speaking and writing may hinder acquisition. When reading, mistakes regarding pronunciation can occur due to inability to associate the characters with their respectable speech sounds (Eddine, 2011, p. 3). This being said, one could argue that the speech sounds may be acquired by listening, either to the teacher or via other oral media, however, the "carry-over effect is rather slim" (Nilsen, 2002, p. 171). Perception is important, and if the language learner is unable to hear the difference between an L1 speech sound, such as /d/, and the L2 speech sound, such as /ð/, simply listening to a native speaker is insufficient (Nilsen, 2002, p. 177). One of Krashen's principles that one can agree with is that a classroom with a low level of anxiety is important for both learning and acquisition of knowledge. When *acquisition* is used in this thesis, the meaning is in agreement with that of Hummel (2014, p. 6) that SLA is learning a second language after L1 is acquired, rather than Krashen's (1983, p. 18), where there is a difference between learning and acquiring.

One of the key factors regarding oral second language acquisition in the classroom is the teacher's knowledge. In order to address the learners' problems, it is crucial that the teacher is able to identify the problem, and also able to help the learners understand the problem, and explain how to produce the different speech sounds (Nilsen, 2002, p. 173). When learning a new language, learners tend to "hear the sounds of English in terms of the sounds in their native language" (Kenworthy, 1987, p. 1). Kenworthy (1987, p. 1) compares this with a person seeing a lime for the first time. Without prior knowledge, one could think that the lime is an unripe lemon, because lemon is the most similar fruit to lime. This misinterpretation may follow you until someone points out the difference (Kenworthy, 1987, p. 1).

2.1.2 Teaching English in Norway

In the 1950s and 1960s the optimal age or critical age hypothesis, which claimed that one should learn a second language before puberty, gained focus (Simensen, 2007, p. 48). The critical age hypothesis is supported by the claim that children acquire a language better than adult language learners (Krashen & Terrell, 1983, p. 18). This hypothesis influenced countries such as Sweden and Norway to start teaching an L2 at an early age, and English became a part of the curriculum in the lower secondary schools in Norway in the 1970s (Speitz & Simonsen, 2006, p. 6). English became an obligatory subject from 4th grade in Norway in 1987, and by 1997, with the introduction of Curriculum for the 10-year compulsory school in Norway (L97), English became a part of the curricula with the starting ages between 1st and 3rd grade (Speitz & Simonsen, 2006, p. 6). The implementation of LK06 led to English becoming an obligatory subject from year one. Between 1st and 4th grade, pupils are supposed to have about one hour of English per week, and, two hours of English every week in 5th to 7th grade (Utdanningsdirektoratet, n.d.).

Even though the critical period hypothesis may be valid, age alone is not enough to secure that pupils are to master a foreign language. It is important that one spends enough time learning the language, and that the teachers are qualified (Drew & Sørheim, 2009, p. 22). If the teacher is not qualified to teach pronunciation, a concern is that they may lean on textbooks and other aids, instead of focusing on the pupils' problems, and also that instruction is absent (Derwing & Munro, 2005, p. 389). In a report from Statistics Norway (ssb) (2014), it is pointed out that as many as 43 % of English teachers in Norway lack higher education in the English language, and as few as 10 % have more than 60 credits (Lagerstrøm, Moafi, & Revold, 2014, p. 21). Between grade 1 and 4, nearly 60 % of the teachers are without any

formal education in the subject, for the years 5 to 7 this number is close to 50 % (Lagerstrøm, Moafi, & Revold, 2014, p. 22). One of the concerns linked to these numbers is that unqualified English teachers are reluctant to use the English language during their lessons, and as a result, so do the pupils. As stated by Birketveit & Rugesæter (2014, p. 61), many of the teachers observed during practise teaching make an utterance in English and then translate it into Norwegian. This may have a negative effect, and the learning outcome is reduced (Birketveit & Rugesæter, 2014, p. 61).

It is, naturally, a reason for concern when knowing that few English teachers in Norway use English as the language of instruction, or that spoken English is translated into Norwegian immediately after the utterance. The latter may lead to the pupils to ignore what is being said in English, and wait for the Norwegian translation.

2.1.3 Pronunciation goals (and challenges)

There are, roughly speaking, two main goals for pronunciation teaching. Either that the goal should be that language learners sound intelligible, or native-like. There are good reasons why one could argue that learners of EFL should strive to sound native-like, however, so are the reasons why this should not be the goal. Some of the reasons from both camps will be discussed in the following.

The first main argument against encouraging EFL learners to strive to sound native-like is that this is a goal that cannot be accomplished by many learners (Kenworthy, 1987, p. 3), and thus, many might lose their motivation for speaking English. Jenkins (2006, p. 81) argues that the term *native speaker* excludes a large variety of English accents spoken outside England, Canada, America, Australia and New Zealand, such as Singapore, where English is used both for official purposes, but also at home. Jenkins is however criticized for her "liberal attitude to the development of NNS (non-native speaker) spoken ability in terms of pronunciation" (Gabryś-Barker, 2011, p. 123). One of the arguments against Jenkins' views on native versus non-native pronunciation goals is that one may fail to achieve speakers that have intelligible pronunciation (Gabryś-Barker, 2011, p. 123). An argument for why native-like pronunciation should be the goal is based on the belief that it is more likely to achieve a good pronunciation if the aim is high (Nilsen, 2002, p. 174). Nilsen (2002, p. 174) also points out that some learners of English will need to reach a close to native-like pronunciation in order to get certain jobs. For the non-native (NN) view, it can be said that there is nothing wrong with a foreign accent, and that most learners of English do not need to sound native-like, as they are

more likely to communicate with other NNS (Nilsen, 2002, p. 174). Regardless of the language teachers' view on this topic, it is important that those learners that might be able to obtain a near-native accent should be encouraged to do so.
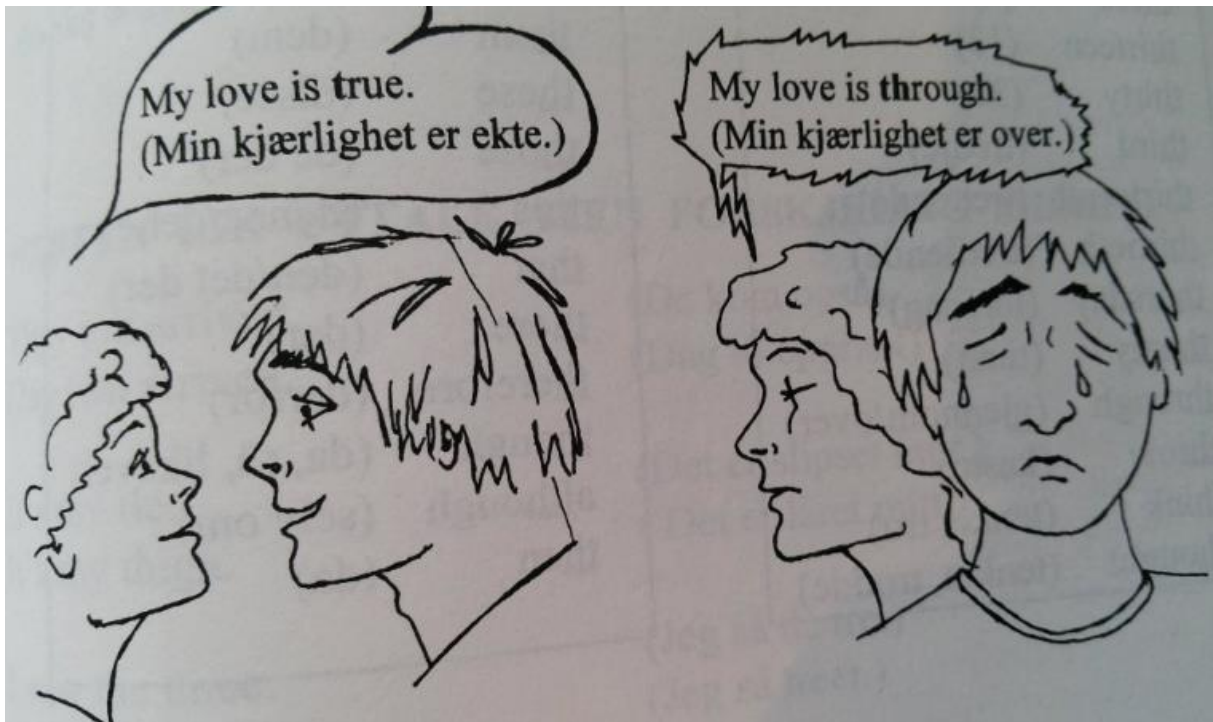
Cartoon 1 – The importance of distinguishing between /t/ and /θ/. (Skaug, 2005, p. 111).

The illustration above (cartoon 1) shows one of the reasons why it is important to focus on production of speech sounds, and in a way, it sums up the purpose for this thesis, that Norwegian learners of English should know the English consonant sounds well enough to avoid such situations.

A non-native speaker is more likely to mispronounce words when speaking, because finding the right words is more important than producing the correct speech sound (Eddine, 2011, p. 3). Kenworthy (1987, pp. 17-18) points to four sound-related problems, the first being that the speech sound is substituted with an incorrect speech sound. Other problems may be that the speaker leaves out a speech sound from the utterance, adding a speech sound or linking speech sounds between words (Kenworthy, 1987, p. 17).

While cartoon 1 illustrates an example of what seems to be interference from L1, as <th> in Norwegian is pronounced /t/, there is another problem to address, the spelling-to-sound problem. Several of the letters in the English alphabet may have more than one speech sound

connected to them (Kenworthy, 1987, p. 94), and thus it may be difficult for learners of EFL to know when to use which speech sound. Kenworthy (1987, pp. 94-95) points out that English spelling is highly visual as the root of similar words is the same, regardless of the pronunciation. She uses the words <sign> and <signal> as an example on two related words, where the pronunciation of <sign> equals /saɪn/, whereas the <sign> in <signal> is pronounced /sig/. Another example of the visual spelling can be found in the words <ruff> and <rough>, /rʌf/, where the meaning is unrelated, the spelling is unrelated, however, the pronunciation is not (Kenworthy, 1987, p. 95). Another feature of the writing system is that some speech sounds have two letters in writing, such as the <ph> in <phonetics>, pronounced /f/, <th> equaling either /θ/ or /ð/, and <gh> which can be pronounced with /f/ as in <enough>, /g/ as in <ghost>, and with no sound as in <through> (Kenworthy, 1987, p. 95). It can be tempting to mention George Bernhard Shaw's well known illustration of the spelling-to-sound problem, where he claims that <ghoti> equals /fiʃ/ (Brown, 2009). However, there are a few problems related to this, as <gh> is only pronounced /f/ in word-final position, and <ti> is not pronounced /ʃ/ at the end of a syllable. Nonetheless, if one is aware of these limitations, it does prove a point.

As this research project is a three-week intervention in two seventh grade classes, the spelling-to-sound problem may cause more trouble than interference with L1. The participants in both classes can be told that <v> should always be pronounced /v/ and never /w/ to avoid the over-generalization of /w/, however, the <th>-spelling contains a far more complex problem. The participants may be told that <th> should never be pronounced with a /t/ as may be the result of L1 interference, however, the rules for when to use /θ/ or /ð/ are far more complex (se 2.2.5)[1]. Kenworthy (1987, p. 97) suggests that a dictionary can be used, however, she claims that this method is time-consuming. Although she makes a fair point, it should be noted that using a dictionary in 2016 takes less time than it did in 1987. With the development of smartphones, one can find the pronunciation of most words within seconds. It is, of course not an ideal solution when communicating with someone - however, it is a possibility. As an alternative way of beating the spelling-to-sound problem, Kenworthy (1987, p. 97) suggests that it is easier to predict the pronunciation based on spelling, and then try to pronounce the word with the different speech sounds one predicts based on the spelling. This is of course a

---

[1] It should be noted that the statement of the pronunciation of <th> is acceptable as a pedagogical starting point, however, one should be aware of words such as <Thomas>, <Thames> and <thyme> are pronounced with a /t/, however, this may either be pointed out once the pupils master the general rule, or as exceptions to the rule, as long as it does not confuse them.

possibility when learning the language, however, it may be compared with using a smartphone in conversation.

2.2 The different phonemic symbols

In order to understand why the speech sounds /z, v, w, dʒ, θ, ð/ were chosen for this project, one will have to know some of the basic differences between the production of speech sounds in oral Norwegian and oral English, and some other factors that may have an impact on Norwegian learners' pronunciation. The first problem to address is interference from the pupils' first language (Nilsen, 2002, p. 177). The second problem is that none of these speech sounds exist in the Norwegian language, except for /θ/ and /ð/ which still exist in a small area in North Western Norway (Mæhlum & Røyneland, 2012, p. 96). Each sound will be briefly explained, and the results from the pilot will be used in order to illustrate that these sounds are indeed problem sounds. One should note that the examples provided by the researcher are transcribed using RP, however, all the target sounds exist in most parts of the English speaking world. The only reason why these transcriptions are based on RP is that the example sentences and words used during the intervention, and as the participants' dictionaries were British English, using GA, or any other variant of English, could confuse the participants as many words have different pronunciation in RP and GA.

The speech sounds used for this thesis may have a different realisation around the English speaking world. One phenomenon that should be mentioned is the th-fronting, where the pronunciation of /θ/ is replaced with /f/ (Hughes, Trudgill, & Watt, 2012, p. 75). The th-fronting occurs in several places around Great Britain, and across the English speaking world, such as London. The same fronting may have an impact on the pronunciation of /ð/, so that <three> may be pronounced /fri/, <there> may be pronounced with a word-initial /v/. It should be noted that th-fronting does not only appear in word initial <th>, (<mother> could for example be pronounced /mʌvə/). In some places, the th-fronting may be a result of lower social status, especially in the southern states of USA (Wells, 1982b, p. 553). Another reason for the th-fronting may be that both /θ/ and /ð/ could be claimed to be unnatural segment types, and they are learnt late by children, however, /f/ and /v/, are more common speech sounds, and thus children adopt them as replacements (Wells, 1982a, p. 96). Wells furthermore draws the rather humorous conclusion that Londoners and other adult native speakers of English may be regarded as persistent infantilism. Although there are examples of English accents where the speech sounds are realized differently, it is important to teach these

sounds to learners of EFL as they exist in formal speech, and in general, they are speech sounds used in most of the English-speaking world.

.

2.2.1 Fricatives, approximants and stops

In the following a brief explanation of the three terms, *fricatives, approximants* and *stops* will be provided, with an explanation of why these are important for this research. A fricative is a consonant speech sound where air escapes through a small passage in the vocal tract, leading to a hissing sound (Roach, 1998, p. 47). The RP fricatives in this research project are /z, v, θ, ð/, and none of these fricatives exist in the Norwegian register of speech sounds. An approximant speech sound has a relative free air flow when produced, and thus have more in common with a vowel (Nilsen, 2002, p. 66). The relevant approximants in the current research are RP semi-vowel /w/ and the Norwegian /ʋ/. This study consists of one stop, namely the RP /dʒ/. Stops can be either affricated or unaffricated, and /dʒ/ is an example of the former. When pronouncing an affricated stop, the closure in the vocal tract preventing a freely airflow, is released slowly, and friction is produced at the place of articulation (Davidsen-Nielsen, 1994, p. 44).

2.2.2 /z/

The lenis (voiced) alveolar speech sound /z/ does not exist in oral Norwegian, however, the fortis (unvoiced) /s/ exists in both oral Norwegian and RP. The /z/ produces several problems for Norwegian learners of English. The first problem is, of course, that the sound does not exist in any Norwegian accent, however the letter <z> does. It is acceptable to use the spelling <zoo> in Norwegian, however, it will be pronounced /su:/ (note that <o> has the phonemic symbol /u/ in the Norwegian version of IPA (Kulbrandstad, 2011, p. 46)) in Norwegian, whereas the RP pronunciation is /zu:/. It is therefore reasonable to understand why this sound might lead to an incorrect pronunciation. Another reason why this sound is problematic for Norwegian learners of English is that /z/ is spelled <s> in words such as <jeans> (inflectional -s), and "when followed by a lenis consonant sound, as in <Disney>" (Nilsen & Rugesæter, 2009, p. 45).

As the results from the pilot will exhibit in chapter 5, some of the participants from the pilot (Vang, 2014) managed to produce the correct speech sound, /z/, word-initially, before the intervention started, and even after only three weeks of teaching, three of the 18 participants

managed to pronounce the /z/ in <easy>. However, 15 out of 18 managed to pronounce the /z/ in <zip> after the teaching period ended. The number of participants with the correct realisation of /z/ during the pre-test does, however, which supports the claim that /z/ is in fact a problem sound for young Norwegian learners of EFL.

2.2.3 /v/ and /w/

The difficulty regarding /w/ and /v/ is more complex. /w/ is not a phonemic symbol in Norwegian, and <w> is pronounced as /ʋ/, as in /ʋuk/ <wok>, whereas the RP pronunciation of the same word is /wɒk/. Kenworthy (1987, p. 98) states that the oral German language, like Norwegian, pronounces <w> as /v/, however, when German learners learn English, they become aware of the /w/ sound. This should indicate that Norwegian pupils would struggle with the pronunciation of /w/, however, results from the pilot shows that this is not the case.

As the results from the pilot exhibited, nearly all of the participants were able to pronounce the /w/ before and after the teaching period, and it is therefore natural to think that this is the case regarding Norwegian learners of English as well as German learners of EFL. The main problem with the realisation of /w/ is in other words not that the pupils do not pronounce /w/ correctly, however, the problem is that they pronounce <v> as /w/. This might be due to the fact that the pupils have learned this unknown sound, /w/, and fear of pronouncing it incorrectly have led to an "over-reaction" (Kenworthy, 1987, p. 98).

The fact that Norwegian learners of English have a tendency to pronounce <v> as /w/ is the first problem with these two sounds. The other problem is that the English pronunciation of <v> is different from the Norwegian pronunciation of the same letter. The Norwegian <v> is pronounced /ʋ/, and is an approximant, whereas the English version of the same letter is a fricative. However, it is unlikely that there would be any breakdowns in communication if a Norwegian learner of English pronounced <viking> as / ʋʌɪkɪŋ/ and not /vʌɪkɪŋ/.

2.2.4 /dʒ/

/dʒ/ is not a speech sound in oral Norwegian, however, experience from the pilot (Vang, 2014), showed that most of the participants were able to pronounce the initial /dʒ/ both during the pre- and post-test, however, when the sound occurred in the final position of the word, more of the participants struggled. /dʒ/ was replaced by /tʃ/ in those cases where the sound was pronounced incorrectly.

One might argue that neither a native speaker or a non-native speaker would misunderstand the meaning of the utterance in cases where /dʒ/ is replaced by /tʃ/, at least not in word-final position. Even though it did not occur during the pilot, another problem with the realisation of /dʒ/ is that some Norwegian learners use the incorrect pronunciation /dj/, and thus an utterance have changed from /djuːəl/ for <jewel> instead of the correct /dʒuːəl/ (Davidsen-Nielsen, 1994, p. 60), and such a mistake could lead to misunderstandings. The pilot did not show any signs of Norwegian learners of EFL having severe problems with the realisation of /dʒ/. The speech sound is still included in the current research as it is unknown how much practise the participants from the pilot had received on the target sound during their five years at school.

2.2.5 /θ/ and /ð/

The dental fricatives /θ/ (fortis) and /ð/ (lenis) do not exist in oral Norwegian, with the aforementioned exception. Both speech sounds have the spelling <th>, however, there are ways to know when to use which sound. /θ/ should be used for <th> word-initially in lexical words, whereas /ð/ normally occurs initially in function words (Nilsen, 2002, p. 58). /ð/ should be pronounced for <th> medially in words of Germanic origin, whereas /θ/ occurs medially in words of Latin and Greek origin (Nilsen, 2002, p. 58). One can argue that the latter would be a complex explanation for young language learners that normally do not think of the origin of words, however, by learning to produce the sounds, young learners may be able to know when to use which sound by paying attention to native speakers while watching television or listening to music. The most common mistakes made when attempting to produce /ð/or /θ/ is that /θ/ is pronounced /t/ and /ð/ as /d/, the closest Norwegian relatives.

2.3 Teaching points

2.2.1 to 2.2.5 have shown why the six speech sounds are seen as problematic for Norwegian learners of EFL, however, one major factor is still missing, how can these speech sounds be taught?

Perception is important in order to help learners of EFL becoming aware of the different speech sounds. One problem is that "the learners filter the speech signals of the target language (the L2) through the sound system they are familiar with, that is their native tongue" (Nilsen, 2002, p. 177). Nilsen furthermore says that the teacher should help the learners to build up an L2 filter. In order to build up such a filter, the learners must be informed that the unfamiliar speech sounds in fact exist in the English language. One way to build awareness is

to hear the sound, in context, together with the familiar sound (Kenworthy, 1987, p. 45). However, some still might not be able to perceive the speech sound.

If the learners are unable to perceive the speech sound, even when it is placed in context, another solution may be to teach them how the speech sound is made, and compare it with the familiar sound. For /z/, this can be done by telling the learners that they should make the sound of a bumblebee (Skaug, 2005, p. 143), and then include the sound in a word. /θ/ can be explained as the lisp sound, whereas /ð/ can be explained in the same way, however, the tongue should tickle and the larynx should vibrate. When explaining /v/, one can start out with pronouncing an /f/, and then voice it, so that the lips are tickled. When addressing the contrast between /v/ and /w/, the learners should be told that /w/ is pronounced with rounded lips, whereas /v/ is not. The learners could also be made aware of how both /t/ and /d/ are pronounced so that the contrast with /θ/ and /ð/ is more clear. One way of doing this is of course to tell the learners to pronounce the lisp sound and continue to produce the sound as long as they can. This is not possible with /t/ and /d/ and thus, it may be easier to separate the sounds. Another way of making sure that learners are aware of the new speech sounds, and that they understand why it is important to produce the correct speech sound, is by using minimal pairs.

2.3.1 Minimal pairs

A minimal pair is defined as "pairs of words where the only difference is the one critical sound" (Nilsen & Rugesæter, 2009, p. 155). Minimal pairs can be used in order to teach young language learners the difference between the realisation of the different speech sounds, and to illustrate how much a single sound can change the meaning of what a person is trying to communicate. The sounds chosen for this research project are consonants due to the degree of variation between vowels. Vowels change in realisation between accents more frequently than consonant sounds. This can be illustrated with examples from GA and Newfoundland, where <like> is pronounced with /aɪ/ in GA and /əɪ/ in Newfoundland (Wells, 1982b, p. 499). As the realisation of consonant sounds vary less then vowels, consonants constitute an easier starting point for the young learners of EFL.

The problem sounds for Norwegian learners listed in 2.2.1 to 2.2.5 become important to learn in order for pupils to express themselves intelligibly, something that can be illustrated by the usage of minimal pairs.

/θriː/ (three)	/triː/ (tree)
/hɪz/ (his)	/hɪs/ (hiss)
/veɪl/ (veil)	/weɪl/ (whale)
/ðen/ (then)	/ten/ (ten) or /den/ (den)
/wet/ (wet)	/vet/ (vet)
/djuːəl/ (duel)	/dʒuːəl/ (jewel)

Table 1 – Minimal pairs

As illustrated in table 1, the correct speech sound is important in order to secure understanding when using the English language. It is unlikely that a non-native speaker of English would be misunderstood if s/he uttered /aɪ tʊk maɪ dɒg tə ðə wet/ <I took my dog to the wet> instead of /aɪ tʊk maɪ dɒg tə ðə vet/ <I took my dog to the vet> or /ɪt s hɪs kɑː/ <it's hiss car> and not the correct /ɪt s hɪz kɑː/ <it's his car>. However, as pointed out by Luoma (2009, p. 9), a speaker may be judged, even subconsciously, by a listener depending on how they speak, something that may lead to the speaker not being taken seriously, and thus result in a breakdown in communication.

This point was also illustrated in cartoon 1. However, the speaker's intonation would, hopefully, make it clear whether the love was <through> or <true> in such a situation. Sentences such as <I have three tickets to the show> may, with the wrong pronunciation become <I have free tickets to the show>. This example will not interfere with communication as such, however, it may be expensive for the person making the utterance.

2.4 Previous research

The following sub-chapter will focus on similar research projects conducted both in Norway, Japan and China. The research projects presented either have a similar method to the current research, or deal with one or more of the target sounds. As mentioned briefly in the introduction, there is a general research gap regarding the focus on pronunciation of different speech sounds among EFL-students. Although five different research projects will be presented in the following, one should note that three of them are focusing on adult learners of EFL, or even advanced learners of English. Out of the two research projects focusing on young language learners, one is mapping the participants' realisation of the different speech sounds, without focusing on how to improve the pronunciation. The final research project that will be presented here is the only one focusing on both young learners of EFL and how to improve their pronunciation.

The research project with most similarities to the current research project was conducted by Rugesæter in 1995. The research focuses on the realisation of several phonemic symbols, including /s, z, w, v/, by students at Bergen College of Education after their first year of studying English (Rugesæter, 1995, p. 1). The students spent 33 hours in a language lab throughout the year, and approximately 70 % of this time consisted of pronunciation practise (Rugesæter, 1995, pp. 1-2). The students read a passage consisting of 110 words, and 65 short sentences where the target sounds were included (Rugesæter, 1995, p. 2). The results showed that most of the students had two different phonemic symbols for /w/ and /v/, however, 42 % of them pronounced the words with an incorrect /v/ by the end of the research project, a decrease of 20.5 %. 62.5 % of the students pronounced the same sound for <s> and <z> by the end of the year, a decrease of 8.5 % (Rugesæter, 1995, p. 4). Although Rugesæter (1995) is similar to the current research project, it should be noted that the research was based on advanced adult learners compared to the young language learners in the current research project.

Rugesæter conducted a similar study in 2010 consisting of 136 pupils between the ages of eleven and thirteen (Rugesæter, 2012, p. 122). The research aimed at measuring to what extent the participants were able to distinguish between English phonemic symbols known to cause problems for Norwegian learners of EFL (Rugesæter, 2012, p. 119). The study focused on both the realisation of vowels and the distinction between /s/ and /z/, and /v/ and /w/, in addition to the realisation of /v/. In addition, the participants were asked about their exposure to oral English in order to see whether extramural exposure to oral English influenced their pronunciation (Rugesæter, 2012, p. 123). The research found that as many as nine out of ten pupils distinguished between /w/ and /v/, however, many produced the incorrect /ʋ/. The same study showed that as few as 5 % of the pupils had a clear distinction between /s/ and /z/ (Rugesæter, 2012, p. 124).

Alice Y.W. Chan (2010, p. 317) conducted a research project to analyse advanced Hong Kong Cantonese ESL learners' production of English speech sounds, focusing on speech sounds that do not exist in Cantonese, such as /z, r, dʒ, θ, ð/. The participants were asked to read three different reading tasks, reading isolated words, minimal pairs, and reading in context (Chan, 2010, pp. 318-319). The reading tasks included both the problem sounds and sounds that do not cause a problem, such as /s/ and /z/ in <sip> and <zip> (Chan, 2010, p. 319). The participants read the words into a sound recorder, and the results were transcribed by two raters. The results showed that the participants had a good realisation of the voiceless

consonant sounds, with over 90 % accuracy for every speech sound except for /θ/, with 71.9 % accuracy (Chan, 2010, p. 320). The researcher found that this was not the case with the voiced consonant sounds, where the accuracy was as low as below 15 % for several speech sounds (Chan, 2010, p. 320). Both devoicing and substitution of unfamiliar speech sounds occurred, and the correct speech sounds were replaced with speech sounds found in both English and Cantonese (Chan, 2010, p. 321). This research project shares some similarities with the current research. First of all, several of the speech sounds listed as problem sounds for Cantonese learners of ESL are listed as problem sounds for Norwegian learners of EFL for the current research project.

Another similar research project, by Kazuya Saito (2013), was carried out in Japan, where the main object was to see if form-focused instruction (FFI) plus explicit phonetic information (EI) would improve Japanese learners' realisation of /ɹ/. The study consisted of two treatment groups, one receiving both FFI and EI, and the other receiving FFI only, as well as a control group, which was given meaning-oriented lessons (Saito, 2013, p. 8). The participants were given a pre-test consisting of an interview and sound recordings, and a post-test following the same procedure took place two weeks after the final lesson (Saito, 2013, p. 8). Spada (1997, p. 73) in Saito (2013, p. 2) defined FFI as "any pedagogical effort which is used to draw the learner's attention to language form, either implicitly or explicitly". The researcher observed the lessons, and instructed two experienced teachers with English as L1 how to teach in the different groups (Saito, 2013, p. 10).

The instructors for the FFI groups highlighted the words with target sounds, 26 words with /ɹ/ occurring word-initially, three words for word-medial positions, and ten words for consonant clusters, and each of the words were minimally paired with /l/ (Saito, 2013, pp. 10-11). The FFI group also received corrective feedback, meaning that the instructor reformulated mispronunciation without altering the meaning of the utterance (Saito, 2013, pp. 11-12). The FFI plus EI group started each lesson with 5-10 minutes of EI on how to perceive and produce the target sound, and the instructor taught the participants how to produce the speech sound (Saito, 2013, p. 12). Saito (2013, p. 16), analysed the data, 2450 tokens in total, by using acoustic analysis. The results showed that the FFI group had greater scores on the post-test compared to the pre-test and the control group, and the FFI plus EI group outperformed the control group with large effects (Saito, 2013, pp. 22-23). The response from the interview conducted during the post-test showed that EI did not interfere with the learner's focus on form and meaning (Saito, 2013, p. 24). From a pedagogical stand, Saito's (2013) research

project provides some interesting results. The explicit focus on pronunciation did not, according to the respondents, interfere with their focus on meaning and form. In addition, the realisation of the target speech sound improved.

2.4.1 The pilot

The pilot (Vang, 2014), originally a bachelor thesis, focused on the realisation of /z, v, w, dʒ, θ, ð / in a fifth grade class with 18 participants. The research project was based on the hypothesis "that a strong focus on the consonant sounds /z, v, w, dʒ, θ, ð / will improve the pupils' pronunciation" and the research questions:

"1) does teaching with a strong focus on pronunciation and phonemic symbols improve the pupils' oral English?

2) is it possible to make pronunciation teaching fun and motivating?" (Vang, 2014, p. 1).

The intervention lasted for three weeks during a practise teaching period, and a total of 210 minutes were dedicated to pronunciation (Vang, 2014, p. 24). The research consisted of a pre-test and post-test. Both the pre-test and a post-test included a sound recording where the participants read a list of 20 words. The first recordings took place prior to the intervention, whereas the pre-test itself was conducted one day prior to the intervention. Each of the words included at least one of the listed problem sounds, maximum two. In addition, a questionnaire was included in the pre-test, in an attempt to map the participants' experience with phonetics and pronunciation, as well as their prior knowledge of the words. The transcriptions showed a general tendency that the participants' pronunciation of the different sounds did in fact improve, however, some of the words actually had a higher rate of incorrect pronunciation after the teaching period than before.

As for the results, the participants' mean score for the correct realisation of /θ/ during the pre-test equals 51.4 %, whereas M = 63.9 % during the post-test. The correct realisation of /ð/ increased from M = 43 % to M = 50 %. The results from the pre-test regarding the correct realisation of /z/ showed that the participants had an average score of 16.6 %, a score that increased to 33.3 % after the intervention. The correct realisation of /dʒ/ increased from M = 77.8 % to M = 84.4 %. The realisation of /v/ increased from M = 33.3 % to M = 66.6 %. There were two words used to measure the correct realisation of /w/, M = 94.4 % and M = 100 %. In total, the average realisation of the target sounds during the pre-test equals 51.2 %, whereas M = 64.1 % after the intervention (Vang, 2014, pp. 18-22). The pilot did not include a control

group, so it is not possible to say if the changes in pronunciation would have occurred regardless of the teaching, or if the focus on pronunciation in fact did have an impact on the realisation of the different speech sounds.

For the current research project, both the hypothesis and the research questions have changed to some degree. The second research question was removed as it is challenging to measure both *fun* and *motivating*. Another reason is that it would require prior knowledge regarding the participants' view on English as a subject prior to the intervention.

3.0 Method

This chapter will begin with a brief explanation of the term *quasi-experimental*, before discussing why this research is a replication of a previous study. A quasi-experimental intervention was conducted with the aim to improve the participants' pronunciation of the six target sounds. The intervention lasted for three weeks with a pre-test/post-test used to measure the pronunciation before and after the intervention. The pre-test included a questionnaire in order to see if there was a link between pronunciation and unknown words, or pronunciation and the amount of English the participants speak at school. The chapter will also include a thorough description of the participants for both the experimental group and the control groups, the intervention, and the pre-test/post-test.

3.1 Quasi-experimental intervention

The current research project follows a quasi-experimental research design. Quasi-experimental research differs from experimental research as the latter takes place in laboratory conditions, whereas the quasi-experiment is conducted in natural settings (Cohen, Manion, & Morrison, 2011, p. 315). Another difference between a true experiment and the quasi-experiment is that a true experiment uses random selection (Check & Schutt, 2012, p. 131). One of the variables that may be difficult to control in educational research is random selection of participants into groups (Johnson & Christensen, 2008, pp. 328-329). As the imposition of participants for the current research was a result of convenience sampling, the participants were not placed into the groups randomly. The convenience sampling was chosen as it would be difficult to a) gather enough participants with random selection, b) as the participants were divided into classes at their schools, it would be difficult to form new groups as it would require the school to rearrange their entire time schedule. An option would of course be to conduct the intervention after school hours, however, it is not likely that the participants would be interested in this option after a long day at school.

Due to this, the participants followed their normal time schedule, and the intervention took place in their regular classroom. Some of the variables were controlled in such a way that the lesson plan included phonetics and pronunciation, however, it became clear that it was impossible to control all the variables. In an ideal setting, the language of instruction would be English, as the research is set to measure pronunciation of speech sounds that do not exist in the Norwegian language, however, this was not possible (see 3.7.2).

As the current research project is set to expand on the research seen in 2.4.1, the pilot, a non-equivalent control group design was chosen. This research design is based on one experimental group and a control group, where the two groups are defined prior to the treatment, however, they are not randomly selected (Check & Schutt, 2012, p. 132). As it would be impossible to know the different groups' pronunciation level prior to the pre-test, they were matched based on aggregate matching, where both group have the same average age (Check & Schutt, 2012, p. 132), and the assumption was that their pronunciation level should be the same.

Reliability can be explained as "the extent to which similar results may be obtained from different settings, samples and times" (Stringer, 2008, p. 17), in other words, the replicability of the research (Cohen, Manion, & Morrison, 2011, p. 180). The current research is a replication of a previous study, and thus, the reliability for both the pilot and the current research project is strengthened. However, the overall results obtained for the current research were better than the results from the pilot. This may be a result of more extensive focus on both pronunciation and phonemic symbols during the intervention for the current research, although less time was spent on the matter. Another concern regarding the reliability for the current research is that the realisation of the target sounds was scored by the researcher, based on what was heard on the sound files. In order to secure that the scores were correct, another person with phonetic competence listened and transcribed a random sample of the sound recordings. This was done without the second rater knowing the scores set by the researcher. As both the researcher and the other rater agreed on all of the tokens compared, the interrater reliability is high.

Internal validity, or causal validity, "exist when a conclusion that A causes B is correct" (Check & Schutt, 2012, p. 38). In other words, the internal validity for this research can only be achieved if the H_0 is either accepted or rejected without Type 1 or Type 2 errors. One factor that may have an impact on the internal validity is called experimental mortality

(Mertens, 2010, p. 127). Experimental mortality is what happens when subjects, either in the control group or the experimental group wish to leave the research project (Mertens, 2010, pp. 127-128). This became relevant for this thesis when control group 1 had problems finding time to participate in the research project, with the result that control group 1 only participated in the pre-test. A second control group was contacted, and participated in both tests, however, the second control group came from a relatively small school, thus the second control group consists of 11 participants (see 3.6.2 and 3.6.3). However, mortality only causes a threat to the internal validity when the absent of participants causes changes to the results (Check & Schutt, 2012, p. 134), and as the participants from control group 1 were removed from the entire research project, this was not an issue. One way to measure the internal validity is to see if there is a relationship between the dependent and independent variable (Johnson & Christensen, 2008, p. 256). The independent variable for the current research is the focus on pronunciation and phonemic symbols, whereas the dependent variable is whether the pronunciation improves or not. As both the pilot and the experimental group improved their pronunciation by more than 12 % and 16 % respectively, whereas the control group's improvement had an average score of about 2 %, one can argue that there is a relationship between the dependent and the independent variable, at least to some degree.

The external validity, or to which extent the results can be generalized to the population, requires a random sample (Johnson & Christensen, 2008, pp. 267-268). As the current research is based on a convenience sample, the generalizability is low.

3.2 Replication of a previous study

This research is based on a replication of a study conducted in 2014, which has been implemented as the pilot for this study (see 2.4.1). Before the replication could start, several aspects had to be considered. Which kind of replication? How could this project be replicated in a way that would give strength to the previous research? There are several types of replication, however, the option was narrowed down to the three kinds of replication mentioned by Rebecka Abbuhl (2012, p. 297); exact replications, approximate replication and conceptual replication.

As the name implies, an exact replication would be to copy the original study in every aspect, and it is therefore not a replication one would see in social studies. The only way to conduct an exact replication would be to do the same research project at the same time as the original research (Abbuhl, 2012, p. 298). Conceptual replication has a similar statement as the original

study, however, one would use a different research design, such as having a qualitative view of the original quantitative study (Abbuhl, 2012, p. 298).

The current research is based on the second type of replication, the approximate replication. The researcher does most of the same work as in the original study, however, one of the non-major variables is changed (Abbuhl, 2012, p. 298), in this case, the age of the participants. Combined with older participants, the current research will also include a control group, something that was excluded in the original research. To replicate a previous study may help to strengthen both the original study, and the replication(s) in terms of validity and reliability (Abbuhl, 2012, p. 296).

3.3 The word list

A list of 29 words (appendix 8.1) was designed in order to measure the participants' pronunciation of the six target speech sounds. Each sound was represented five times on the word list, both word initially, word medially, and word-finally, and some words contained two different target sounds. The list contained one column with the words, and another column where the phonemic transcript was provided. The participants were asked to read the words using a digital sound recorder, and they could choose to read either the word or the phonemic transcript.

The words were chosen based on the word list from the pilot, however, as the original word list contained 20 words (see appendix 8.1.2), and these words measured an uneven number for each sound, some words were replaced, and some were added to the list prior to this study. The two speech sounds /v/ and /w/ were combined during the pilot, and as few as two words were used to measure the pronunciation of /w/, whereas three words were used to measure the pronunciation of /v/. Both <television> and <very> were included on the new list, and <village>, <veil> and <video> came from the word list used for the pilot. <Television> was added in order to measure the participants' realisation of /v/ when the sound occurred word medially. As for measuring /z/, the pilot consisted of four words, and thus <zoo> was added in order to have five words. The words used for measuring the pronunciation of the different speech sounds were compared with a list of the most frequent 5000 words in the English language (Davies, n.d.).

The original word list was not designed in order to have a single measurement between the participants' realisation of /w/, as it was reckoned as a speech sound that would not cause any problems regarding pronunciation. Although the pilot confirmed that the participants did not

have any problems with pronouncing /w/, it was added to this research in order to confirm that this result is in fact correct, and some additional words containing /w/ were added to the word list. The five words used to measure the participants' pronunciation of /dʒ/, <stage>, <jeans>, <Jean>, <village> and <change> remained unchanged for the current research.

One word used to measure the pronunciation of /θ/ in the pilot, <thrash> was removed as the participants from the pilot mixed the word with <trash>, and it would not benefit the participants if they continue to pronounce the more common word <trash> as <thrash>. <Thumb> was added as a replacement for <thrash> for the current research. As the pilot contained four words to measure the participants' realisation of /θ/, a fifth word, <three> was added to the word list.

The word list was designed so that the difficult speech sounds occurred in random order, with a few exceptions: <think>, <thought>, <though>, which occurred in a planned order. These words occurred in positions two, three and four, mostly because the pilot showed that the participants mixed the words and as a result, mostly struggled with the difference between <thought> and <though>. By placing them together, the hope was that the participants would read and use the phonemic transcript instead of reading the word and guessing the pronunciation during the post-test. Note that <sip> is in the word list as a minimal pair to <zip> in order to see if the participants would distinguish between the two sounds, /s/ and /z/, when they noticed the different spelling. However, the word is not included in the transcriptions since /s/ is a sound that exists in both oral Norwegian and English.

3.4 Questionnaire

As the participants' prior knowledge of pronunciation and phonemic symbols was unknown prior to the pre-test, a questionnaire consisting of four main questions, each with a follow-up, eleven questions in total, was designed. The questionnaire focuses on the participants' prior knowledge of the words used to measure the target sounds, on how the participants' knew how to pronounce the different words, if they had seen phonemic symbols prior to the pre-test, and whether or not they spoke English during their English lessons. The questions regarding unknown words could potentially provide interesting information, as it opens for the possibility to see if the participants' could pronounce a word, without either understanding or knowing the word, by using prior knowledge based on the spelling, or if unknown words would cause a problem based on interference from the L1. In addition, some of the words

from the word list were not used during the intervention, and a questionnaire opens up for the possibility of finding out if the participants managed to pronounce a word with the correct speech sound during the post-test based on their knowledge of phonemic symbols.

In addition, the questionnaire made it possible to see if the participants had any prior knowledge of phonemic symbols, and if they had reflected on how they pronounce different words, and in that way see if there is a correlation between knowing phonemic symbols and pronunciation. The final question focuses on the participants' oral language during their English lessons. By comparing the results from the questionnaire with the participants' pronunciation, one may be able to see if the amount of English the participants speak have an effect on their realisation of the target sounds. The final question consisted of a follow-up question to find out if there were any reasons why those of the participants that did not speak English were reluctant to do so. In order to avoid taking up too much of the participants' time, a questionnaire was chosen instead of an interview. However, such a questionnaire may still be interpreted as an interview in written form.

One of the important principles when designing a questionnaire is to use a natural and familiar language (Johnson & Christensen, 2008, p. 172). The questionnaire used in the pilot was originally both in Norwegian and English, however, as all participants but one chose to respond in Norwegian, the questionnaire used in the current research was written in Norwegian. The language was kept simple, so that the participants would understand the questions. The researcher was present when the questionnaire was filled in in order to help the participants if something was unclear. As pointed out by Johnson & Christensen (2008, p. 173), one should avoid technical terms, and as a result of this, the term *phonemic symbols* were replaced with *symbols next to the words*. The questionnaire was translated in English by the researcher for the analysis of the response.

Another important factor is that one should pilot the questionnaire to find out if it functions well or not (Johnson & Christensen, 2008, p. 189). Johnson & Christensen furthermore suggest that a questionnaire is piloted with a minimum of five to ten people. The current questionnaire was originally designed for the pilot in 2014, and was piloted by two fifth grade teachers prior to the pre-test in 2014, and by the 18 participants from the 2014 research project. The pilot provided useful as it became clear that some questions needed more pre-made choices for the participants, and some questions were unclear. As a result, the current questionnaire includes more questions and more alternatives than the original questionnaire.

3.5 Ethical considerations

There are several considerations to be dealt with when young learners are subjects of research. For some pupils, an unknown teacher may lead to a stressful situation. However, both classes had been visited by students prior to this research, and the researcher spent some time with them prior to both collecting the data and the intervention. The project was explained to them, and they had nearly one hour to ask questions regarding the project, the intervention and the data collection. They were also told that they could choose not to participate if participating would cause stress or other unpleasant emotions.

One of the demands from Norsk senter for forskningsdata (NSD) is that the participants are to be 100 % anonymous, and as a way to guarantee this, each of the participants were given a random number between 1 and 68 based on the order in which they participated in the pre-test. The participants decided this order amongst themselves, so that the researcher did not have any way of recognizing them during the transcription of the sound recordings.

Another problem, although not a major ethical dilemma, that came up during the intervention was the instruction language. The participants were not used to listening to the English language and struggled with understanding what was being said during the lessons. They were also very reluctant to speak English, and only a few said more than a few words in English. By the end of week two, the researcher decided that Norwegian should replace English as the language of instruction in order to make the participants understand what was being said and to ensure that the intervention did not cause any stress for them.

3.6 The participants

The main difference between the pilot and the current research is that the participants are two years older than the participants from the pilot, and a control group is included in order to see if the results from the experimental group occurred by chance, or if the focus on pronunciation during the intervention does make a difference. A total of 68 pupils participated in the project initially, 36 in the experimental group, and 32 participants divided into two different control groups.

3.6.1 Experimental group

The experimental group consisted of two different 7th grade classes at a school in Norway. There were 19 participants in each of the classes. However, two were left out of the project because they did not attend the pre-test before after the intervention had started, one was sick

during the pre-test, and three were left out of the project due to severe reading problems. One of the participants that was removed from the project pronounced <thought> as /mɔ:rtar/, something that may indicate that his/her pronunciation was influenced by his/her reading skills and not his/her knowledge of pronunciation. With those exceptions, every pupil participated regardless of former knowledge on phonetics and pronunciation, and without any concern to their level. Since the purpose of this study was to improve pronunciation, and not their reading/writing skills, the participants' level of English did not matter. One of the participants were born in England but s/he was still included in the project as it did not change the outcome of the intervention nor the results. As the theory chapter pointed to interference from L1 as a problem when pronouncing unfamiliar speech sounds, it should be pointed out that one of the participants from the experimental group had other languages than Norwegian as their L1. However, this participant was removed from the research project for other reasons, and thus, Norwegian was the only interfering language.

3.6.2 Control group 1

The first control group consisted of 20 participants from two different 6th grade classes at the same school as the experimental group. Since participation was not obligatory, and the researcher was unknown to the participants, several refused to participate. The control group from this school was selected based on age, and as with the experimental group, there were no selection criteria for the participants. The researcher does not know any details about their level regarding English or any other subject.

During the original time set for collecting data, the first control group had student practise teachers, and in order to avoid interrupting their schedule, the pre-test was delayed for three weeks. For unknown reasons, the first control group could not take part in the data collection needed for the post-test, and the group had to be removed from the project four months after it had started. At this stage of the project, it was not possible to find another control group, and as a result, the control group consists of only 11 participants.

3.6.3 Control group 2

The second control group consisted of 11 participants from a different school in Norway. Most of those participants had previous knowledge regarding phonetics and pronunciation, and some of them even turned to the phonemic transcript when reading the word list. As a contrast to the first control group and the experimental group, this control group also spoke English during their English lessons, according to their own statements in the questionnaire.

Since control group 2 differs from the first control group as well as the experimental group, an interview with their teacher was conducted, and the results from the second control group will be listed in a different table than those of control group 1.

Neither of the control groups were observed during an English lesson, so their claims are only based on the questionnaire.

3.7 Data collection

3.7.1 Pre-test

The pre-test started up one week prior to the intervention. Each of the 32 participants from the experimental group met the researcher in an empty classroom, and was given the list of words. The words were read out loud into a digital sound recorder placed in front of them. On average, the participants spent one minute reading the words. The questionnaire was given to the participants immediately after the reading was done, so that any difficult words and how they pronounced them were still in their memory. The experimental group responded to a questionnaire in paper form. However, this turned out to steal much of their time, and by the time the pre-test was conducted in the control groups, the questionnaire was digitalized, so that they could avoid all the writing when listing unknown words.

3.7.2 Data collection in the experimental group

The intervention in the experimental group lasted for three weeks, a total of 315 minutes (60 + 45 minutes per week) per class, following the participants' regular time schedule and lesson plan. The main purpose of the intervention was to secure that the participants received an explicit focus on how to pronounce different speech sounds, the phonemic symbols for the target sounds, and how/where phonetics could be used in order to practise pronunciation.

However, as seen in the theory chapter, pronunciation should be taught in a meaningful context, and as a result, the pre-set lesson plan made by the two classes' teacher was followed, to some degree. The main topics covered during the intervention was Australia and grammar, more specifically prepositions.

Each lesson started with learning the techniques required in order to pronounce the target sound of the day, and the phonemic symbol was written on the blackboard. The first lesson included two target sounds, /z/ and /v/. In order to map to what extent the two speech sounds were problem sounds, the participants were asked to pronounce the word <viking>. As most of the participants pronounced <v> as /w/, the researcher explained the difference between the

two speech sounds, when to pronounce /w/ and when to pronounce /v/. After explaining how /v/ should be pronounced, the participants had to try to produce the speech sound together and out loud. They were told to hold the speech sound until they were sure that their lips tickled, and that their lips were not rounded. The phonemic script proved useful when dealing with /v/ and /w/, due to the fact that some of the participants failed to hear the difference, or even to see it when it was being illustrated for them. By illustrating the difference between two words both by using pronunciation, phonemic script and dictionaries, most of the participants could see, hear, understand and pronounce the difference between <wet> and <vet>. As /w/ turned out to be a familiar speech sound, as the participants had the correct realisation of /w/, the sound did not have any focus during the intervention, other than to illustrate the difference between /v/ and /w/. The same procedure was repeated with /z/, where the participants were told to produce the sound of a bumble bee.

Due to the simple explanations, the participants learned how to produce the two speech sounds within a few minutes. The main issue was to learn when to produce which sound. As the participants were reluctant to speak English (in fact, most refused, with the exception of the English participant, who enjoyed being able to use his/her mother tongue, English) the focus on learning when to produce which sound was a challenge. Their lesson plan said that they were to read in pairs from their text books, and in an attempt to at least hear them produce some oral English, they were told to look for difficult words when reading. Difficult words could be words with either unknown meaning or unknown pronunciation. By the end of the reading section, the participants had to list at least one difficult word each. They were, however, allowed to list a word that had been listed by someone else. The difficult words were written on the blackboard, and a simplified phonemic transcript was provided. Due to this exercise, some additional phonemic symbols had to be included during the first lesson.

Both classes had a glossary test every week, and in order to give more context to the words on the test, each of them was transcribed, and the words were put to use in an oral discussion instead of the normal translation task. One of the words they had to translate was *commonwealth*, and it turned out that none of the participants knew what the Norwegian translation meant, even though they all knew the correct Norwegian word. Since the word included two of the target sounds /w/ and /θ/, it was transcribed, so that they could practise the pronunciation, followed by a classroom discussion to make sure that the participants knew what the *commonwealth* is. The researcher found it important to focus on some specific vocabulary in an attempt to make the participants speak English during the lesson. However,

most of the conversation took place in Norwegian, where the researcher was the only person in the room speaking English.

When the participants had knowledge of the six different speech sounds, and knew how to produce them, the focus changed from production to perception. The instructor started with an example sentence, <I took my dog to the wet>, and the participants had to, based on their knowledge, decide whether /v/ or /w/ was the target sound, and if the sentence made sense or not. When a new speech sound was mastered by the participants, the sentence expanded, and the final sentence contained different varieties of <I took my vet dog to the wet and he sat on my niece>. It should be noted that the speech sounds changed from time to time, so that it would be difficult for the participants to guess where the target sounds occurred. In addition, the sentences <I love to eat eyes cream> and <I can see you with my ice> were used in order to make the participants aware of the /z/ sound, and how absurd an utterance can become by using an incorrect speech sound. Other examples included pronouncing <mother> with /θ/, in an attempt to see whether they could hear the mistake or not, <then> was pronounced as <ten> and so on. Each example was included in sentences that became absurd when using the incorrect speech sounds. The participants were encouraged to explain why the sentences sounded odd by using the English language, however, most of the participants chose to respond in Norwegian.

By week two, the participants protested against the fact that English was used as the language of instruction. Most of the participants had problems understanding what was being said, either due to the fact that they were used to learning English with Norwegian as the language of instruction or as a result of low self-esteem when dealing with oral English. As the protests lead to what can only be described as a strike, where half of the two classes refused to pay attention, the researcher decided to change the language of instruction to Norwegian. It would not be ethical to continue speaking English when fewer than half of the participants understood what was being said. This could have turned out differently if the intervention lasted for longer than three weeks, where English could be implemented at a slow rate. However, it became clear that the learners were unable to handle the rapid transition from Norwegian to English. The target sounds were therefore included whenever the situation opened up for it, as when two participants had a presentation regarding Queen Elizabeth II, and pronounced <z> as /s/ and <th> as /t/. The presentation ended with a sequence where the class could ask questions about the presentation, and as most of the participants made this

mistake, it felt safe to provide them with both the phonemic transcript and focus on the pronunciation without making the two participants feeling embarrassed.

The final lesson in both of the classes was dedicated to grammar. The first half of the lesson was spent learning about prepositions. For most of the lessons, the classes' regular teacher was present in the classroom, however, during the final lesson, s/he could not attend. Thus, the participants saw the researcher as a substitute teacher, and as a result, the first half of the lesson resulted in very little, both in terms of learning and pronunciation. In an attempt to regain focus, the class had to find their dictionaries, and a game of "my ship is loaded… with phonemic symbols" was introduced, as the participants had proven to be very competitive during the intervention. The participants worked together in pairs, and had to find words based on the different phonemic symbols they had gone through during the three weeks. Every pair had to find a word with each of the speech sounds, and in order for a pair to complete the task, they had to pronounce the word, and provide the phonemic symbols. The words were written on the blackboard, and after each round, the researcher pointed to the different phonemic transcriptions, and the participants pronounced the words together, and provided the definition of each word (in English). The dictionary was included in the task to make it easier for the participants to find words with the correct speech sound, and in that way, make sure that the words they found actually included the target sounds. Another reason for including a dictionary was that the participants had little experience in using a dictionary, as Google Translate was their dictionary of choice.

The reason why the phonemic symbols were included in this task, and why the participants were provided with a very basic introduction to phonemic symbols is, both related to the LK06 competency aim regarding basic patterns of pronunciation, as well as the fact that knowing phonemic symbols may provide the participants with an advantage when they are unsure of pronunciation of different words. Thus, every time they open a dictionary to find the meaning of a new word, they will find the pronunciation as well. It is also helpful because of the spelling-to-sound problem. For some of the sounds, the general rules for pronunciation were explained, such as /z/, where they were told that a written <s> is most often pronounced /z/ when it is plural. The more advanced rules were not explained, and the fact that they knew some phonemic symbols became useful for them in order to know when to use which sound.

In addition to the target sounds, some phonemic symbols had to be discussed in order for the participants to be able to use the phonemic transcripts other than to identify the target sounds.

Speech sounds such as /ə/, /ɔ/, /ʌ/, /ŋ/ and /ʒ/ had to be explained, as the symbols reveal little regarding their pronunciation. Some of the speech sounds were explained as they occurred during pronunciation of words that were used during the intervention, others had to be explained as the participants were puzzled by them when they were using the dictionary.

3.7.3 Post-test

The post-test for the experimental group was conducted the day after the intervention ended. The participants were not reminded that they could use the phonemic transcript if they were unsure of the pronunciation of each word. This was done in order to see if the participants read the phonemic transcript based on the teaching they had received, or if they still guessed the correct pronunciation of each word. This decision was made in an attempt to see if the participants had acquired both the production of the different speech sounds as well as knowledge of the phonemic symbols, as the purpose of focusing on these symbols was to provide an extra opportunity to know how to pronounce a word. In addition, the participants from the experimental group were to respond to the questionnaire regarding how they knew how to pronounce the different words.

In contrast to the pre-test, where the participants met the researcher alone in a quiet setting, the only room available for the post-test was the hallway outside their classroom. The participants reading the word list were interrupted by classmates on their way to and from the classroom, something that may have had an impact on their pronunciation.

3.7.4 Limitations

As seen previously, the current research has some limitations. It is impossible not to mention the fact that the first control group could not participate after the pre-test was conducted. It would have been beneficial to find a new control group with a similar number of participants as the experimental group, however, this situation arose at a late stage of the research project, and thus, it was not possible to add new participants. As chapter 4 will show, control group 2 had a higher mean score than the experimental group during the pre-test. This, combined with the number of participants in control group 2, limited the possibility of comparing the control group with the experimental group.

The intervention was supposed to follow the classes' lesson plan, combined with meaningful activities in order to focus on pronunciation. However, this proved to be difficult, as explained in 3.7.2. As the language of instruction had to change from English to Norwegian,

much focus on pronunciation was lost, and as the researcher was regarded by the pupils as a substitute teacher, additional time was lost in order to obtain the focus of the classes.

In addition to the limitations mentioned, the initial plan included a delayed post-test, however, for unknown reasons, it was not possible to find time for this, as the experimental group was prevented from participating at an additional test. The research can therefore not draw any conclusions as to the long-term effects of the intervention.

Another limitation that should be mentioned is the data collected for both tests. The tests measure the participants' production of speech sounds, and to some extent the phonemic symbols acquired. However, the test did not measure the participants' perception of the target sounds. Although this was observed during the lessons, it would be interesting to have some concrete measurements. As it proved difficult to find schools willing to participate for this research project, it was, however, more important to conduct tests that took as little time as possible, and thus, a perception test was not included.

3.7.5 Processing the data

The data collected from the questionnaire in the experimental group was digitalized using an online questionnaire service, the same site that was used for the response from the control groups. The sound recordings were transcribed by the researcher in a way that excluded words with the correct speech sounds, whereas words with the incorrect speech sounds can be found in appendix 8.3. An incorrect speech sound was graded with 0, whereas the correct speech sound was graded 1. The number of correct speech sounds for every word was then added to different bar charts, and both the incorrect and correct production of the different speech sounds will be discussed in 4.2.1 to 4.2.13.

3.7.6 Mann-Whitney U test

As the post-test for the experimental group provided data that does not follow a normal distribution, a nonparametric test, or a distribution free test was needed in order to either accept or reject the H_0. The Mann-Whitney U test was chosen for this thesis as it measures the difference between two independent samples, does not require normal distribution, and can be used for small samples (Nachar, 2008, p. 13). Some of the advantages with the nonparametric methods are that one can obtain an exact p-value, the tests do not rely on normal distributed populations, and it may be used to measure small samples (Hollander, Wolfe, & Chicken, 2014, p. 1).

The Mann-Whitney U test should normally measure whether the treatment, in this case the intervention, in fact made a difference. This is done by comparing results from the experimental group with the control group, however, as the control group in general had a higher score on the pre-test than the experimental group, such a measurement would provide a false result regarding the treatment. Instead, the test was conducted to compare the results from the pre-test and post-test for each separate group. All calculations were made using either Microsoft Excel, GraphPad Prism 7.0 or XLSTAT.

4. Data analysis

This chapter will first present the results from the questionnaire, control group first, followed by a thorough analysis of the participants' realisation of the six speech sounds, experimental group first, then control group. In addition, the results from the control group and the experimental group will be compared. A test of significance will be provided for each of the six speech sounds.

4.1.1 Questionnaire pre-test

Each of the 68 participants included in this project was handed a questionnaire after having read the word list. The design of the questionnaire was based on a questionnaire used in the pilot from 2014, with minor changes in order to help the participants provide a more accurate response. The questionnaire included a combination of open-ended questions and closed-ended questions. The questionnaire was used in order to find the data needed to answer the sub-question to research question 2, *in what way, if any, does the participants prior experience with the oral English language, phonemic symbols and the target words influence the participants' realisation of the target sounds*?

The first question (figure 1) was obligatory, and thus, all 68 participants responded. 11.8 % of the participants reported that they had heard every word on the list before, and also knew the meaning of the words. Some of the questions remain the same as they were during the pilot, whereas some have been added or altered in order to provide more accurate answers. For the cases where the questions are the same, the results from the pilot will be included.

4.1.3 Question one – Have you heard all of these words before?

Participants: 11

8 (72.7%): Yes, but I am not
sure what all of the words
mean

2 (18.2%): Yes, and I know
the meaning of them

1 (9.1%): No, I have not
heard all of the words
before

- (0.0%): Unsure
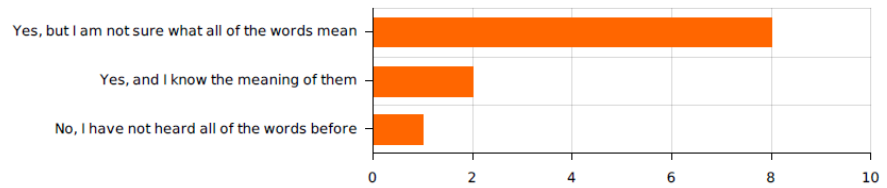
Figure 1 – Results question 1, control group

As visualized in figure 1, most of the participants from the control group had seen all of the words from the word list prior to the pre-test, however, two of them did not know the meaning of every word, and one of the participants had not heard every word before. Most of the words (see 4.2.0 to 4.2.11) can be found amongst the 5000 most frequent words in the English language (Davies, n.d.). As this question was obligatory, all eleven participants from the control group responded to this question.

1a. Have you heard all of these words before? *

Participants: 32

13 (40.6%): Yes, but I am not
sure what all of the words
mean

4 (12.5%): Yes, and I know
the meaning of them

12 (37.5%): No, I have not
heard all of the words
before

3 (9.4%): Unsure
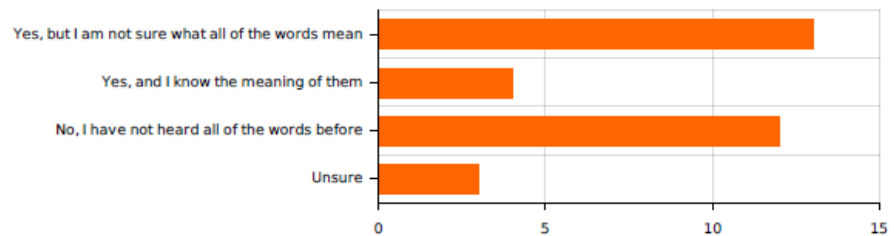
Figure 2 – Results question 1, experimental group

51.3 % of the participants from the experimental group had heard all of the words, however, as many as 40.6 % did not know the meaning of every word. 37. 5 % had not heard all of the words prior to the pre-test, whereas 9.4 % were unsure. Compared to the control group, a higher percentage said that they had not heard all of the words, however, this may have several explanations. First, the control group consists of a smaller class, and their exposure may therefore be different from that of the experimental group. Another reason may be that

the smaller group have a higher possibility of receiving help from their teacher during each lesson, and it should be kept in mind that the two groups are from different parts of the city, and social aspects may have an impact on their English level.

The pilot consisted of a similar question. However, for them the alternatives were *yes*, *no*, and *unsure*. 27.8 % of the participants from the pilot reported that they had heard all of the 20 words before, whereas 22.2 % were unsure. 44.4 % reported that they had not heard all of the words prior to the intervention (Vang, 2014).

4.1.4 Questions 1b and 1c – words they had never heard and words with unfamiliar meaning
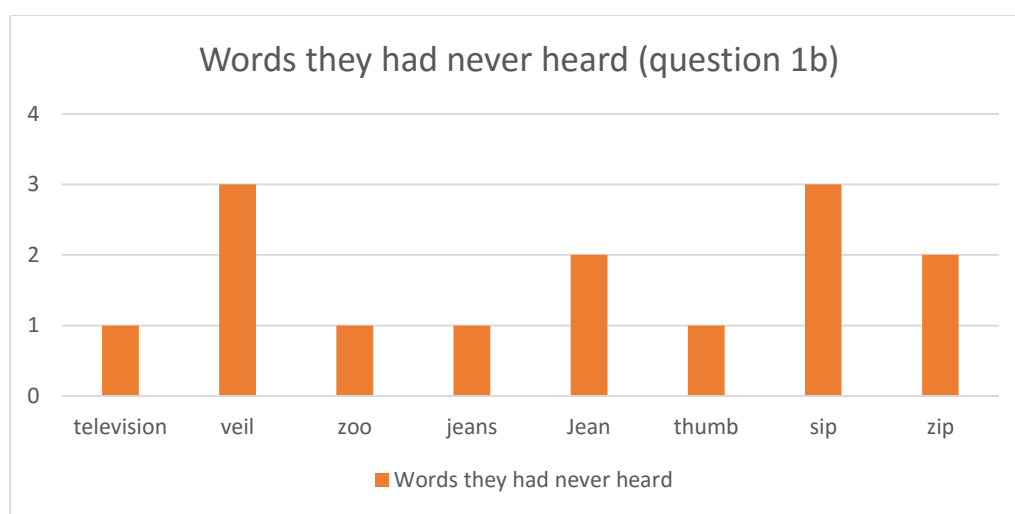
Figure 3 – Results, question 1b, control group

For the control group, question 1b (figure 3) was not obligatory, and the number of participants were five. The most unfamiliar words were <veil> and <sip>. One of the participants listed <television> as an unknown word, however, this may be explained by the fact that the abbreviation <TV> is more common. The fact that <zoo>, <jeans> and <thumb> were listed as unknown words by one participant was more unexpected. These are all words that one should think that sixth and seventh graders should have heard either through watching television or at school. However, since little is known regarding their exposure to English, this is hard to say for certain.
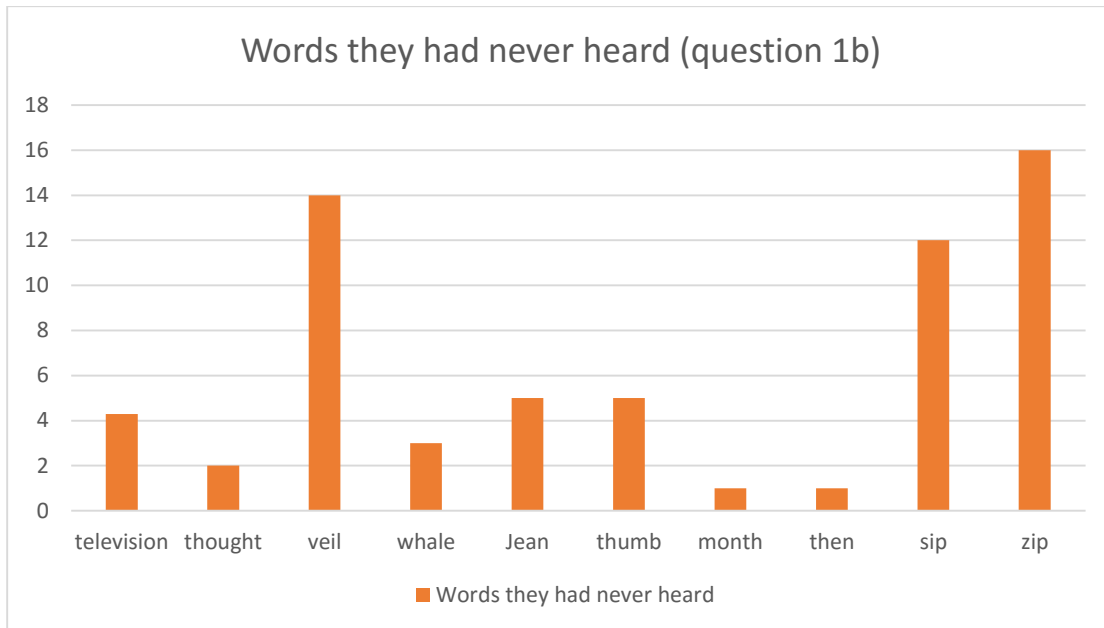
Figure 4 – Results, question 1b, experimental group

The total number of participants from the experimental group responding to this question was 18, or 56.2 % of the experimental group. One of the differences from the control group was that <zip> was listed as the word most of the participants had never heard prior to the pre-test. As seen in figure 4, some additional words were added to the list by the experimental group. <thought> was listed as unknown by two of the participants, whereas <month> and <then> were listed by one participant, and <whale> was an unknown word for three of the participants. The only word listed as unknown by the control group that was not unknown for the experimental group is <jeans>. It cannot be stressed too much that the reason why a word is listed as unknown may be due to its spelling, and the same words may not have been unknown if the participants had heard the words being spoken. As with both the control group and the experimental group, <veil>, <zip> and <sip> were reported to be the most unknown words also for the participants of the pilot (Vang, 2014).

Figure 5 – Results, question 1c, control group

Figure 5 illustrates the words the control group listed as words with an unfamiliar meaning in the questionnaire. Ten of the eleven participants responded to this question. As <veil> was said to be the word most of the participants had not heard of prior to the pre-test, it was expected that this it would be the word most of them did not know the meaning of. 60 % of the participants that responded to this question listed both <zip> and <sip> as words they did not understand, whereas one participant did not know the meaning of <wild>, <village>, <zoo>, <stage> and <jeans>. The fact that four of the participants listed <thought> as a word with unknown meaning, whereas none listed <think> may be explained by spelling, and thus, they may have mistaken <thought> for <though>.
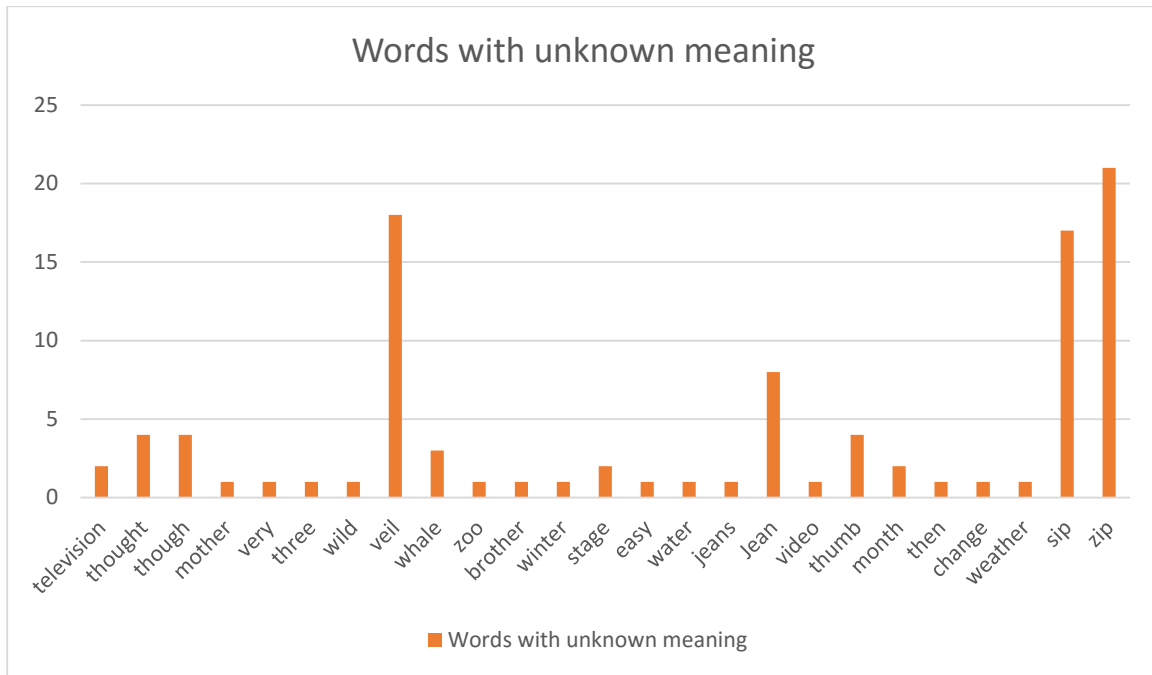
Figure 6 – Results, question 1c, experimental group

As seen in figure 6, almost every word from the word list was listed as words with unknown meaning by at least one of the participants out of the 26 participants from the experimental group that responded to the question. The few words that cannot be found in the bar chart are <think>, <village>, <zebra> and <walk>. <Zip> was listed as a word with unknown meaning by around 80 % of the participants, something that corresponds well with the results from the previous question. It is hard to find a valid explanation why some of the participants have listed words such as <three>, <month> and <brother> as words with unfamiliar meaning, however, the problem with <mother> may be explained because by the participants being more used to <mom> or <mum>. None of the words listed as unknown by the control group were known to the experimental group.
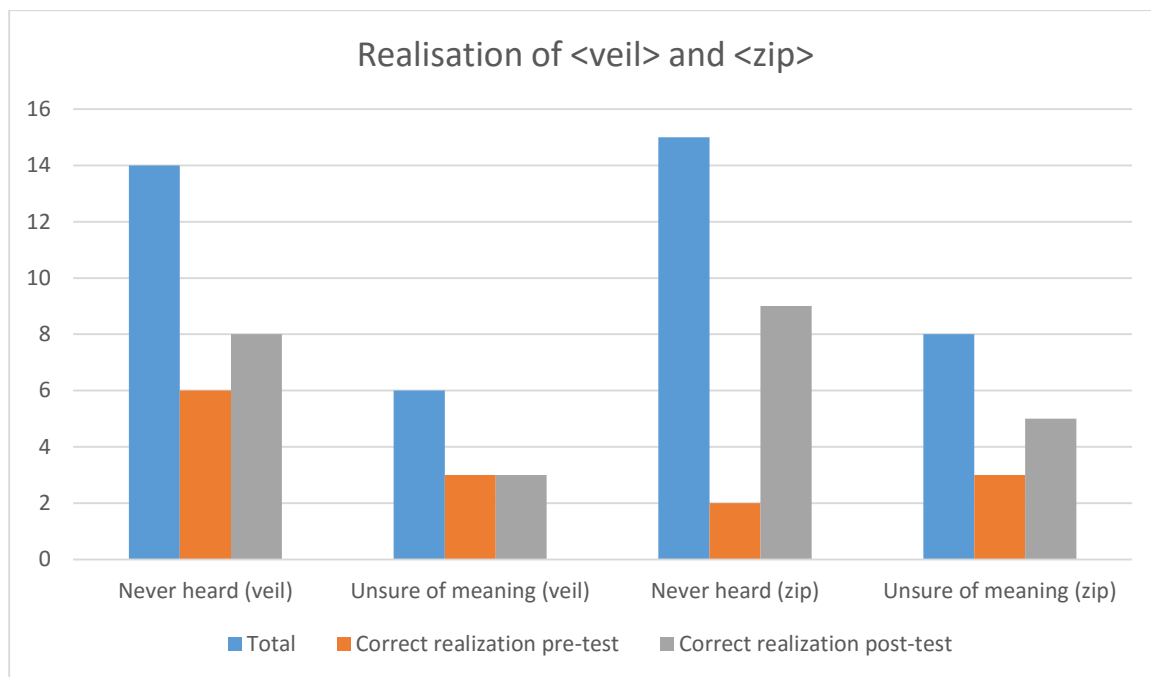
Figure 7 – Realisation of unknown words, experimental group

As <veil> and <zip> were the highest rated unknown words/words with unknown meaning, figure 7 provides the results comparing the correct realisation of the target sounds within <zip> and <veil> compared with the number of participants that listed those words as unknown either in meaning or that the participants had never heard the words. It should be noted that the columns named *unknown meaning* excluded the participants that had never heard the words prior to the pre-test. 43.75 % of the participants had never heard <veil> prior to the pre-test. 42.9 % of the participants that claimed to never have heard <veil> managed to pronounce <veil> with either /v/ or /ʋ/ during the pre-test, a number that increased to 57.1 % during the post-test. 18.8 % of the participants from the experimental group were unsure of the meaning of <veil>, and 50 % of them had a realisation of either /v/ or /ʋ/ during both tests.

46.9 % of the 32 participants in the experimental group wrote that they had never heard the word <zip> prior to the pre-test. Out of these, 13.3 % had a correct realisation of /z/ during the pre-test, whereas 60 % pronounced <zip> with the correct target sound during the post-test. In addition, 25 % of the participants had heard <zip>, but they were unsure of the meaning of the word. 37.5 % of these participants had a correct realisation of /z/ during the pre-test, a number that increased to 62.5 % for the post-test.
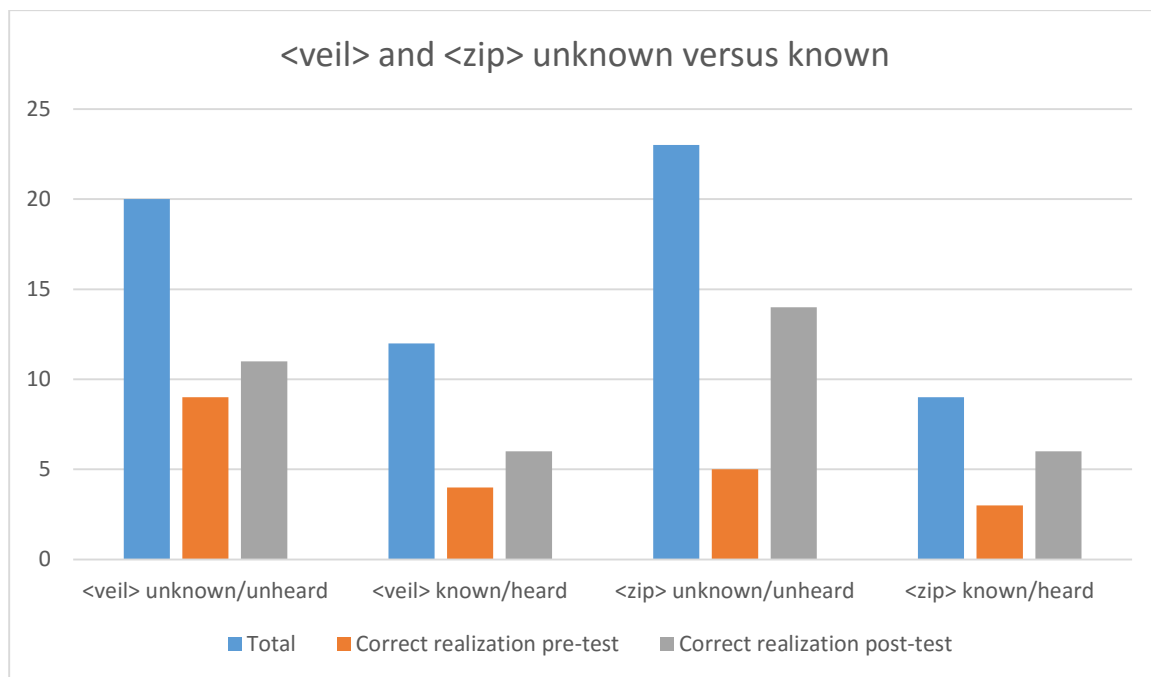
Figure 8 – Realisation of <veil> and <zip>, unknown word versus known word, experimental group.

As seen in figure 8, 62.5 % of the participants wrote that <veil> was either an unknown word or a word with unknown meaning, and 37. 5 % had both heard <veil> and knew its meaning. A total of 40.6 % of the participants had the realisation of /v/ or /ʊ/ during the pre-test. Out of these 40.6 %, most belonged to the group that had heard the word and knew the meaning of the word prior to the pre-test. However, during the post-test, the group that had never heard the word <veil> had the highest score. 71. 9 % of the participants in the experimental group had not either heard or knew the meaning of <zip> prior to the pre-test. This group had the highest score both during the pre-test and the post-test. However, the group that had heard of <zip> and knew its meaning had the highest score based percentage. 21.7 % of the participants that wrote <zip> as unknown had the correct realisation of /z/, however, 33.3 % of the participants claiming to know the meaning of the word had a correct realisation of /z/ during the same test. 60.9 % of the participants from the group responding that <zip> was unknown during the pre-test had a correct realisation of /z/ during the post-test. As for the group that knew the meaning of <zip> during the pre-test, 66.6 % had the correct realisation of /z/ in <zip> during the post-test.

A thorough comparison with the control group is not possible, as very few of the control group's members reported to never have heard the different words. However, 81. % of the participants reported that they did not know the meaning of the word <veil>, and 54.5 % did not know what a/to <zip> is. The third most unknown word in the control group was

<though>, but this may be either due to the fact that <though> is a function word, and may be better understood in a context, or that the participants were unsure of the word due to its spelling. Two of the participants from the control group pronounced <zip> with /z/, these participants were amongst those that reported <zip> as unknown in meaning and unknown as a word they have never heard of. During the post-test this number increased to five, out of six participants in total. As for <veil>, five of the six participants with the realisation of /v/ or /ʊ/ in <veil> during both the pre-test and the post-test belonged to the group listing <veil> as an unknown word.

4.1.5 Question 2a – How did you know how to say the words?

2a. How did you know how to say the words? *

Participants: 11

5 (45.5%): I guessed

1 (9.1%): I used the symbols next to the words

2 (18.2%): I have practiced saying them before

10 (90.9%): I learned how to say them at school

2 (18.2%): Other

Figure 9 – Results, question 2a, control group

As the participants were provided with a phonemic transcript next to each word in the word list, it was interesting to see how they knew the pronunciation of the words. The participants could choose more than one answer to this question, as they may have guessed for some words, and some words may have been practised prior to the pre-test. As seen in figure 9, close to 50 % of the participants from the control group guessed the pronunciation, whereas one of them said that s/he used the phonemic transcription. 90.9 % of the participants had learned some of the words at school. Two of the participants responded with *other*, and one said that s/he had learned some of the words while watching television, whereas the other said that his/her family practise by speaking English at home, and that they have English-speaking friends.

2a. How did you know how to say the words? *

Participants: 32

9 (28.1%): I guessed

1 (3.1%): I used the symbols next to the words

3 (9.4%): I have practiced saying them before

20 (62.5%): I learned how to say them at school

4 (12.5%): Other
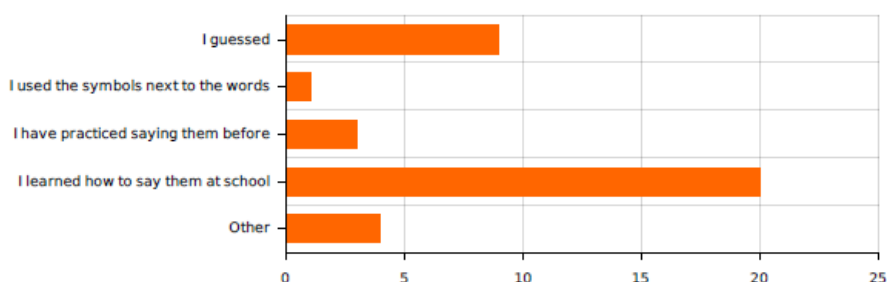
Figure 10 – Results, question 2a, experimental group

As this question was obligatory, all 32 participants from the experimental group responded. As with the control group, participants could choose more than one alternative for this question. As seen in figure 10, one of the participants said that s/he used the phonemic transcript for knowing how to pronounce the words. However, the same participant said that s/he had never seen phonemic script prior to the pre-test, so it is likely that s/he ticked the wrong box when responding to this question. As with the control group, most of the participants in the experimental group claimed that they had practised the words prior to the pre-test. Four of the participants responded with *other*. Those participant had to respond to question 2b, "if other, please explain", where they could respond in their own words. One of the participants said that s/he is English, one had practised by playing video games and watching television, another had heard the words before, and the final participant said that s/he did not know where s/he had learned the pronunciation. 66.7 % of the participants from the pilot stated that they guessed how to say (some) of the words, whereas 44.4 % had practised the words prior to the intervention, and 22.22 % had learned the words at school (Vang, 2014). Another interesting result from the pilot was that one of the participants reported that s/he tried to pronounce the words based on the spelling (Vang, 2014).

How did you know the pronunciation?	Mean pronunciation score, pre-test	Mean pronunciation score, post-test	Mean pronunciation score, pre-test, control group	Mean pronunciation score, post-test, control group
I guessed	M = 14.2	M = 19	M = 17.2	M = 16.8

How did you know the pronunciation?	Mean pronunciation score, pre-test	Mean pronunciation score, post-test
Practised them before	M = 10	M = 15.7	M = 19.5	M = 18.5
Learned the pronunciation at school	M = 17.1	M = 20.6	M = 18.9	M = 19.3

Table 2 – Mean score pre-test/post-test, question 2a, experimental group and control group.

Table 2 shows the average overall score the participants in the experimental group had during both the pre-test and the post-test based on their response to question 2a. The maximum score equals 30 (six target sounds, five words per speech sound). The participants that claimed they guessed the pronunciation of the words from the wordlist had an average score of 14.2 during the pre-test, a number that increased to 19 during the post-test. Compared with the control group, M = 17.2 and M =16.8, the experimental group achieved a lower mean score. The three participants claiming to have practised the words prior to the pre-test had an average score of 10 during the pre-test and 15.7 during the post-test. The participants from the experimental group with the highest score during the pre-test (M = 17.1) were the participants that claimed to have learned how to pronounce the words at school prior to the pre-test. This group increased their mean score to 20.6. It should be noted that this group was the group with the most respondents. The participants from the control group with the highest mean score during the pre-test were the participants claiming to have practised the words prior to the pre-test, M = 19.5. In general, the control group achieved a higher mean score than the experimental group during the pre-test. However, with the exception of the participants claiming to have practised the words prior to the pre-test, the experimental group achieved a higher mean score than the control group during the pre-test. It should be noted that the participants from the experimental group claiming to have practised the words had a higher increase of the mean score from the pre-test to the post-test, in fact, the mean score for the control group decreased from M = 19.5 to 18.5.

How did you know the pronunciation?	Mean pronunciation score, pre-test	Mean pronunciation score, post-test
I guessed	M = 14	M = 19
Practised them before	M = 12.6	M = 17.6

Learned the pronunciation at school	M = 16.1	M = 19.4
I used the phonemic transcripts	M = 17.3	M = 21

Table 3 – Question 2a, pre-test, mean pronunciation score.

When the participants in the experimental group had read the wordlist during the pre-test, they were given question 2a from the questionnaire again. The purpose was to see if they had changed their way of knowing the pronunciation of the six target words during the intervention, and whether they had used the phonemic transcript or not. As seen in table 3, the mean score of the participants claiming to have guessed the pronunciation is more or less identical to the mean score of the participants responding that they guessed the pronunciation during the pre-test (table 3). This could be an indication that the same participants guessing the pronunciation during the pre-test repeated this during the post-test. However, 28.1 % of the participants guessed the pronunciation during the pre-test, compared to 15.6 during the post-test. The mean score for the participants claiming to have practised the words prior to the post-test increased from 12.6 to 17.6. 9.4 % of the participants responding to the questionnaire during the pre-test wrote that they had practised the words prior to the pre-test. This number increased to 15.6 %. The participants claiming to have learned how to pronounce the words at school had a mean score of 16.1, a score that increased to 19.4. As many as 62.5 % of the participants from the pre-test claimed to have practised the 30 words prior to the pre-test, whereas the participants responding to the same question during the post-test were 59.4 %. The most interesting change from the pre-test to the post-test was that 18.8 % of the participants wrote that they had used the phonemic transcript when reading the wordlist during the post-test. One of these participants also wrote that s/he had guessed in addition to reading the phonemic transcript, and one hade combined the fact that s/he had learned the words at school combined with the transcript. The mean score for the participants increased from 17.3 to 21.

4.1.6 Questions 3a, 3b and 3c – phonemic symbols

Question 3a was obligatory, and all participants in both the control group and the experimental group had to respond.

3a. Have you seen the symbols next to the words, and do you know the meaning of them? *

Participants: 11

3 (27.3%): Yes

3 (27.3%): No

5 (45.5%): Yes, but I do not know the meaning of them
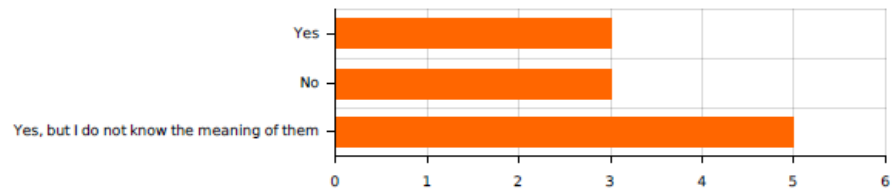
Figure 11 – Results, question 3a, control group

As seen in figure 11, most of the participants in the control group had seen phonemic symbols prior to the pre-test, however, five of them did not know the meaning of the phonemic symbols, and three had not seen such symbols prior to the word list used for the pre-test.

3a. Have you seen the symbols next to the words, and do you know the meaning of them? *

Participants: 32

5 (15.6%): Yes

6 (18.8%): No

21 (65.6%): Yes, but I do not know the meaning of them
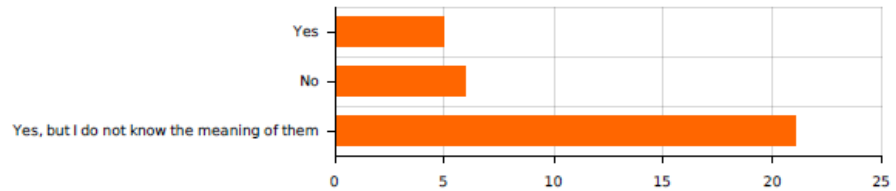
Figure 12 – Results, question 3a, experimental group

As with the control group, most of the participants from the experimental group had seen phonemic symbols prior to the pre-test (figure 12). 18.8 % of the participants from the experimental group had never seen phonemic symbols, whereas 65.6 % had seen phonemic symbols, but did not know their meaning. Both the control group and the experimental group had a dictionary in their textbook where phonemic symbols were included, and this may explain why as many of the participants had seen the phonemic symbols prior to the pre-test. An interesting observation when comparing both the control group and the experimental group with the pilot is that 50 % of the participants from the pilot had never seen phonemic symbols prior to the intervention. It should also be noted that the class that participated in the pilot did not have updated dictionaries in their classroom, and as a result, these were hardly ever used (Vang, 2014).

Have you seen phonemic	Mean pronunciation score, pre-test.	Mean pronunciation score, post-test.	Mean pronunciation	Mean pronunciation

symbols before?			score, pre-test, control group.	score, post-test, control group.
Yes, but I'm not sure what they are	M = 16.7	M = 19.7	M = 18.6	M = 18.8
Yes	M = 15.6	M = 19	M = 18	M = 18.7
No	M = 13	M = 19.1	M = 18.3	M = 19

Table 4 – Mean pronunciation score pre-test/post-test, question 3a.

Table 4 shows the mean pronunciation scores from the pre-test and the post-test compared with the participants' prior knowledge of phonemic symbols. The participants with the lowest mean score during the pre-test were the participants stating that they had never seen phonemic symbols prior to the pre-test, M = 13 in the experimental group. This number increased to 19.1 for the post-test. As for the control group, the participants claiming to know what a phonemic symbol is had the lowest mean score, M = 18, a number that increased by 0.7 during the post-test. The highest score one could achieve equals 30. The highest mean score achieved by the experimental group during the pre-test was M = 16.7, for the participants claiming to have seen phonemic symbols without knowing how to read them. The mean score for this group increased by 3 during the post-test, M = 19.7. The control group achieved a higher mean score on all three alternatives during the pre-test, however, the experimental group achieved the highest mean score during the post-test.

The participants that responded with *yes* or *yes, but I do not know the meaning of them* had to respond to question 3b, *where have you seen them?* The participants could choose multiple responses here, as they may have seen phonemic symbols in several contexts.

3b. If YES, where have you seen the symbols?

Participants: 8

4 (50.0%): In a dictionary

7 (87.5%): At school

- (0.0%): Unsure

- (0.0%): Somewhere else
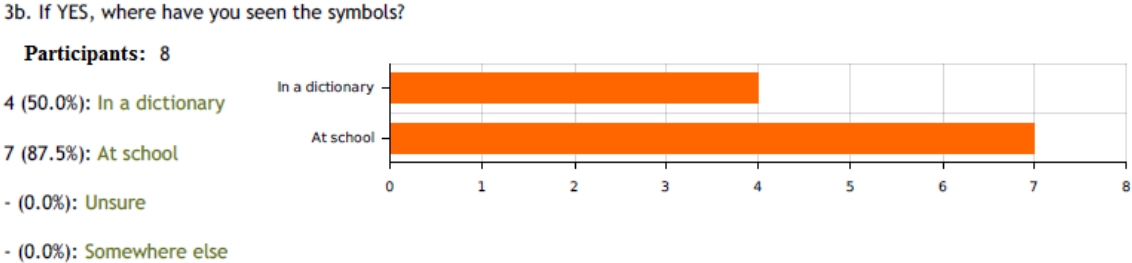
Figure 13 – Results, question 3b, control group

Seven of the eight participants from the control group had seen phonemic symbols at school (figure 13), however, it is not known if they define *at school* as in their books or if their

teacher had been teaching phonemic symbols at part of her teaching programme prior to the pre-test. It is known that their teacher had used phonemic symbols during their first and second year at school. However, this might be something they do not remember. Four of the participants had seen phonemic symbols in a dictionary.

3b. If YES, where have you seen the symbols?

Antall deltakere: 27

10 (37.0%): In a dictionary

17 (63.0%): At school

- (0.0%): Unsure

3 (11.1%): Somewhere else
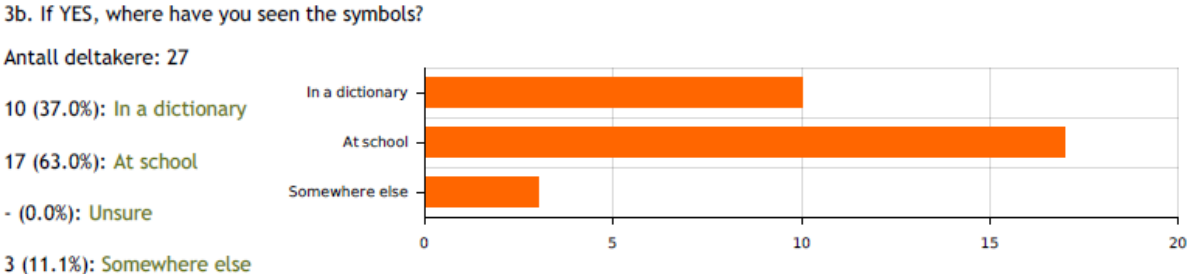
Figure 14 – Results, question 3b, experimental group

As seen in figure 14, as many as 63 % of the 27 participants in the experimental group had seen the phonemic symbols at school prior to the pre-test, however, it is not known where and when. 37 % of the participants had seen phonemic symbols in a dictionary, whereas three of them had seen phonemic symbols elsewhere. Those that responded with *somewhere else* had to respond to question 3c, regarding where they had seen them. All three said that they had seen phonemic symbols in their textbook.

4.1.7 Question 4a, 4b and 4c – Do you speak English in class?

As this thesis is set out to measure the participants' pronunciation, it may be important to know whether they speak English during their English lessons or not. The first question was obligatory, whereas questions 4b and 4c depended on their response to question 4a.

4a. Do you speak English during your English lessons? *

Participants: 11

9 (81.8%): Yes

- (0.0%): No
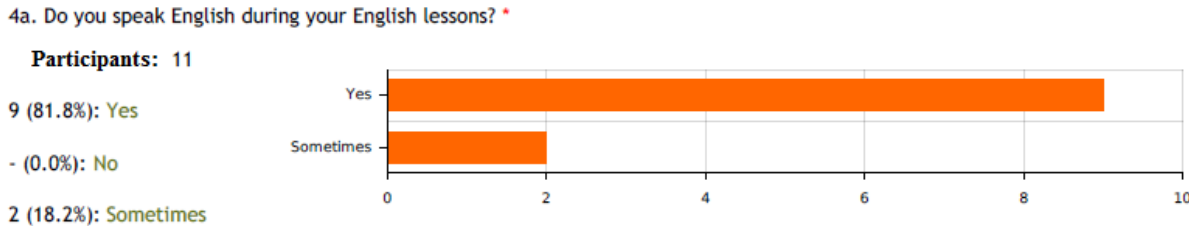
2 (18.2%): Sometimes

Figure 15 – Results, question 4a, control group

As seen in figure 15, as many as 80.8 % of the control group said that they speak English during their English lessons, whereas two of them responded with *sometimes*. As only two of the participants responded with *sometimes*, the figure for question 4b will be excluded, and replaced with a written explanation of their response. For the two that responded with

sometimes, question 4b, *why* was answered by *other*. *Other* had to be explained, and one wrote that "I speak Norwegian because I'm not sure what the words mean", whereas the other responded with "because the teacher doesn't speak English all the time". However, it should be noted that none of the participants said that they never speak English during the English lessons.

4a. Do you speak English during your English lessons? *

Participants: 32

11 (34.4%): Yes

2 (6.3%): No

19 (59.4%): Sometimes
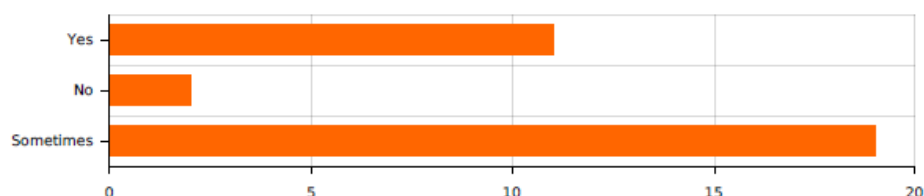
Figure 16 – Results, question 4a, experimental group

As a contrast to the control group, as few as 34.4 % of the participants from the experimental group reported that they speak English during their English lessons (figure 16). The majority of the experimental group said that they speak English some of the time. One of the participants did not wish to explain why s/he does not speak English, or use the Norwegian language during their English lessons. Since as many as 20 of the participants responded to question 4b, this will be discussed further under figure 17. Although the participants from the pilot had more exposure to the English language than the experimental group from the current research, as many as 72.2 % of them stated that they only speak English *sometimes*, 22.2 % reported that this was a result of them not knowing how to pronounce different words (Vang, 2014).

4b. If NO or SOMETIMES, why not?

Participants: 20

4 (20.0%): I find it scary

7 (35.0%): I do not know how to say the words

2 (10.0%): I do not understand the words

8 (40.0%): Other
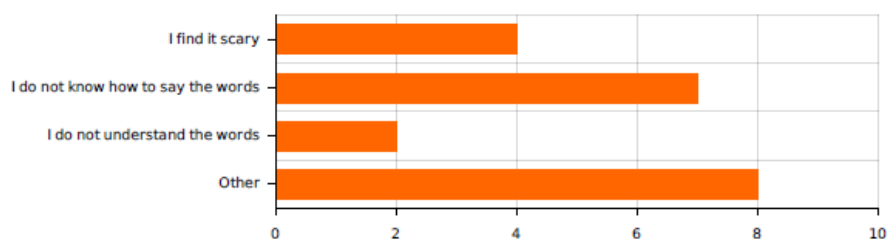
Figure 17 – Results, question 4b, experimental group

As seen in figure 17, there are several reasons why the 20 participants from the experimental group chose not to speak English. 20 % said that they think it is scary to speak English in class, 35 % do not know how to pronounce the words, and 10 % said that they do not understand the words. The remaining 40 % gave *other* as their reason. One extra participant chose to come up with an extra reason for not speaking English in class, so the following will provide nine reasons although eight had to respond to this question. Note that the following quotes were written in Norwegian and translated to English by the researcher. The first participant said that "I answer in English, but I do not speak with my teacher in English", a second came with a similar explanation, "I only speak English during my English lessons if my teacher says that I have to answer in English". One said that "I need something to say it", however, it is most likely that the participant meant that s/he need something to say in order to speak. Another participant said that "I'm not sure", something that may point to him/her not having reflected much about this. A response similar to the alternatives from question 4b was that "I think I'm afraid to say something wrong". Another participant said that "I do not feel that I need to". The final three participants said that "I speak when I'm asked to", "we mostly speak Norwegian" and "I don't want to".

Do you speak English?	Mean pronunciation score, pre-test	Mean pronunciation score post-test	Mean pronunciation score, pre-test, control group	Mean pronunciation score, post-test, control group
Yes	M = 15.8	M = 18.3	M = 18.6	M = 19.2
Sometimes	M = 16.4	M = 20.4	M = 17.5	M = 17
No	M = 10.5	M = 15.5	No respondents	No respondents

Table 5 – Mean pronunciation score, pre-test/post-test, question 4a, experimental group and control group

The table above (table 5) shows the results from question 4a with the participants' mean pronunciation score. The maximum score equals 30. The 34.4 % of the participants from the experimental group claiming to speak English during the English lessons achieved a mean score of 15.8 during the pre-test, and 18.3 during the post-test. 81.8 % of the participants from the control group claimed to speak English during the English lessons. They achieved a mean score of 18.6 during the pre-test and 19.2 during the post-test. The control group, where the participants responded with either *yes* or *sometimes*, achieved a higher mean score during the pre-test compared to the experimental group. As for the participants responding with *yes*, the control group had a higher mean score, M = 19.2 than the experimental group, M = 18.3

during the post-test, however, the mean for the experimental group increased by 2.5 compared to the control group where the mean increased by 0.6.

4.2.0 Analysis of the realisation of the different speech sounds

This sub-chapter will include an analysis of the realisation of the different speech sounds investigated for this thesis. Each speech sound will be represented with two bar charts showing the results from the pre-test and the post-test, first for the control group, followed by the experimental group. A comparison between the two groups can be found in chapter 5.

4.2.1 Pronunciation of /z/ - experimental group

As seen in figure 18 (below), 6.25 % of the participants were able to pronounce the <z> in <zebra> during both the pre-test and the post-test, however, on an interesting note, it was not the same participants. During the pre-test participants 19 and 27 pronounced the /z/ correctly, whereas participants 22 and 27 had the correct pronunciation during the post-test. Although participant 19 failed to repeat what s/he had mastered during the pre-test, s/he managed to improve on four other sounds from the pre-test to the post-test.
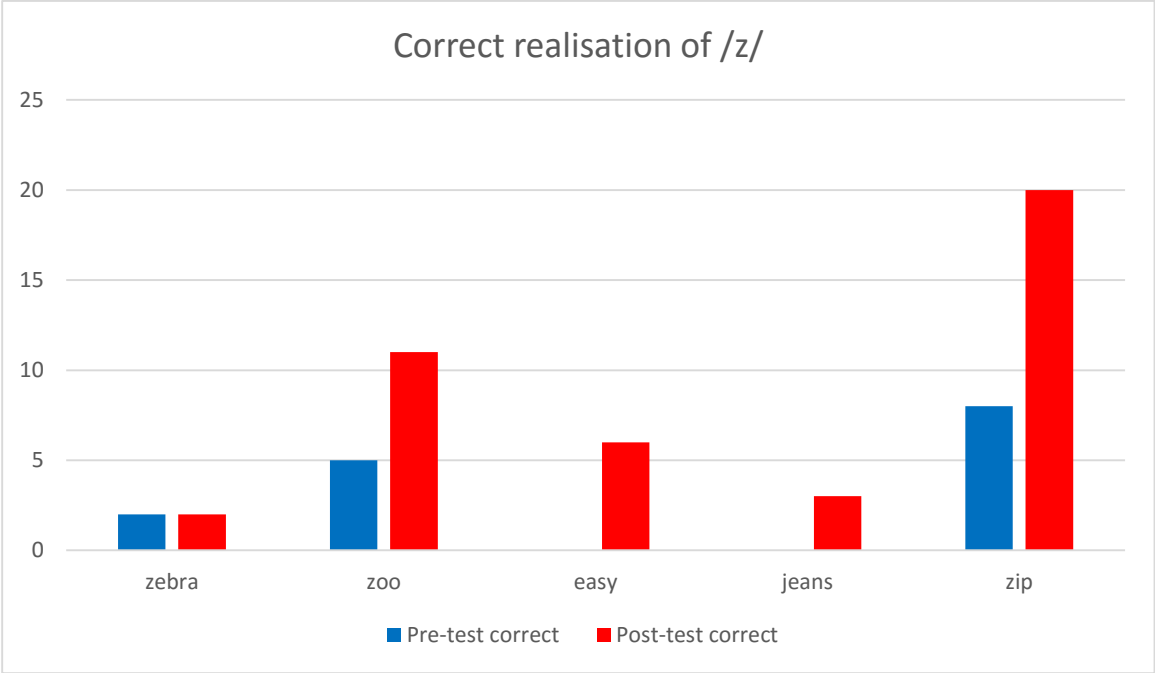
Figure 18 – Correct realisation of /z/, experimental group

The realisation of /z/ in <zoo> increased from 15.6 % during the pre-test to 34.3 % during the post-test. Participant 14 managed to pronounce the /z/ during the pre-test, and failed to do so during the post-test. The rest of the participants with correct pronunciation during the pre-test managed to repeat this during the post-test. One interesting note is that participant 14 was one of the 18.7 % that managed to pronounce the /z/ in <easy> as well as the correct pronunciation of <zip> during the post-test. If one is to compare the three word-initial /z/ sounds, and also the three words where the spelling reveals the <z>, participants 22 and 27 were able to pronounce the /z/ correctly in all three words. Participants 6, 8, 15, 18, 19, 30, 33 and 34 pronounced the /z/ correctly in both <zoo> and <zip>, whereas the rest of the participants with the correct speech sound only managed to produce the voiced /z/ in either <zip> or <zoo>.

With the exception of <zebra>, the most difficult /z/-sounds were those in <jeans> and <easy>. This is fairly easy to understand, as the sound is not reflected in the spelling, and in the case of <jeans>, it is furthermore complicated by the devoicing of the /z/ in the word final position. The fact that 18.7 % of the participants managed to pronounce the /z/ in <easy> and 9.3 % had the correct speech sound in <jeans> can only be explained by the fact that those participants used the phonemic symbols when reading the word list during the post-test for the pronunciation of <easy>. This may also be the case for <jeans>, however, during the teaching period, they were told that the plural -s should be pronounced as /z/, and thus might have remembered this during the post-test. None of the participants with the correct speech sound in <easy> managed to pronounce the /z/ in <jeans>.

The pronunciation of <zip> had an increase from 25 % to 62.5 % from the pre-test to the post-test, in other words 37.5 %. This is the highest percentage achieved during the realisation of /z/. There are several reasons why this phenomenon may have occurred, one of them being that the /z/ was word-initial, the other reason may be that the word list included the minimal pair of <zip> and <sip>. The fact that <zip> was listed below <sip> may have influenced the participants to think that the two words had different pronunciations. However, this was, as seen in figure 18, not the case for the pre-test.

The questionnaire opened up for a comparison between words with unknown meaning or words that the participants could not remember to have heard before, and the pronunciation of these words. In light of this, one of the words that most of the participants listed in both categories, <zip>, was also the word with the highest increase in correct pronunciation. The

participants were never told what the word meant, and it was not used at all during the teaching period, and it still had an increase of 37.5 %. A handful of the participants listed <easy>, <zoo> and <zebra> as unfamiliar, and just as many managed to pronounce the /z/ in those words. This shows that even though the participants knew a word, they still struggled with pronouncing it, as the /z/ was not part of their phonemic inventory in English.

As the results for the control group did not follow a normal distribution, a Mann-Whitney U test was conducted to measure the significance between the pre-test and the post-test for the participants' realisation of /z/. The exact p-value equals 0.175, with 0.05 as alpha level. As the p-value is greater than the alpha level, the results are not statistically significant. However, there is nonetheless a positive tendency as the mean score from the pre-test equals 3, whereas M = 8.4 prior to the intervention.

4.2.2 Pronunciation of /z/ - control group
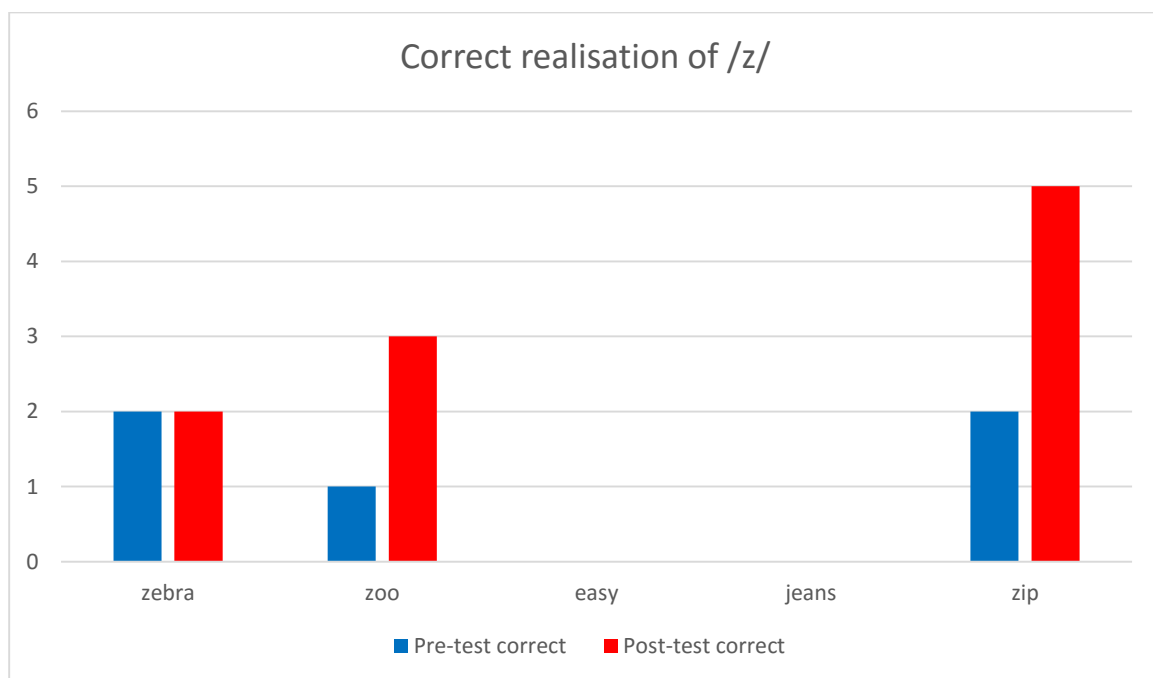
Figure 19 – Correct realisation of /z/, control group

As seen in figure 19, none of the participants from the control group managed to pronounce the /z/ in <easy> or <jeans>. These are examples of words where the sound is not directly reflected in the spelling of the word, and thus, one cannot expect that the participants should be able to know that the <s> in those words should be pronounced as /z/ without knowing some basic rules for pronunciation.

Two of the participants pronounced the /z/ in <zebra> correctly during both the pre-test and the post-test, and one of the two managed to pronounce the voiced /z/ in <zoo> and <zip> for both tests. As this is the control group, the results from the pre-test are somehow not what one would expect, as the number of participants with the correct pronunciation of /z/ increased by two for <zoo> and three for <zip> without any guidance from the researcher.

The Mann-Whitney U test calculated an exact p-value of 0.540, and the results are therefore not statistically significant.

4.2.3 Pronunciation of /v/ - experimental group

The words chosen for testing the participants' realisation of /v/ (figure 20) consisted of words with word-initial /v/, and one word, *television*, where the sound occurred in the middle of the word. It should be pointed out, once more, that due to the quality of the sound recordings, it was impossible to hear whether the participants pronounced the words with the fricative /v/ or the approximant /ʋ/, however, correct realisation of /v/ was considered as "correct" for both /ʋ/ and /v/. Other speech sounds, notably /w/, was counted as a mistake.
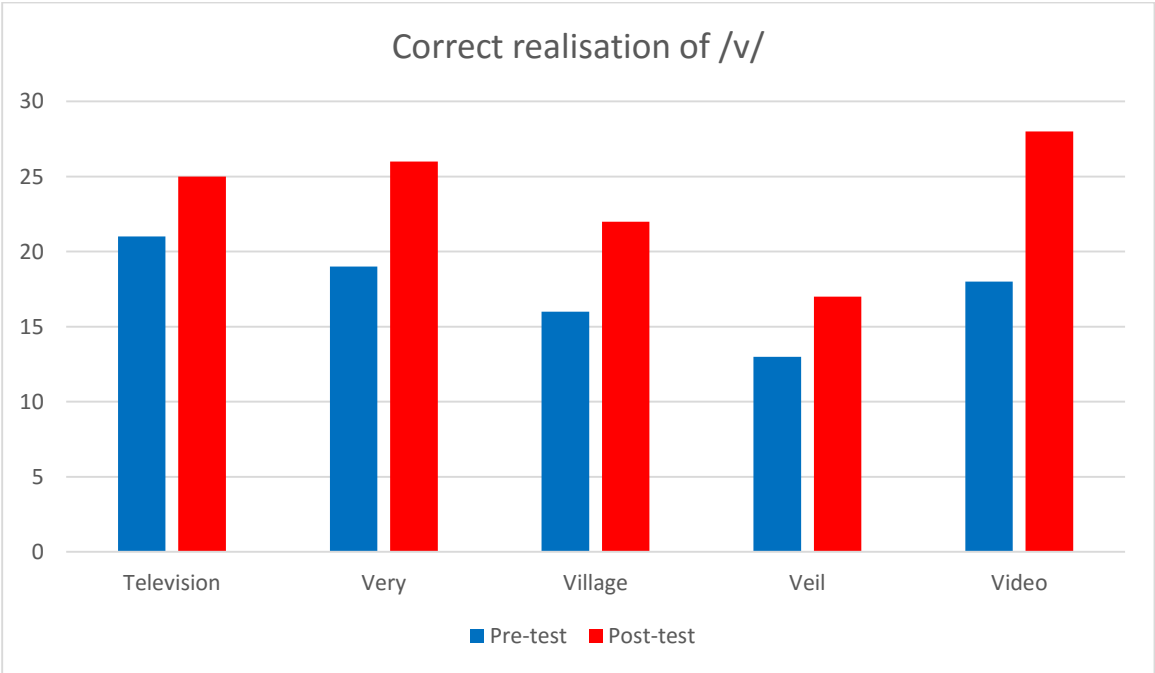
Figure 20 – Correct realisation of /v/, experimental group

With the exception of <veil>, the words used for measuring the pronunciation of /v/, can be found within the 1500 most frequent words in English, and chances that the participants would have been exposed to these words before the pre-test are high. The word with the highest percentage of correct pronunciation for the pre-test was <television>, with 65.5 %.

This number increased by 12.6 % to 78.1 % during the post-test. Surprisingly, around ten of the participants in both the experimental group and the control group listed <television> as an unknown word. It should be noted that many of the participants with the correct realisation of /v/ in <television> had a Norwegian-like pronunciation of the word, /televisjo:n/. This was the only word regarding /v/ where the speech sound occurred word-medially. Every word in this category had <v> in the spelling, and it should therefore be fairly easy for the participants to produce the correct sound as long as they had knowledge of its existence.

 <Very> was initially pronounced with the correct speech sound by 59.3 % of the participants, and this increased to 81.2 %. The only participant from the experimental group that listed <very> as a word s/he did not know the meaning of, participant 35, did not have the correct pronunciation during the pre-test, however, s/he managed to improve during the post-test. One might say that it is unlikely that this word is unknown for a pupil in 7th grade. However, it is unknown how much exposure the participant had until the pre-test. What is known regarding participant 35 is that s/he does not speak English during English lessons because s/he finds it scary, and that s/he struggles with understanding the language. None of the participants from the experimental group changed their pronunciation from /v/ to /w/ from the pre-test to the post-test, which means that the total increase came from participants that had an incorrect pronunciation during the pre-test.

<Village> was one of the words that would measure two different sounds, the word-initial /v/ and the word-final /dʒ/. All of the participants from the experimental group had heard the word prior to the pre-test questionnaire, and they knew the meaning of the word. One participant, 31, did not. However, s/he was removed from the transcriptions due to severe problems with reading the word list. 16 of the participants, or 50 % had the correct realisation of the /v/ during the pre-test, a number that increased to 68.7 %. The only mention of this word during the teaching period occurred during the "my ship is loaded with" game, where one of the participants said <village> when finding a word with the /dʒ/ sound. Participants 7, 12 and 29 had the correct pronunciation during the pre-test but not during the post-test. During the questionnaire, participant 7 said that s/he used the phonemic symbols in order to know how to read the word list for the pre-test. However, the same participant stated that s/he had seen phonemic symbols in a dictionary before, but at the same time, s/he said that "the meaning of phonemic symbols is unknown". The same participant had the same number of correct speech sounds during the pre-test and the post-test, but they were not the same speech sounds in the two tests. Participant 12 had also seen phonemic symbols in a dictionary, and

like participant 7, said that the meaning of them was unknown. Participant 12 guessed how to say the words during the pre-test, with the exception of some words that s/he had learned at school. Participant 29 guessed the pronunciation of the words, and had never seen phonemic symbols prior to the pre-test. The increase of participants with the correct realisation of /v/ during the post-test can be said to be higher than what is visible in the bar charts due to the fact that three of the participants in fact said it correctly during the pre-test but not during the post-test.

37.5 % of the participants wrote in the questionnaire that <veil> was a new word, and 40.6 % did not know the meaning of the word. In total, 37.5 % of the participants had the correct realisation of /v/ during the pre-test, and 53.1 % during the post-test. 12.5 % of the participants that listed <veil> as an unknown word had the correct pronunciation both during the pre- and post-test. Participants 11 and 15 had the correct pronunciation during the pre-test, they failed, however, to repeat this during the post-test. Participant 11 still managed to improve on three sounds during the three-week period. Participant 15 had an incorrect pronunciation of /v/ in the four words during the pre-test, with <very> as the only word with the correct pronunciation for this sound. Interestingly, the same participant managed to pronounce both <very> and <village> with the correct speech sound. It is, in other words, apparent that this participant has understood that there is a difference between /v/ and /w/, however, s/he still struggles with knowing when one should use /v/.

One of the participants, number 35, had never heard the word <video> prior to the pre-test, and this participant was not able to pronounce the word with the correct speech sound. Participant 35 pronounced <v> as /w/ for every word that have a /v/ on the wordlist during the pre-test. However, <video> was the only word where s/he did not improve. The fact that only one participant listed the word as unknown is not surprising as the word is the same in Norwegian. Several of the participants had a Norwegian pronunciation of the word, /viːdio/ being the most frequent pronunciation. Initially 56.2 % of the participants had the correct realisation of /v/, and the similarity with the same Norwegian word may be an explanation for why this number was so high during the pre-test. During the post-test this number increased to 87.5 %. Once more, the Norwegian pronunciation of the word may be an explanation, however, if one is to compare the five words with the /v/ sound, the results from the post-test shows that this was a tendency for every word.

The exact p-value calculated for the Mann-Whitney U test equals 0.056, just above the alpha level of 0.05. The results are, in other words, not statistically significant. Nonetheless, the average score increased by 20 % from M = 53.7 % to M = 73.7 %.

4.2.4 Pronunciation of /v/ - control group

As seen in figure 21, ten, or 90.9 %, of the participants from the control group, had the correct realisation of /v/ during the pre-test when pronouncing <television>, however, this number decreased by two during the post-test. Compared with the experimental group, the percentage of participants with the correct realisation of /v/ during the pre-test is higher for the control group. However, the experimental group had an increase of 12.6 % from the pre-test to the post-test, whereas the control group went down by around 18 %.
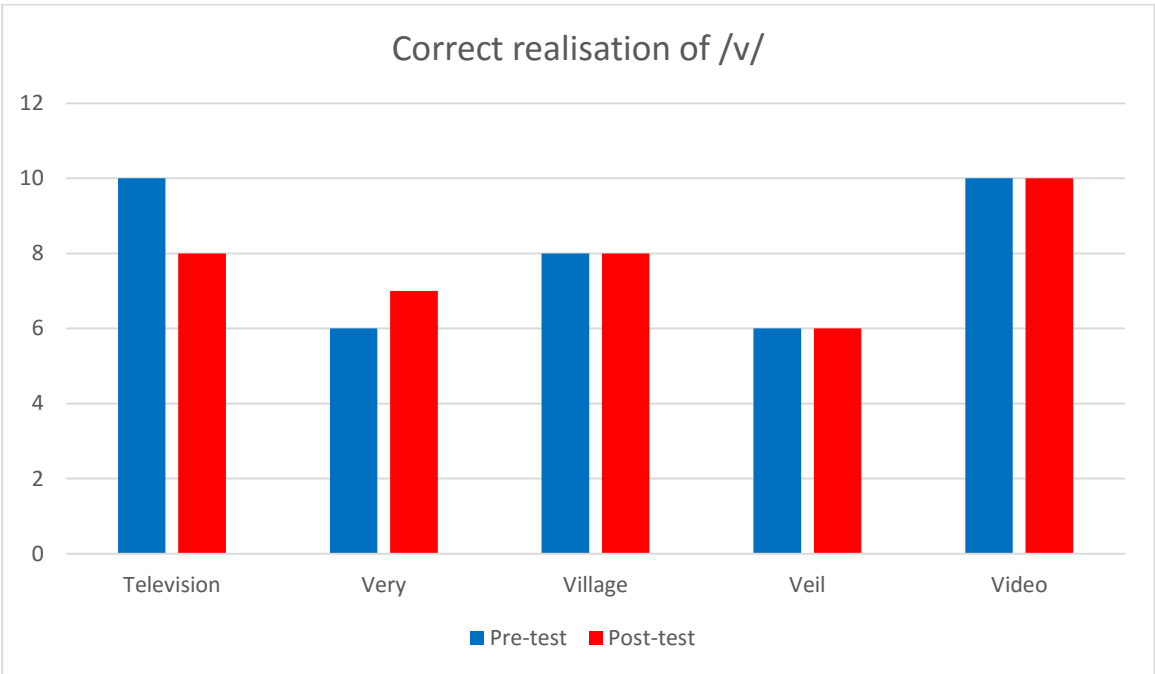
Figure 21 – Correct realisation of /v/, control group

54.4 % of the participants from the control group pronounced the /v/ in <very> with the correct speech sound during the pre-test, and as seen in figure 21, <very> is the only word used for measuring the pronunciation of /v/ where the percentage of participants with the correct speech sound increased.

The exact p-value calculated for the Mann-Whitney U test equals 0.833, in other words, higher than the alpha level, 0.05, and thus, the results are not statistically significant. What is unique with the control group's realisation of /v/ is that the mean score for the pre-test was

higher than the mean score for the post-test. M = 72.7 % from the pre-test, whereas the average score measured during the post-test equals 70.9 %.

4.2.5 Pronunciation of /θ/ - experimental group
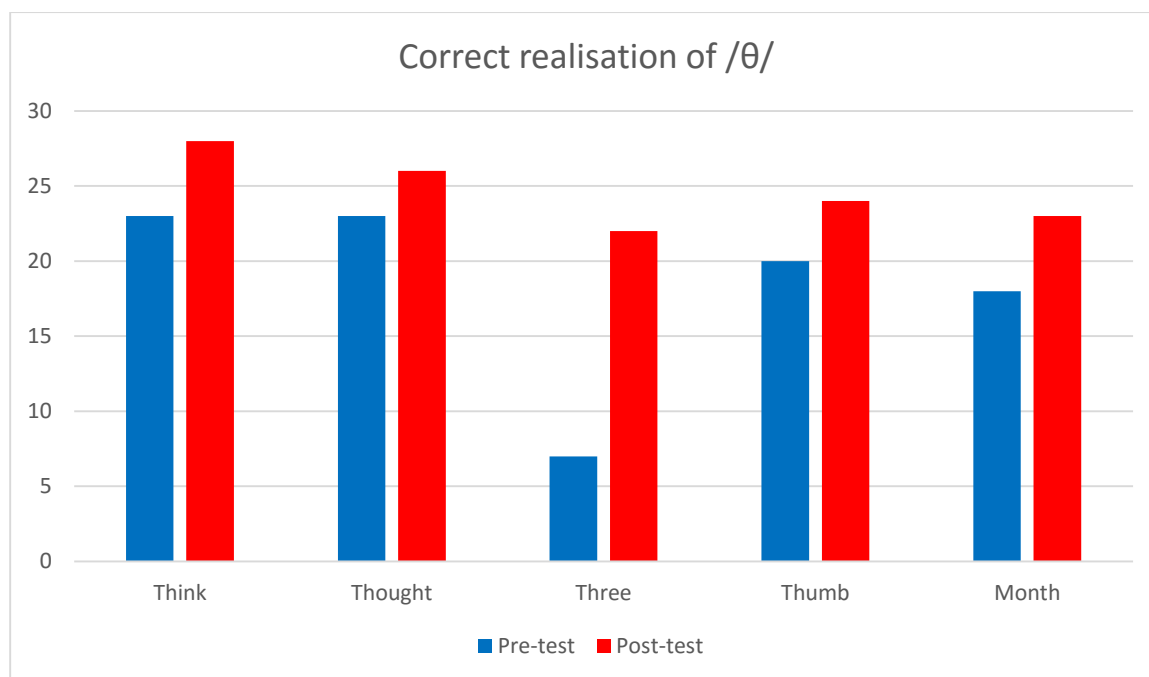
Figure 22 – Correct realisation of /θ/, experimental group

As many as 71.8 % of the participants managed to pronounce <think> correctly during the pre-test, and by comparing the pre-test and the post-test, none of the participants with the correct pronunciation during the pre-test made a mistake during the post-test. None of the participants listed <think> as an unknown word, however, as it occurs amongst the most frequent 100 words in the English language, this result is not unexpected. During the post-test as many as 87.5 % of the participants had the correct realisation of /θ/ in <think>.

The rest of the words that were used to measure the pronunciation of /θ/ can be found amongst the most frequent 5000 words, and chances are that the participants, at least unconsciously, had been exposed to these words prior to the pre-test. Participants number 4 and 16 said that <thought> was a new word for them, whereas participants 4, 16 and 22 did not know the meaning of the word. This may of course be explained by the fact that they read the words, and the situation might have been different for these three participants if they had heard the word spoken. Nonetheless, 71.8 % of the experimental group managed to produce the correct speech sound during the pre-test, a number that increased to 87.5 % in the post-

test. The participants that listed <thought> as an unfamiliar word, or a word with unknown meaning, managed to pronounce it with the correct speech sound during both tests. One of the participants used the correct speech sound during the pre-test, something that was not repeated during the post-test.

Norwegian learners of English usually start to learn how to count to ten, days of the week and colours during their first year at school. Due to this, it is surprising that one of the participants from the experimental group, number 35, said that s/he did not know the meaning of the word <three>. With this one exception, all of the participants had heard the word prior to the pre-test, and they knew the meaning of it. As few as 21.9 % had the correct speech sound during the sound recording for the pre-test. This result is quite different from the two previous words, even though all three words contain word-initial /θ/, however, it might be explained by the influence of the following speech sound. Both <think> and <thought> are followed by a vowel which is fairly close to a vowel in the Norwegian sound system, whereas <three> is followed by an English /r/ sound which is difficult to pronounce for Norwegian learners of English. By using the /t/-sound instead of /θ/, the tongue does not have to move as far in order to pronounce the following /r/. After three weeks of teaching, the percentage of participants with the correct pronunciation increased from 46.8 % to 68.7 %. It should be noted that none of the participants with a correct pronunciation during the pre-test made a mistake concerning this speech sound during the post-test.

As many as five of the participants from the experimental group listed <thumb> as an unknown word in the questionnaire, whereas four said that they had heard the word before, however, the meaning was unfamiliar to them. It is unlikely that one of the participants had not heard <thumb> before but at the same time knew the meaning, and one may therefore think that one of the participants has listed the word in the wrong category. 62.5 % of the participants had the correct speech sound during the pre-test, and once more, it may seem like the following sound has an impact on the realisation of /θ/, as three of the four words with word-initial /θ/ and a following vowel had a correct pronunciation from more than 60 % of the participants during the pre-test. One of the participants that listed <thumb> as an unknown word pronounced it with the correct speech sound during both tests, and one of the participants with the correct speech sound during the pre-test failed to do so during the post-test. A total of 75 % of the participants had the correct realisation of /θ/ during the post-test.

The fifth word with the /θ/-sound, <thumb>, is the only word where the /θ/ occurs in the final position of the word. One participant listed the word as unknown, and the same participant failed to produce the correct speech sound during both the pre-test and the post-test. Another participant had heard the word prior to the post-test, however, the word's meaning was unknown. The results showed that this participant failed to pronounce the /θ/ in <month> for both tests. The fact that most of the participants had heard the word prior to the pre-test was not an unexpected result as the word occurs in position 237 amongst the most frequent words in the English language. As many as 56.2 % of the participants had the correct realisation of /θ/ during the pre-test, and this number increased to 71.9 % of the participants during the post-test.

The Mann-Whitney U test calculated an exact p-value of 0.056, whereas the alpha level was sat at 0.05. The p-value is slightly higher than the alpha level, and the results can therefore not be defined as statistically significant. The mean score increased from 56.9 % to 78.1 %, and as seen in figure 22, the participants' improved realisation of /θ/ in <three> contributes a large part of this number.

4.2.6 Pronunciation of /θ/ - control group
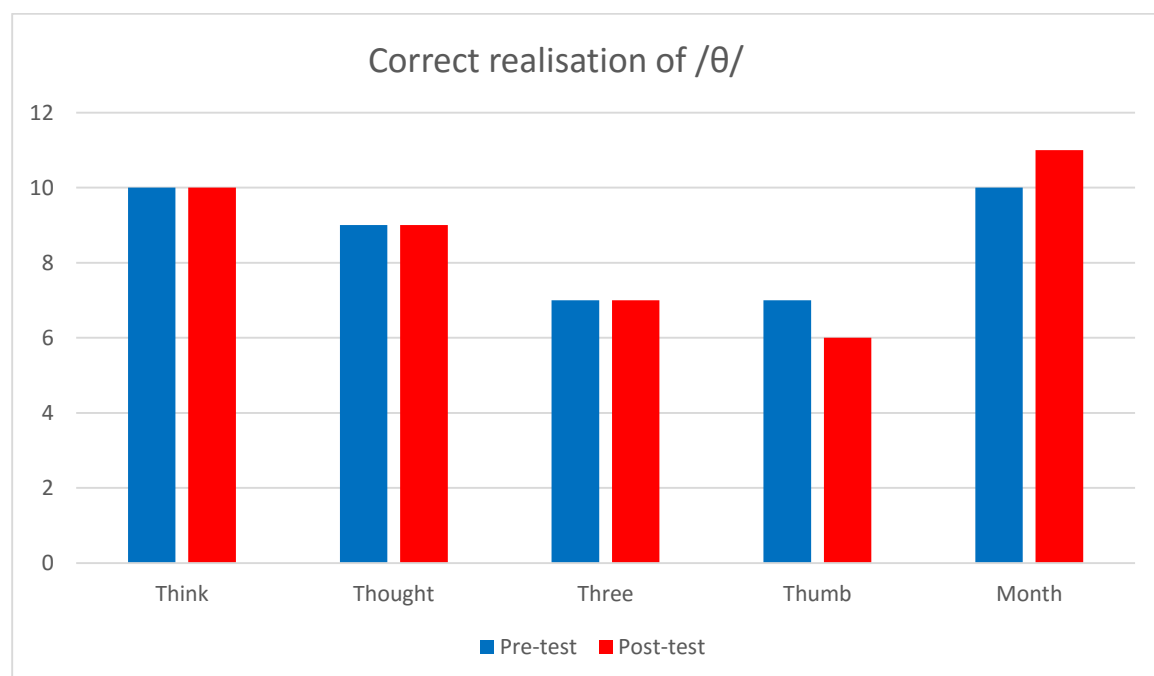
Figure 23 – Correct realisation of /θ/, control group

The participants' realisation of /θ/ provided varied results for the control group (figure 23). Ten of the participants pronounced <think> with the correct target sound for both the pre-test

and the post-test. Nine participants had the correct realisation of /θ/ in <thought> for both tests, whereas seven produced the correct speech sound in <three>. Seven of the participants had the correct realisation of /θ/ in <thumb> during the pre-test, whereas six managed to do the same for the post-test. Ten of the participants pronounced <month> with the correct speech sound during the pre-test, and eleven during the post-test.

As the number of participants with the correct realisation of /θ/ in <thumb> decreased with one, and the number increased with one regarding <month>, the mean score between the pre-test and post-test is the same, and thus, the results cannot be statistically significant.

4.2.7 Pronunciation of /ð/ - experimental group
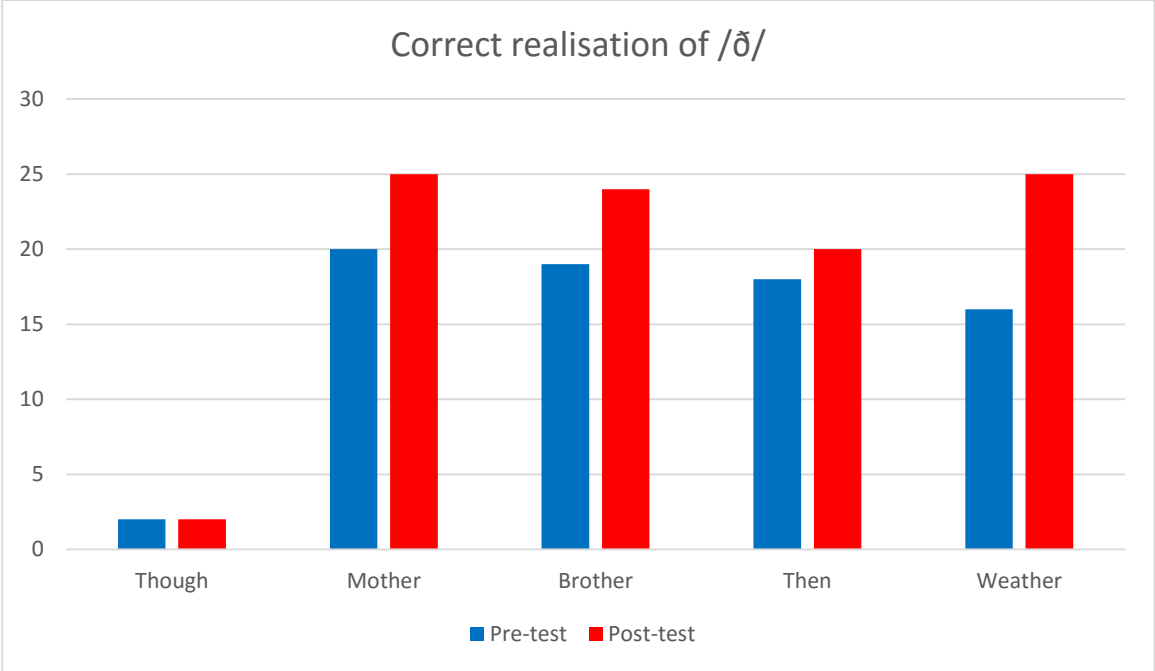
Figure 24 – Correct realisation of /ð/, experimental group

With the exception of <weather>, which occurs at position 1623 of the most frequent words in English, the rest of the words used to measure the pronunciation of /ð/ can be found between positions 77 and 615 on the list of the most frequent English words. This should function as an indication that the participants have heard all of the words prior to the pre-test, and the meaning should be known to most of them. The fact that four of the participants listed <though> as a word with unknown meaning is expected as it is a function word, and that no Norwegian word is similar. As few as two participants, or 6.25 % (figure 24), managed to pronounce <though> with the correct speech sound for both tests. It should be noted that the two participants with the correct realisation of /ð/ during the pre-test and the two participants

with the correct pronunciation during the post-test are two different participants. One reason why such few participants managed to pronounce <though> correctly might be that they had to read the word from the word list, and as <though> is a function word, the lack of context may have confused them. The result may have been different had the participants used the phonemic transcript when reading.

One participant wrote <mother> as a word with unknown meaning. However, this participant listed every word on the list as words s/he did not understand. 62.5 % of the participants had the correct realisation of /ð/ during the pre-test, including the participant that listed <mother> as a word with unknown meaning. By comparing the results from the pre-test with those of the post-test, none of the participants with the correct speech sound during the post-test made a mistake with this speech sound during the pre-test. <Mother> is listed as one of the 300 most frequent words, and it is therefore not unexpected that every participant except one had heard the word and knew its meaning prior to the pre-test. The fact that the amount of participants with correct pronunciation increased to 78.1 % during the post-test may be explained by the fact that the word is known, and that the intervention focused on the speech sound.

As with the rest of the words, one of the participants listed <brother> as a word with unknown meaning. However, the same participant had heard the word prior to the pre-test. As with the pronunciation of <mother>, this participant used the correct speech sound at the pre-test, however, failed to do so during the post-test. The /ð/ occurring in medial position in both <brother> and <mother>, and it is therefore interesting to note that the score for correct pronunciation of this speech sound is 59.3 % for <brother> during the pre-test, in other words, less than the score for <mother>. This phenomenon occurs during both tests. The score for the correct realisation of /ð/ in <brother> increased to 75 % during the post-test.

The most common word used for measuring pronunciation of /ð/, <then> occurs in position 77 of the most frequent English words. <Then> is the second function word used for measuring the participants' pronunciation of /ð/. One of the participants had never heard the word prior to the pre-test, and did not know its meaning. Without knowing anything regarding the participants' exposure to the English language, except the amount of English they hear at school, it is hard to claim that the participant must have heard the word <then> prior to the pre-test. However, it is likely that the s/he has been exposed to the word unconsciously. The participant was amongst the 56.2 % that managed to produce the correct speech sound during

the post-test. Two of the participants with the correct realisation of /ð/ during the post-test failed to do so during the post-test. Despite this, 62.5 % of the participants used the correct speech sound during the post-test.

With the exception of <though>, the most difficult word during the post-test was <weather>, where only 50 % of the participants had the correct realisation of /ð/. <Weather> is one of the few words on the list that every participant had heard of prior to the pre-test. However, one participant did not know its meaning. This participant did not manage to produce the correct speech sound during any of the two tests. None of the participants with the correct pronunciation during the pre-test made a mistake during the post-test, where 78.1 % used the correct speech sound. With an increase of 28.1 %, <weather> is the word used to measure the pronunciation of /ð/ with the highest increase, something that may be explained by the fact that every participant had heard the word prior to the pre-test combined with the fact that they were taught how to perceive and produce the speech sound during the intervention.

The Mann-Whitney U test exhibited an exact p-value of 0.183, and the alpha level was sat at 0.05. The results are therefore not statistically significant. However, the average score increased from 46.8 % to 60 % during the intervention.

4.2.8 Pronunciation of /ð/ - control group
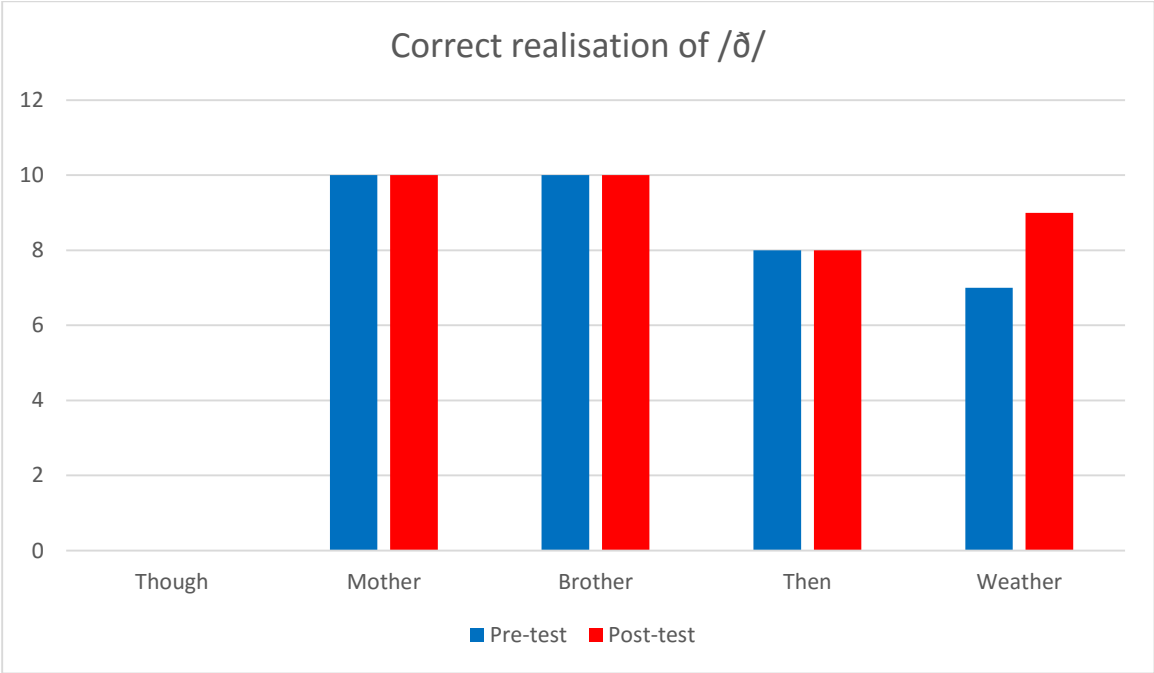
Figure 25 – Correct realisation of /ð/, control group

As with the experimental group, the control group (figure 25) had severe problems with the realisation of /ð/ in <though>. None of the participants managed to produce the correct speech sound. Ten of the participants pronounced both <mother> and <brother> with the correct speech sound during both the pre-test and the post-test. The participant with an incorrect realisation of <brother> for both tests also pronounced <mother> with an incorrect speech sound during the pre-test, however, s/he managed to pronounce the /ð/ correctly in <mother> during the post-test. Eight of the participants had the correct realisation of /ð/ in <then>. The most unexpected result for the realisation of /ð/ compared to the experimental group, occurred in <weather>, as seven participants produced the correct speech sound during the pre-test, a number that increased to nine during the post-test.

It is clear that the control group had little trouble with the realisation of /ð/, with the exception of <though>. The exact p-value for the Mann-Whitney U test was calculated to 0.873, and as the p-value is higher than 0.05, the results are not statistically significant, despite the fact that two of the participants in the control group achieved a higher score during the post-test.

4.2.9 Pronunciation of /w/ - experimental group
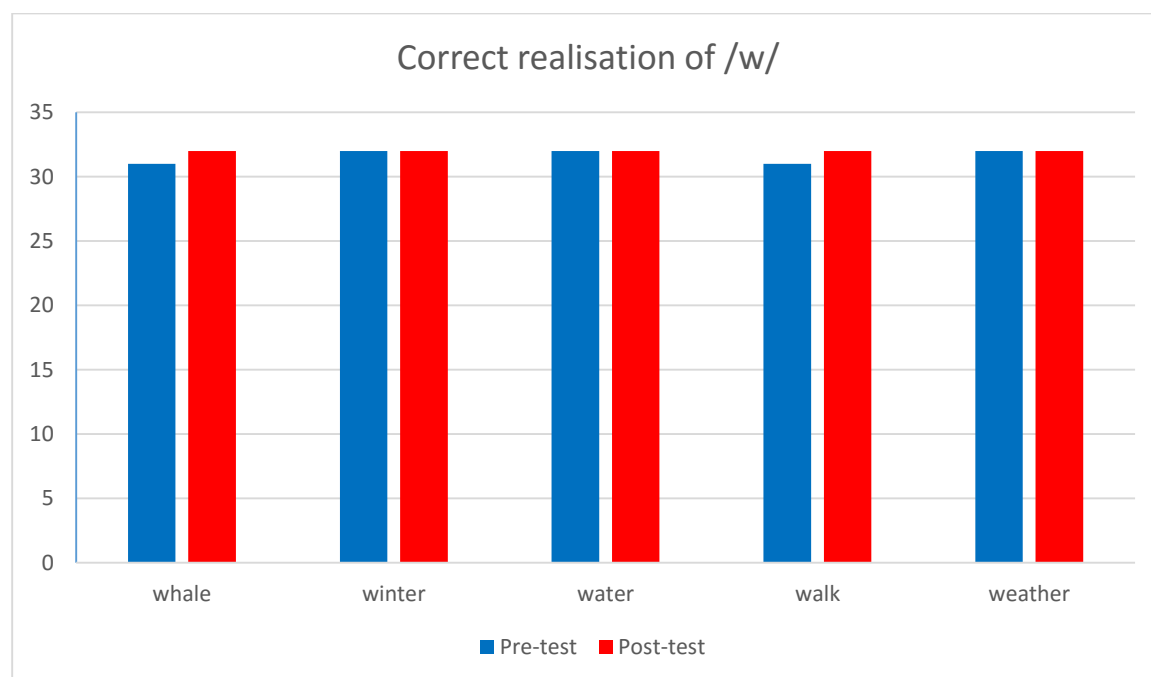
Figure 26 – Correct realisation of /w/, experimental group

The words used to measure the pronunciation of /w/ occur in the most frequent 5000 words list, however, participants 4, 17 and 35 had never heard <whale> prior to the pre-test, whereas participants 1, 4 and 7 had heard the word, but the meaning was unknown. Based on the

assumption that Norwegian learners of English have little problems with the pronunciation of /w/, <whale> was on the list to function as a minimal pair with <veil>, however, it became a part of measuring /w/ when one of the participants in fact used the Norwegian /ʋ/. Another participant made the same mistake for the pronunciation of <walk>. With these two exceptions, every participant managed to pronounce the /w/ in every word used for measuring this speech sound. Compared with the results of the questionnaire, none of the participants that had not heard of the words before, or knew their meaning, failed to produce an incorrect speech sound.

As nearly 100 % of the participants had the correct speech sound during the pre-test, and 100 % had the correct pronunciation during the post-test, a Mann-Whitney U test will of course indicate that the results are not statistically significant.

4.2.10 Pronunciation of /w/ - control group
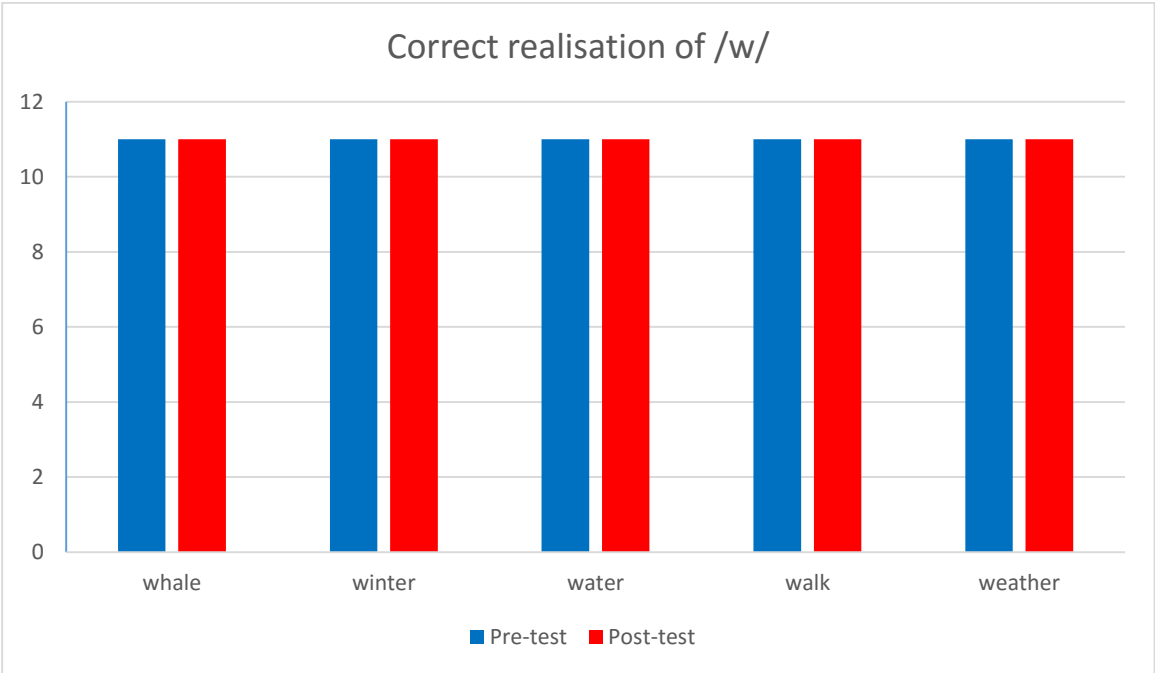
Figure 27 – Correct realisation of /w/, control group

As for the experimental group, 100 % of the control group had the correct realisation of /w/ for all five words used to measure this phoneme during the post-test. The main difference between the two groups is that 100 % of the control group had the correct pronunciation during the pre-test, whereas one of the participants from the experimental group had an incorrect realisation of /w/ during the pre-test.

As the control group had a mean score of 100 %, a test of significance would not be necessary in order to conclude that the results are not statistically significant. It does, however, strengthen the claim that Norwegian learners of English do not have a problem with the realisation of /w/, even though it is a speech sound that does not occur in the Norwegian speech sound inventory.

4.2.11 Pronunciation of /dʒ/ - experimental group
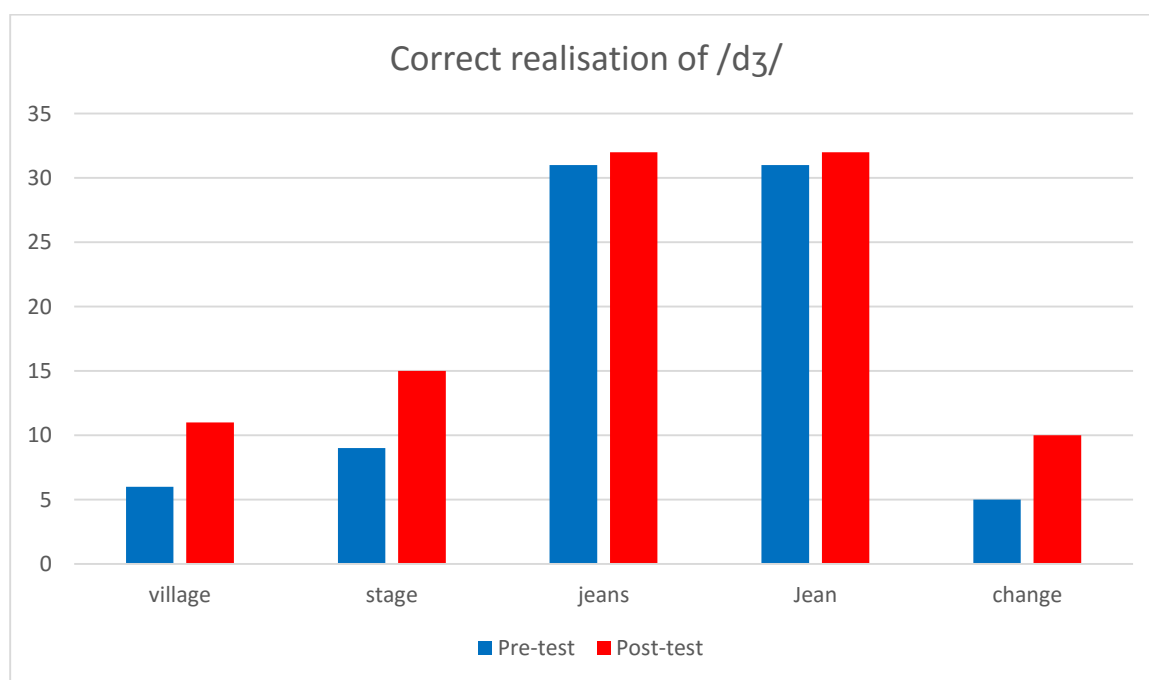
Figure 28 – Correct realisation of /dʒ/, experimental group

With the exception of <Jean>, every word used to measure the pronunciation of /dʒ/ can be found amongst the most frequent 3500 words in English, with <jeans> as the least frequently used word. None of the participants from the experimental group listed <village> as an unknown word, however as few as 18.7 % of them pronounced the word with the correct speech sound during the pre-test. This number increased to 34.4 % during the post-test. The participants with the correct speech sound during the pre-test had the same speech sound during the post-test.

As with <village>, none of the participants listed <stage> as an unknown word. The /dʒ/-sound occur in the word-final position for both words, and it was therefore somewhat unexpected that 28.1 % of the participants had the correct realisation of /dʒ/ in <stage> compared to the 18.7 % in <village> during the pre-test (figure 28). As with <village> the

participants with the correct speech sound during the pre-test pronounced <stage> with the correct speech sound also during the post-test. When comparing the two words, participants 1, 5, 18 and 37 had the correct speech sound during the pre-test when pronouncing <stage>, but the same participants failed to do so during the pronunciation of <village>. Participant 7 had the correct speech sound pronouncing <village>, but s/he did not pronounce /dʒ/ in <stage>. For the post-test, participants 8, 11 and 13 pronounced the correct speech sound in <village>. However, they did not pronounce /dʒ/ correctly in <stage> correctly. Seven of the participants that failed to pronounce <village> during the post-test had the correct realisation of /dʒ/ when pronouncing <stage>. 46.9 % of the participants had the correct realisation of /dʒ/ in <stage> during the post-test. Most of the participants with an incorrect speech sound either pronounced /dʒ/ as /tʃ/ or /dʃ/.

The first word with a word-initial /dʒ/, <jeans> was listed as a word with unknown meaning by one participant. However, this participant used the correct speech sound during both tests. As many as 96.9 % of the participants had the correct realisation of /dʒ/ during the pre-test, and 100 % during the post-test. The same was the case with the pronunciation of <Jean>. However, the name <Jean> was listed as a new word by six of the participants, and as many as eight did not know the meaning of the word, nor that it was a name. The participant with the incorrect speech sound when pronouncing <jeans> was, not surprisingly, the same participant who had an incorrect speech sound regarding <Jean>. None of the participants that listed <Jean> or <jeans> as unknown words had an incorrect speech sound during the pre-test or the post-test.

As with the other words with a word-final /dʒ/, <change> was pronounced with the correct speech sound by less than 20 % of the participants. None of the participants listed <change> as a new word, but one of them did not know the meaning of the word. This participant failed to produce the correct speech sound for both tests, as s/he did with the other words with a word-final /dʒ/. 15.6 % of the participants pronounced <change> with the correct speech sound during the pre-test. However, one of them failed to do so during the post-test. During the post-test, 31.2 % of the participants had the correct realisation of /dʒ/. One of the participants that failed to produce the speech sound when pronouncing <village> and <stage> managed to pronounce <change> with the correct speech sound during the post-test.

The exact p-value calculated for the Mann-Whitney U test equals 0.183. The p-value is higher than the alpha level, 0.05, and the participants improved realisation of /dʒ/ is not statistically

significant. It should be noted that the fact that as few as one of the participants had an incorrect realisation of the word-initial /dʒ/ during the post-test had an impact on this result, as there was little to improve on that point. The average realisation of /dʒ/ did nonetheless increase by 11.3 %.

4.2.12 Pronunciation of /dʒ/ - control group
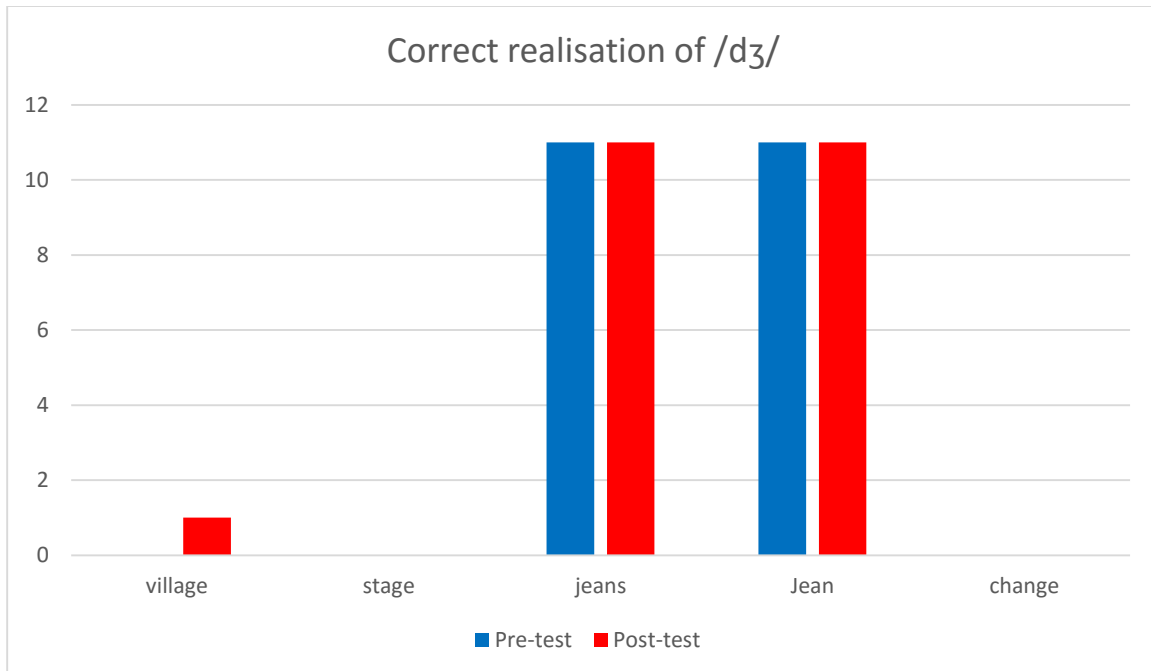
Figure 29 – Correct realisation of /dʒ/, control group

One of the biggest contrast between the experimental group and the control group is that none of the participants from the control group managed to pronounce the word-final /dʒ/ during the pre-test (figure 29). One participant had the correct realisation of /dʒ/ in <village> during the post-test. <Village> was listed as a word with unknown meaning for one of the participants, a participant with an incorrect speech sound. Although both <jeans> and <Jean> was listed as unknown words by some of the participants, 100 % pronounced them with the correct speech sound.

The calculations for the Mann-Whitney U test exhibited an exact p-value of 1.000, and as the p-value should be lower than the alpha level, 0.05, the results are not statistically significant. As few as one of the participants improved his/her realisation of /dʒ/, and thus, the result is not unexpected.

4.2.13 Control group compared with experimental group

In addition to the Mann-Whitney U test showing the difference between the pre-test and post-test in each of the groups, this sub chapter will compare the two groups based on the percentage with correct realisation of the speech sounds. As the experimental group is considerably larger than the control group, percentages is the most correct measurement when comparing the two groups.
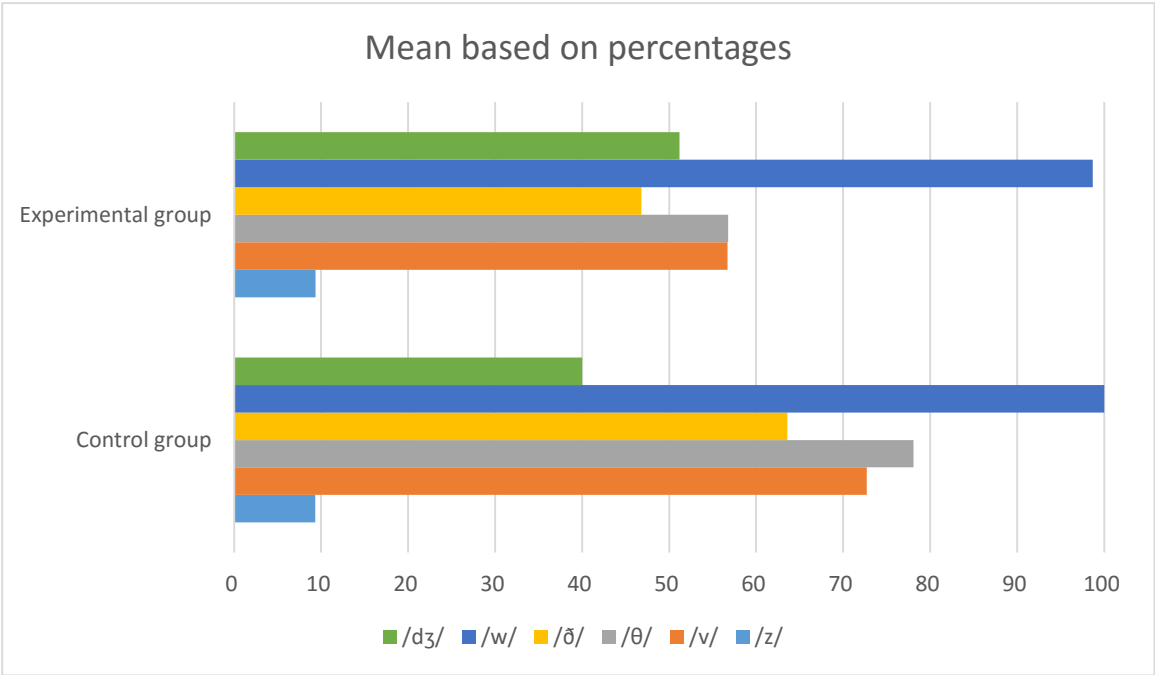
Figure 30 – Mean, different sounds. Control group versus experimental group, pre-test

The percentages for each of the words used to measure the different sounds during the pre-test were added up, and the mean for each sound was calculated. As seen in figure 30, the control group had a higher percentage of participants with the correct realisation for four of the six speech sounds. It should be noted that the two groups were quite similar regarding the pronunciation of /z/, where the mean (M) for the control group equals 9.33 %, whereas M = 9.37 % in the experimental group.

As the control group in general had a higher score on the pre-test, an informal interview was conducted with the control groups' current teacher in order to find explanations for why the control group had a better realisation of the different speech sounds. She was their English teacher during the first two years. In addition, she functioned as an English teacher for the current sixth graders during their fourth year, and is the current teacher for the seventh grade. They have been using English as the language of instruction since grade one, and have had some focus on phonetics during the years she taught them. The focus on pronunciation have been present during the different English lessons, where problem sounds have been discussed.

They have had an explicit focus on the realisation of /v/, combined with corrective feedback. The seventh graders had been learning some phonemic symbols between the pre-test and the post-test.
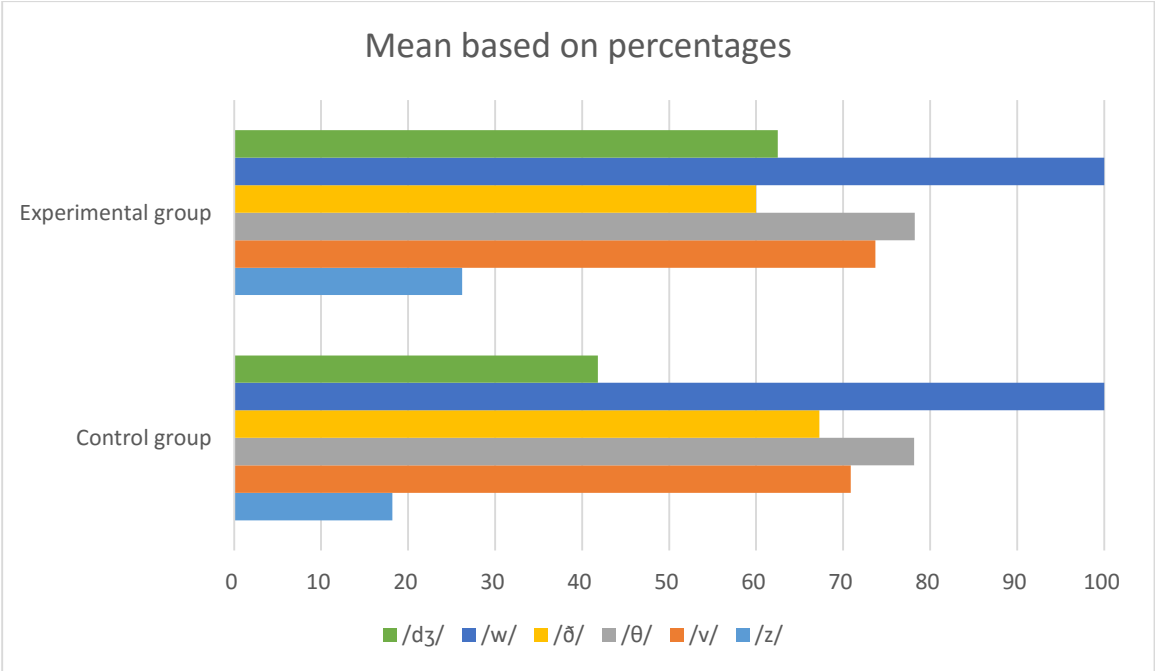
Figure 31 – Mean, different sounds. Control group versus experimental group, post-test.

As seen in figure 31, the experimental group had a higher mean based on percentages for four of the six speech sounds compared to the control group. The exceptions are the realisation of /ð/, where the control group had a mean of 67.26 % and the experimental group had a mean score of 16 %, and the realisation of /w/, where both groups had a mean score of 100 %. However, as seen in table 6, the overall mean for the control group increased with 2.2 %, to 54.9 % from the pre-test to the post-test, whereas the mean for the experimental group increased with 16.5 % to 60.1 % during the post-test. /w/ is not included in table 6 as it turned out not to be a problem sound. Five words were used to measure the realisation of /w/, two tests and 86 participants in total, in other words 172 sound recordings, where /w/ was pronounced with the correct speech sound for 170 of them.

Pre-test control group	Pre-test experimental group	Post-test control group	Post-test experimental group
M = 52.7	M = 43.6	M = 55.2	M = 60.1

Table 6 - Mean score, pre-test, post-test

As the control group had a higher mean than the experimental group during the pre-test, a test of significance between the two groups would provide an incorrect result, and thus, one test of significance, Mann-Whitney U test, will be conducted for measuring the results from the control group, and one will measure the results for the experimental group.

Mann-Whitney test / Two-tailed test:			
U	303,500		
Expected value	312,500		
Variance (U)	2597,704		
p-value (Two-tailed)	0,850		
Alpha	0,05		

Table 7 - Mann-Whitney U test, control group

It should be noted that the correct pronunciation of /w/ was excluded from the Mann-Whitney U tests as it was the only speech sound measured where the correct realisation was not a problem, and to improve pronunciation of /w/ was not necessary in either of the two groups. The test conducted for measuring the significance between the pre-test and post-test in the control group (table 7) was set with an alpha-level of 0.05. The calculations showed an exact p-value of 0.850, and as p > 0.05, the improvement seen in the control group is not significant.

Mann-Whitney test / Two-tailed test:			
U	199,500		
Expected value	312,500		
Variance (U)	2649,235		
p-value (Two-tailed)	0,029		
Alpha	0,05		

Table 8 – Mann-Whitney U test, experimental group

The same test was conducted for measuring the significance between the pre-test and post-test in the experimental group (table 8), and as with the control group, /w/ was not included. The test calculated with XLSTAT showed an approximate p-value of 0.029, whereas the exact p-value was calculated to 0.0276 with GraphPad Prism 7. As the p-value is lower than the alpha-level, the results may be said to be statistically significant. It should, however, be noted that although the test provided a statistical significant result for the overall scores, it did not when each of the speech sounds was measured individually. As a result of this, the test may provide a misleading p-value, and the results should be read with caution.

5. Discussion

This thesis started out with two research questions in order to either reject or accept the H_0, that *teaching with an extensive focus on both phonetics and correct pronunciation of /z, v, w, dʒ, θ, ð/ will not improve the participants' pronunciation of these speech sounds*, with the alternative hypothesis (H_a) that *teaching with an extensive focus on both phonetics and correct pronunciation of /z, v, w, dʒ, θ, ð/ will improve the participants' pronunciation of these speech sounds*. The following chapter will first seek to answer the two research questions, followed by a general discussion where the results from the current research are compared with similar research projects (as seen in 2.4). The results will then be compared with the results found in the pilot (see 2.4.1) before discussing the null hypothesis.

The overall results do not provide us with a simple yes/no answer regarding the first research question, with the exception of the participants' realisation of /w/, where *no* seems to be a safe conclusion to draw based on the results shown in the current research, combined with the results from the pilot (2.4.1) where as few as one of the participants had an incorrect realisation of /w/ during the pre-test for one of the two words used to measure /w/. As seen, the experimental group struggled more with the correct realisations of the speech sounds than the control group. In average, 51.2 % had the correct realisation of /dʒ/, however, the fact that 31 of 32 participants used the correct pronunciation of /dʒ/ when the speech sound occurred word-initially provide a misleading result. The same average calculation shows that fewer than 50 % of the participants had a correct realisation of /ð/, and around 57 % had the correct realisation of /v/ and /θ/. The fact that /z/ had a mean of 9.37 % indicates that this is a speech sound the participants were not familiar with prior to the intervention. The control group had an almost identical mean, 9.33 % of the participants had the correct realisation of /z/. The results from the experimental group point to a *yes* for the first research question, as the total

mean based on percentages is as low as 43.6 %. However, the control group does not provide the same figures, and the mean equals 52.7 %. When calculating the overall mean from the pre-test conducted in both the control group and the experimental group, the mean equals 48.1 %, and with a total score of less than 50 % during the pre-test, it could be said that yes, Norwegian learners of English do have a problem with the realisation of /z, v, dʒ, θ, ð/.

Based on these two nonrandomized groups, one cannot generalize to all classes of Norwegian learners of English. However, the results are consistent with both the pilot (Vang, 2014), and the results of Saito's (2013) research project, where he found that an explicit focus on pronunciation improved the students' realisation of the target sound. Another interesting result is that the control group and the participants from the pilot, where the participants stated that English is the language of instruction, scored higher than the experimental group, where the intervention clearly showed that Norwegian is the language of instruction. This emphasises what is said by Birketveit & Rugesæter (2014, p. 61) and Krashen & Terrell (1983, pp. 20-21) regarding the importance of using English as the language of instruction.

The second research question, *can teaching with a strong focus on pronunciation and phonemic symbols improve the participants' pronunciation of these problem sounds,* requires further discussion in order for us conclude. As seen, the average score for the experimental group was 43.6 % during the pre-test. However, the percentage increased to 60.1 % during the post-test. Although the participants improved by as little as 16.5 %, the results showed that the participants in the experimental group did better than the control group, which received an average score of 2.2 %. The simple answer to the second research question is, based on this, *yes*, teaching with a strong focus on pronunciation and phonemic symbols does in fact improve the participant's pronunciation of the problem sounds. However, the improvement was more marked with some speech sounds than other, as seen in the results chapter.

The average realisation of /z/ during the post-test showed that 26.2 % of the participants in the experimental group produced the correct speech sound. At the same time, the results from the pre-test showed that as few as 9.3 % of the participants had the correct realisation of /z/ before the intervention started. As for the realisation of /v/, 53.7 % of the participants pronounced <v> as either /v/ or the allophone /ʋ/ prior to the intervention. This number increased with 20 % to 73.7 % during the post-test. As for /θ/, the participants went from an average score of 56.8 % to 78.1 %, an increase of 21.2 %. The realisation of /ð/ increased from 46.8 % to 60 % during the three weeks.

The participants from the control group achieved an average score of 9.3 % regarding the pronunciation of /z/ during the pre-test, a number that increased to 18.8 % during the post-test. The control group's average pronunciation of /v/ decreased from 72.7 % to 70.88 % from the pre-test to the post-test. The realisation of /w/ remained at 100 % for both tests, whereas the correct pronunciation of /dʒ/ increased from 40 % to 41.8 %. The correct realisation of /θ/ remained unchanged at 78.1 %. In addition, the control group's correct realisation of /ð/ increased from 63.6 % to 67.3 %.

The closest related research project in terms of both target sounds and method, is the pilot (Vang, 2014). Both the pilot and the current research were interventions. However, the intervention from the pilot was part of a practise teaching period, and thus, the researcher did not have the possibility to decide on the time spent on pronunciation. As a result, the participants from the pilot received around 120 minutes more training and focus on phonemic symbols and pronunciation than the participants from the current research.

Target sound	Pre-test pilot	Post-test pilot	Pre-test exp.	Post-test exp.
/z/	M = 16.6 %	M = 33.3 %	M = 9.37	M = 23.2 %
/v/	M = 33.3 %	M = 66.7 %	M = 56.7 %	M = 73.7 %
/w/	M = 94.4 %	M = 100 %	M = 98.7 %	M = 100 %
/dʒ/	M = 77.8 %	M = 84.4 %	M = 51.2 %	M = 62.5 %
/θ/	M = 51.4 %	M = 63.9 %	M = 56.8 %	M = 78.2 %
/ð/	M = 43 %	M = 50 %	M = 46.8 %	M = 60 %
Total	M = 51.2 %	M = 64.1 %	M = 43.6	M = 60.1

Table 9 – Mean scores, pilot versus experimental group

The pre-test conducted during the pilot (table 9) exhibited a total mean of 51.2 %, a percentage that is closer to the pre-test conducted in the control group for the current research, 52.7 % (table 6), than the score achieved by the experimental group, 43.6 %. This can be related to the fact that the language of instruction for the pilot group was mainly English, and the same can be said about the control group for the current research. It is, of course, not possible to draw a conclusion stating that the language of instruction did have an impact on the mean score for the three groups. However, one should not rule out the possibility that this may be the cause. Nonetheless, both the pilot group and the experimental group improved their overall realisation of the target sounds during the intervention. As seen in table 9, both groups had little trouble with the correct realisation of /w/. It should be noted, however, as

mentioned in 3.3, that there were two words measuring /w/ in the pilot compared to the five words for the current research.

Speech sound	Control group	Pilot	Experimental group
/z/	+ 9.5 %	+ 16.7 %	+ 13.8 %
/v/	- 1.8 %	+ 33,4 %	+ 17 %
/dʒ/	+ 1.8 %	+ 6.6 %	+ 11.3 %
/θ/	+/- 0 %	+ 12.5 %	+ 21.4 %
/ð/	+ 3.7 %	+ 7 %	+ 13.2 %

Table 10 – Average results, control group, pilot and experimental group

As seen in table 10, the average realisation of the different speech sounds increased to such a degree that there is reason to believe that teaching English with a strong focus on pronunciation and phonetics does have an impact on the participants' realisation of the target sounds.

As for the current research, the initial plan was to create meaningful contexts for teaching each of the six speech sounds, however, this became difficult when the language of instruction had to be Norwegian. For the first few lessons, speech sounds and phonemic symbols were introduced at the beginning of each lesson, a teaching method similar to what is seen in Saito (2013, p. 12), where the FFI plus EI groups received pronunciation information based on the topic for the specific lesson. Naturally, the speech sounds did not occur when the language of instruction had to change from English to Norwegian, and as a result, the focus on pronunciation had to be carried out without a meaningful context. The participants were instead provided with example sentences with the target sound and the closest L1 sound/the expected speech sound. It could be argued that these sentences had some form for context, but it can be discussed whether this fills the criteria for meaningful context. Nonetheless, the results from the experimental group's pre-test and post-test did show that the participants improved by 16.5 % on average, whereas the control group improved by 2.2 % on average.

It would be interesting to compare the results for the current research with Rugesæter's (1995, p. 4) research with adult EFL learners at Bergen University College of Education which found that 62.5 % of the participants use the same speech sound for /s/ and /z/. However, there are a few differences. The current research only included one word with /s/, <sip>, however, as /s/ is a speech sound in oral Norwegian, one can assume that the participants from the current research would not have any problem with the realisation of this speech sound. This claim is

supported by the fact that the participants with an incorrect realisation of /z/ in the current research pronounced /z/ as /s/, and it is therefore likely that these participants would have the same realisation of the two sounds. On average, 73.7 % of the participants pronounced /s/ when /z/ was the target sound. In other words, the results were fairly close to what Rugesæter (1995, p. 4) found in his research project. It is not possible to compare his findings on /w/ and /v/, as the quality of the sound recordings was reduced due to background noise, something that made it impossible to hear if the participants pronounced the target words with /v/ or /ʊ/.

The second research conducted by Rugesæter (2012) shared two of the target sounds used in the current research. In addition, the research included questions in order to map the participant's exposure to oral English. The questionnaire designed for the current research did not include a specific question regarding the language exposure from television or video games, however, some of the participants claimed that they had acquired the pronunciation and understanding of the target words from both video games and television. As the results from the current research exhibited, this did not have an effect on the participants' production of the target sounds. This is somewhat consistent with Rugesæter's (2012) findings, where as few as 5 % of the participants distinguished between /s/ and /z/, in spite of them having been much exposed to English outside the classroom.

The research conducted by Chan (2010) is similar to the current research in terms of the target sound and how the data was transcribed. Although the study lacked a pre-test, one may draw a few interesting observations from it. First, the target sounds /z, dʒ, θ, ð/ are not unique problem sounds for Scandinavia, they cause problems for learners of EFL as far away as China, and some of the words from the word list designed for the current research can be found in Chan (2010, p. 319). Another interesting finding was that Chan's (2010, p. 320) participants scored higher regarding the voiceless speech sounds, such as /θ/, where the accuracy was measured to 71.9 %. This is quite similar to the score achieved by the control group for the current research during both the pre-test and the post-test; 78.1 %, and the pre-test results for the experimental group; 78.2 %. Chan's (2010, p. 320) participants struggled more regarding the voiced speech sounds, another finding consistent with the results from the pre-tests of the pilot, the control group and the experimental group, at least regarding the pronunciation of /z/. The control group and the experimental group had a score below 15 %, whereas the pilot achieved a mean score of 16.6 %. As for the rest of the voiced speech sound, all had a score higher than 16 % in both the current research and the pilot.

Although Saito's (2013) research focused on one speech sound, it contains some interesting points for discussion. His idea of separating the experimental group into FFI only and FFI plus EI is interesting, and could have been beneficial for the current research. However, due to limited time, and access to participants, it was not possible to have this kind of experimental design. The two classes that made the experimental group for the current research project had several classes together, except English, and it was therefore impossible to make sure that the FFI plus EI class would not teach the FFI only group. Saito (2013) took the role as an observer for his project, and other instructors were responsible for the lessons. This was considered an option for the current research project, but it would require extra work for the class teacher, as she would have to read up on phonetics. It was therefore decided that the researcher lead the intervention. The number of tokens used to measure the different speech sounds were similar in both research projects. Saito (213) analysed 2450 tokens, whereas the current research measured 2580 tokens, although the 2580 tokens were divided into six speech sounds compared to Saito's (2013) one. The results from Saito (2013) showed that the FFI group had a higher score than the control group, and that the FFI plus EI group, in Saito's words, outperformed the control group.

The second research question contained a sub-question, *in what way, if any, does the participants prior experience with the oral English language, phonemic symbols and the target words influence the participants' realisation of the target sounds*? As seen in chapter 4, out of the 30 words on the wordlist, <zip> and <veil> were the words most of the participants reported to be unknown, either in meaning or that the participants could not remember being exposed to the words. Comparing the realisation of /v/ in <veil>, pre-test and post-test, dividing the participants into two groups, those that had heard of <veil> and those who had not, opens for the possibility to see if there is a correlation between the realisation of a speech sound depending on whether the target word is familiar or not. The number of participants with the correct realisation of /v/ in <veil> during the pre-test shows that the participants claiming to understand the meaning of the word <veil> scored higher than those who did not. 7 out of 11, or 63.6 % of the participants in the group claiming to be familiar with the word had a correct realisation of /v/, whereas 6 out of 20, or 30 %, from the "unfamiliar" group had a correct realisation of /v/ in <veil>. The same occurred with the pronunciation of <zip>; the group that had never heard the word scored higher measured in number of participants, however, measured in percentage based on the number of participants in the two groups, the

group stating that they were familiar with the word <zip> achieved a higher score, 66.6 % compared to 60.9 %.

Based on this, one might be tempted to say that the participants with prior knowledge of a word had a higher chance of improving their pronunciation after the intervention. This being said, most of this participants had heard the word <though> prior to the pre-test, nonetheless, as few as 5.3 % of the participants in the experimental group managed to pronounce <though> correctly. This may be a result of the spelling-to-sound problem. The participants may have known the pronunciation of <though> if they had been presented to the word orally instead of in its written form. However, such an approach would perhaps provide results saying something about the participants' ability to copy a speech sound rather than their ability to know when to use which speech sound.

The question regarding how the participants knew how to pronounce the different words from the wordlist provided several interesting findings. First, the main difference between the control group and the experimental group, where the participants claiming to have practised the words prior to the pre-test achieved the highest mean score in the control group, 19.5, whereas the participants with the same response in the experimental group achieved the lowest score, M = 10. The participants stating to have guessed the pronunciation achieved a mean score of 14.2 in the experimental group and 17.2 in the control group. The highest mean score measured in the pre-test for the experimental group came from the participants claiming to have learned the pronunciation of the different words at school, M = 17.1, compared to the control group where M = 18.9, the second highest score in the control group. One can imagine that participants guessing the pronunciation of a word would have the lowest mean score, which is the case in the control group, it is more unexpected that the participants from the experimental group had the lowest mean score when the words were claimed to have been practised before.

The participants that responded with *yes* and *sometimes* on the question *do you speak English during your English lessons* achieved the highest scores on the pre-test, 15.8 and 16.4 for the experimental group and 18.6 and 17.5 for the control group. None of the participants from the control group responded with *no*, however, the participants from the experimental group achieved the lowest score, 10.5 during the pre-test. The participants in the experimental group claiming to speak English during the English lessons increased their mean score to 18.3, those responding with *sometimes* to 20.4, and the participants responding with *no* increased their

pronunciation by 5, to 15.5 of 30. Out of the participants from the experimental group claiming to have guessed the pronunciation, as few as 18.2 % responded that they speak English during class, compared to the control group's 36.3 %. As for the participants in the experimental group claiming to have practised the words before, one responded with *yes*, one with *sometimes* and one saying *no* when it came to speaking English during the English lessons, compared with the control group, which responded with *yes* to the same question. Interestingly, the participant claiming s/he did not speak English during class had the highest overall score out of the three participants in the experimental group claiming that they had practised the pronunciation prior to the pre-test. 45 % of the participants from the experimental group saying that they had learned the pronunciation of the words at school also stated that they spoke English during class. The remaining 55 % responded that they speak English *sometimes*. This is in contrast with the control group, where 90 % responded that they speak English, whereas the remaining 10 % responded that they speak English *sometimes*.

As the question regarding how the participants knew how to pronounce the different words was given to the participants from the experimental group a second time, immediately after they had read the wordlist during the pre-test, it is possible to compare how these participants responded prior to the intervention and after the intervention. 18.8 % said that they used the phonemic script when reading the words during the pre-test. Those participants had a mean score of 17.3 during the pre-test, and 21 during the post-test. Although this was the highest scoring group, only one of them managed to pronounce the /z/ in <easy>, one of the words where spelling-to-sound is a problem. These participants also failed to pronounce <though> and the /z/ in <jeans> correctly. Of the participants responding to have learned the pronunciation at school, two pronounced the /z/ in <easy>, two pronounced the /z/ in <jeans/, whereas no one pronounced <though> with a correct /ð/.

There may of course be several reasons why the participants claiming to have used the phonemic transcript failed to pronounce words where the spelling is different from the pronunciation. One may be that they have reported to do so by mistake. However, it is not likely that 18.8 % of the participants made a mistake regarding the same question. Another reason may be that they used the phonemic transcript on some of the words, but not all of them. Their realisation of the six target sounds in general does at least support that they have managed the /z/ and /ð/ to some degree.

An interesting finding from the questionnaire was that the mean score from the control group was more or less the same (between 18 and 18.6) during the pre-test regardless of their prior familiarity with phonemic symbols. The participants from the control group claiming to know what a phonemic symbol is achieved the lowest score, whereas the participants claiming to have seen phonemic symbols without knowing what a phonemic symbol is, achieved the highest mean score. Compared with the experimental group, the participants claiming that they had never seen a phonemic symbols reached the lowest score, 13, compared to those that had seen phonemic symbols where M = 16.7. In addition, the control group had a higher mean score based on question 3a, which dealt with phonemic symbols.

The second research question focuses on *teaching* pronunciation and phonemic symbols, in addition to methods for improvement in the realisation of the six speech sounds. As described in chapter 3, the current research project was an intervention where the participants should receive explicit focus on pronunciation and phonemic symbols without interfering with the pre-made period plan. 28.7 % of the lessons were spent focusing on phonemic symbols and pronunciation, in other words more time than initially planned. Nonetheless, the intervention functioned as an introduction to something new, phonemic symbols and the target sounds, and thus it requires more time than if the topic was familiar to the participants. One of the problems one should address is the spelling-to-sound problem. 56.7 % of the words used to measure the target speech sounds (/dʒ, θ, ð/ in addition to /z/ in <jeans> and <easy>) were words where the pronunciation was not evident based on the spelling. The participants from the experimental group managed to realize the correct speech sound for an average of 45.6 % of these words during the pre-test and 60.3 % during the post-test, whereas the mean score for the control group was 53.5 % and 55.6 %. None of the participants in the control group managed to pronounce the /z/ in <easy> and <jeans> during the pre-test and the post-test, compared to the experimental group where the mean score increased from 0 % to 14.1 %. As few as 6.25 % of the participants in the experimental group managed to pronounce the /ð/ in <though> during either test, compared to the control group, where none of the participants managed to produce the correct speech sound. Nonetheless, as the average score for the experimental group's realisation of /ð/ increased from 46.8 to 57 when removing <though> from the equation. An interesting point is that nearly 50 % of the participants in the experimental group with an incorrect realisation of /ð/ in <though> pronounced it with a /t/, in other words, an interference from the L1, whereas the remaining 50 % pronounced it with /θ/, and thus a problem due to the spelling of the word, where the participants have seen the <th>

and interpreted as /θ/ based on their experience with <th>. Another reason may be that they have read <though> as <thought>. As for the control group, 2/3 of the participants pronounced <though> with /θ/, which implies that the interference with L1 is less prominent within the control group.

The fact that the participants from the experimental group had a nearly 50/50 realisation of <though> with either /t/ or /θ/ compared to the control group where 2/3 pronounced it with a /θ/, may be explained by the amount of English spoken by the participants. Although the question from the questionnaire regarding the participants' usage of oral English has its limitations, as *yes* and *sometimes* are vague terms, it does provide an interesting point. As many as 81.8 % of the participants from the control group reported that they speak English during the English lessons, and the remaining 18.2 % responded with *sometimes*, compared to the experimental group, where 34.4 % responded with *yes*, 59.4 % with *sometimes* and the remaining 6.3 % responded with *no*. Although one cannot draw any firm conclusion based on the findings in this project, there may be an indication that the participants speaking little to no English during their lessons may be more influenced by interference from the L1, whereas the participants from the control group are more likely to mispronounce the word due to its spelling. In addition, the control group's teacher pointed out that she makes use on corrective feedback during her lessons, and thus, one may assume that the participants in the control group have less of a chance becoming influenced by L1 interference compared to the participants from the experimental group, who do not speak English at all times.

The Mann-Whitney U tests conducted for both the control group and the experimental group measured whether the results were statistically significant or not. As seen in 4.2.13, results for the control group, although some improvement in realisation of the target sounds occurred, did not provide statistically significant results, p-value = 0.850 (0.850 > 0.05). The experimental group achieved higher results during the post-test, although no single speech sound provided statistically significant results. Nonetheless, the Mann-Whitney U test for each of the speech sounds combined, with the exception of /w/, exhibited a p-value of 0.0276 (p < 0.05), and the results should be statistically significant. Normally, the p-value exhibited in the Mann-Whitney U test should lead to a conclusion that one could be fairly sure that the participants' improvement in realisation of the target sounds occurred due to chance, and thus, the null hypothesis, *teaching with an extensive focus on both phonetics and correct pronunciation of /z, v, w, dʒ, θ, ð/ will not improve the participants' pronunciation*, could be rejected. However, this conclusion does not provide an accurate result if one takes the results

from each of the six speech sounds into consideration. What can be stated is, however, that the participants from the experimental group improved their realisation on the target sounds for each of the 30 words used to measure their pronunciation, something that did not occur in the control group. Another finding that can be stated with certainty is that the participants from the experimental group improved their overall realisation of the six target sounds with nearly 16 % in contrast to the control group, where the improvement was on around 2 %. As the test of significance provided a possibly misleading result, one cannot reject the null hypothesis without risking a Type I or Type II error, however, one can say that the results from the current research points in the direction of a rejection of the null hypothesis.

6. Conclusion

As seen throughout the current research, including pronunciation and phonetics in the English classrooms around Norway may improve Norwegian learners of EFL's pronunciation of the problem speech sounds in English. It does however depend on both the teacher and, to some extent, the curricula.

In order to help the young language learners to obtain an intelligible pronunciation the teacher must be aware of both the possible problem sounds and the realisation of those. Another key factor is that the language learners need guidance in order to perceive the speech sounds that we do not have in the Norwegian language, so that the interference from L1 is limited. It is also necessary that the teachers have some knowledge of pronunciation and basic phonetics in order to both detect the pronunciation errors made by the pupils, and to guide them in how the speech sounds should be produced.

As teachers in Norway follow the goals set by LK06, the time spent to focus on different parts of the curricula is limited. One of the goals for the current research was to show that teaching pronunciation and phonemic symbols does not necessarily need to take much time. The current research was based on a three-week intervention, and a teacher with a whole school year available could include both pronunciation and phonemic symbols for a few minutes every week. Based on the results exhibited in the current research, where a total of about 90 minutes were spent focusing on the oral language, one can assume that five minutes per lesson throughout the year will provide even better results. An important factor is nonetheless, as mentioned in 2.1.1, that the target language is the language of instruction, that the language learners are not forced to speak unless they are ready, and that the learning environment feels safe, so that one can make a mistake without the fear of being laughed at.

As mentioned briefly in the introduction, and more thorough during the discussion, the fact that language learners struggle with the realisation of non-native speech sounds is not unique to Norway, it is, however a global issue. As seen in Chan (2010) Chinese learners of EFL struggle with many of the same speech sounds as learners of EFL in Norway. And as seen in Rugesæter (1995), it is not a new phenomenon, and as the results from Rugesæter (2012) exhibited, it has not changed much although the exposure to English is more frequent in 2016 than it was prior to the development of the internet, smartphones and social media. This is a strong indication that Norwegian learners of EFL need input in order to learn how to perceive and produce the non-native speech sounds. As seen in Saito (2013), Rugesæter (1995) and Vang (2014), teaching oral English with an explicit focus on the perception and realisation of the non-native speech sounds does have an effect on the participants' realisation of the speech sounds.

Although the participants in the experimental group improved their realisation of the target sounds to such an extent that the results were calculated as statistically significant, one should note that there are some limitations. The main limitation is, of course, the fact that 20 of the participants from the control group chose to not participate for the post-test. Combined with this, the delayed post-test could not be conducted as the participants from the experimental group's teacher could not find a suitable date for the test. In an ideal situation, the research project would have equally sized groups. A delayed post-test would be interesting in order to see if the participants had acquired the target sounds, or if the results are based on something that was fresh in their memories.

Another limitation that may have altered the results is that the researcher had to use Norwegian as the language of instruction, and in that way, the participants lost the meaningful context pronunciation should be taught in. In addition, as the participants spoke Norwegian, their training was limited. As some of the participants stated in the questionnaire, they chose not to speak English as they were afraid to make a mistake, and that they did not know how to pronounce different words. Hopefully, participating in the current research have made them more aware of how to pronounce words, and thus removed some of that fear.

The current research project consisted of approximately 90 minutes of pronunciation practise, something that resulted in improvement in the realisation of all of the six speech sounds. It would be interesting to conduct a similar research project covering more time than three weeks of teaching, and compare the results, as the main idea is that spending a few minutes

on pronunciation every lesson over time does have an effect. It is not something that is meant to receive focus for a short period of time, and then forget that it exists.

It would be interesting to conduct a replication of the current study, however, such a replication should be more longitudinal, and include more participants. In addition, a randomized sample would be necessary in order to generalize the results. Although further research is needed, the results found in the current research at least form an interesting starting point regarding young Norwegian learners of EFL and their realisation of /z, v, w, dʒ, θ, ð/.

In an ideal situation, a control group and an experimental group chosen by random selection would be preferable, however, as stated by Krashen & Terrell (1983), it is important that language acquisition takes place in a safe environment. The current research project shows that several of the participants were reluctant to speak English during their lessons due to fear of making a mistake. This may perhaps be an indication that such a research project on young language learners should be carried out in their regular class, as it may be scary to speak a foreign language in a room of participants gathered by random sample.

It is to be hoped that the current research project's findings should work as a source of inspiration for Norwegian teachers of EFL, as it shows that one can help young language learners improve their realisation of English speech sounds that do not exist in oral Norwegian with the help of simple techniques and little time spent, and teaching pronunciation can be done combined with other topics throughout the year.

7. Works cited

Abbuhl, R. (2012). Why, When, and How to Replicate Research. In A. Mackey, & S. M. Gass (Eds.), *Research Methods in Second Language Acquisition - A Practical Guide* (pp. 293-313). Chichester: Wiley-Blackwell.

Alderson, J., & Bachman, L. (2009). Series editors' preface to Assessing Speaking. In S. Luoma, J. Alderson, & L. Bachman (Eds.), *Assessing Speaking* (pp. ix-xii). Cambridge: Cabridge University Press.

Birketveit, A., & Rugesæter, K. N. (2014). På tide å styrke engelskfaget. *Bedre Skole*(3), 60-63. Retrieved January 15th, 2016, from https://www.utdanningsforbundet.no/upload/Tidsskrifter/Bedre%20Skole/BS_3_2014/BS-0314-WEB_Birketveit_og_Rugesaeter.pdf

Brown, C. (2009, June 17th). The importance of being Earnest Hemminway, (or why spelling isn't that important). *The Daily Mail Online*. Retrieved May 13th, 2016, from http://www.dailymail.co.uk/debate/article-1193231/The-importance-Earnest-Hemminway--spelling-isnt-important.html

Cambridge Dictionaries Online. (n.d.). *English as a foreign language*. Retrieved April 23, 2016, from English as a foreign language: http://dictionary.cambridge.org/dictionary/english/english-as-a-foreign-language

Chan, A. Y. (2010). Advanced Cantonese ESL learners' production of English speech sounds: Problems and strategies. *System, 38*(2), 316-328. doi:doi:10.1016/j.system.2009.11.008

Check, J., & Schutt, R. K. (2012). *Research Methods in Education.* Thousand Oaks: Sage.

Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education* (7th ed.). Oxon: Routledge.

Davidsen-Nielsen, N. (1994). *English Phonetics.* (B. Bird, & P. Moen, Trans.) Oslo: Gyldendal Norsk Forlag.

Davies, M. (n.d.). *Word Frequency Data - Corpus of Contemporary American English*. Retrieved April 1st, 2016, from http://www.wordfrequency.info/free.asp?s=y

Derwing, T. M., & Munro, M. J. (2005, September). Second Language Accent and Pronunciation Teaching: A Research-Based Approach. *Teachers of English to Speakers of Other Languages, Inc. (TESOL), 39*(3), 379-397. Retrieved March 1st, 2016, from http://www.jstor.org/stable/3588486?origin=JSTOR-pdf

Drew, I., & Sørheim, B. (2009). *English Teaching Strategies - Methods for English teachers of 10 to 16-year-olds* (2nd ed.). Oslo: Det Norske Samlaget.

Eddine, A. N. (2011). Second Language Acquisition: The Articulation of Vowels and the Importance of Tools in the Learning Process. In J. Arabski, & A. Wojtaszek (Eds.), *The Acquicition of L2 Phonology* (pp. 3-15). Bristol: Multilingual Matters.

Gabryś-Barker, D. (2011). Phonological Issues in Second Language Acquisition Studies: Focus Area and Implications for FL Instructional Practices. In J. Arabski, & A. Wojtaszek (Eds.), *The Acquisition of L2 Phonology* (pp. 123-138). Bristol: Multilingual Matters.

Hollander, M., Wolfe, D. A., & Chicken, E. (2014). *Nonparametric Statistical Methods* (3rd ed.). New Jersey: Wiley.

Hughes, A., Trudgill, P., & Watt, D. (2012). *English Accents & Dialects.* London: Hodder Education.

Hummel, K. M. (2014). *Introducing Second Language Acquisition - Perspectives and Practices.* Oxford: Wiley-Blackwell.

Jenkins, J. (2006). *World Englishes - A resource book for students.* Oxon: Routledge.

Johnson, B., & Christensen, L. (2008). *Educational Research - Quantitative, Qualitative, and Mixed Approaches* (3rd ed.). Los Angeles: Sage Publications.

Kenworthy, J. (1987). *Teaching English Pronunciation.* London: Longman.

Krashen, S. D., & Terrell, T. D. (1983). *The Natural Approach - Language Acquisition in the Classroom.* Oxford: Pergamon/Alemany.

Kulbrandstad, L. A. (2011). *Språkets mønstre - grammatiske begreper og metode* (3rd ed.). Oslo: Universitetsforlaget.

Lagerstrøm, B. O., Moafi, H., & Revold, M. K. (2014). *Kompetanseprofil i grunnskolen - Hovedresultater 2013/2014.* Oslo: Statistisk sentralbyrå. Retrieved March 1st, 2016, from https://www.ssb.no/utdanning/artikler-og-publikasjoner/_attachment/197751?_ts=148a1618d30

Luoma, S. (2009). *Assessing Speaking.* (J. C. Alderson, & L. F. Bachman, Eds.) Cambridge: Cambridge University Press.

Mertens, D. M. (2010). *Research and Evaluation in Education and Psychology.* California: SAGE Publications Inc.

Mæhlum, B., & Røyneland, U. (2012). *Det norske dialektlandskapet - innføring i studiet av dialekter.* Oslo: Cappelen Damm Akademisk.

Nachar, N. (2008). The Mann-Whitney U: A Test for Assessing Whether Two Independent Samples Come from the Same Distribution. *Tutorials in Quantitative Methods for Psychology, 4*(1), 13-20. Retrieved April 16th, 2016, from http://mail.tqmp.org/Content/vol04-1/p013/p013.pdf

Nilsen, T. S. (2002). *British and American English Pronunciation* (2nd ed.). Oslo: Universitetsforlaget.

Nilsen, T. S., & Rugesæter, K. N. (2009). *Basic English Phonetics for Teachers* (2nd ed.). Bergen: Fagbokforlaget.

Owolabi, D. (2014). LEVERAGING ON L1 FOR SUCCESSFUL SECOND/FOREIGN LANGUAGE ENGLISH TEACHING AND LEARNING. *Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS), 5*(8), 189-195. Retrieved May 15th, 2016, from http://jeteraps.scholarlinkresearch.com/articles/LEVERAGING%20ON%20L1%20FOR%20SUCCESSFUL%20SECOND.pdf

Roach, P. (1998). *English Phonetics and Phonology - A practical course* (2nd ed.). Cambridge: Cambridge University Press.

Rugesæter, K. N. (1995). The Missing Phonemes Revisited (or: "What the language lab did not teach them). *Språk i språkundervisning*.

Rugesæter, K. N. (2012). Phonological competence in English among Norwegian pupils and implications for the teaching of pronunciation in the English classroom. In A. Hasselgren, I. Drew, & B. Sørheim (Eds.), *The Young Language Learner - Research-based Insights into Teaching and Learning* (pp. 119-131). Bergen: Fagbokforlaget.

Saito, K. (2013). Reexamining Effects of Form-Focused Instruction on L2 Pronunciation Development - The Role of Explicit Phonetic Information. *Studies in Second Language Acquisition*, 1-29. doi:10.1017/S0272263112000666

Simensen, A. M. (2007). *Teaching a Foreign Language - Principles and Procedures* (2nd ed.). Bergen: Fagbokforlaget.

Skaug, I. (2005). *Norsk språklydlære med øvelser* (2nd ed.). Oslo: Cappelen Akademisk Forlag.

Skrede, K. M., Lilleåsen, L. R., Gaganis, L., & Lydersen, T. (2014, June 17th). Kronprinsbarna bytter fra offentlig til privat skole. *NRK Nyheter*. Retrieved April 28th, 2016, from http://www.nrk.no/norge/kronprinsbarna-til-privatskole-1.11781842

Speitz, H., & Simonsen, T. (2006). *Evaluering av prosjektet "Forsøk med tidlig start i 2. fremmedspråk" Delrapport 1*. Notodden: Telemarksforskning. Retrieved January 27th,

2016, from https://teora.hit.no/bitstream/handle/2282/1387/Rapp-2006-02.pdf?sequence=1

Stringer, E. (2008). *Action Research in Education.* Upper Saddle River: Pearson Merrill Prentice Hall.

The Norwegian Directorate for Education and Training. (n.d.). *English subject curriculum.* (H. Sommerseth, Editor) Retrieved January 20th, 2016, from Competence aims - competence aims after Year 7: http://www.udir.no/kl06/eng1-03/Hele/Kompetansemaal/kompetansemal-etter-7.-arstrinn/?lplang=eng

Utdanningsdirektoratet. (n.d.). *Fag- og timefordeling og tilbudsstruktur for Kunnskapsløftet Udir-1 - 2015*. Retrieved March 1st, 2016, from 2.2 Ordinær fag- og timefordeling: http://www.udir.no/Regelverk/Finn-regelverk-for-opplaring/Finn-regelverk-etter-tema/Innhold-i-opplaringen/Udir-1-2015-Kunnskapsloftet-fag--og-timefordeling-og-tilbudsstruktur/Udir-1-2015-Vedlegg-1/2-Grunnskolen/#a2.2

Vang, A.-L. (2014). *Phonetics as an Element in Teaching Oral English - with a focus for Norwegian learners' problems.* Høgskolen i Bergen, Avdeling for lærerutdanning. Bergen: Unpublished manuscript.

Wells, J. (1982a). *Accents of English I - An Introduction.* Cambridge: Cambridge University Press.

Wells, J. (1982b). *Accents of English 3 - Beyond the British Isles.* Cambridge: Cambridge University Press.

8.0 Appendix

8.1 Wordlist

television	/telɪvɪʒən/
think	/θɪŋk/
thought	/θɔːt/
though	/ðəʊ/
mother	/mʌðə/
very	/verɪ/
three	/θriː/
wild	/wʌɪld/
village	/vɪlɪdʒ/
zebra	/zebrə/
veil	/veɪl/
whale	/weɪl/
zoo	/zuː/
brother	/brʌðə/
winter	/wɪntə/
stage	/steidʒ/
easy	/iːzi/
water	/wɔːtə/
jeans	/dʒiːnz/
Jean	/dʒiːn/
walk	/wɔːk/
video	/vɪdiəʊ/

thumb	/θʌm/
month	/mʌnθ/
then	/ðen/
change	/tʃeɪndʒ/
weather	/weðə/
sip	/sɪp/
zip	/zɪp/

8.1.2 Wordlist, the pilot

think	/θɪŋk/
thought	/θɔ:t/
though	/ðəʊ/
mother	/mʌðə/
village	/vɪlɪdʒ/
zebra	/zebrə/
veil	/veɪl/
whale	/weɪl/
stage	/steɪdʒ/
easy	/i:zi/
jeans	/dʒi:nz/
Jean	/dʒi:n/
walk	/wɔ:k/
video	/vɪdiəʊ/
thrash	/θroeʃ/
month	/mʌnθ/
then	/ðen/
change	/tʃeɪndʒ/
weather	/weðə/
sip	/sɪp/
zip	/zɪp/

8.2 Questionnaire

Student number

_____

1. Have you heard all of these words before?

☐   Yes, but I am not sure what all of the words mean

☐   Yes, and I know the meaning of them

☐   No, I have not heard all of the words before

☐   Unsure

1b. If no, which words were new?

1c. Which of the words did you not know the meaning of?

2. How did you know how to say the words?

☐   I guessed

☐   I used the symbols next to the words

☐   I have practised saying them before

☐   I learned how to say them at school

☐   Other

2b. If other, please explain

3a. Have you seen the symbols next to the words before, and do you know what they are?

☐ Yes

☐ No

☐ Yes, but I do not know what they mean.

3b. If YES, where have you seen them?

☐ In a dictionary

☐ At school

☐ Not sure

☐ Somewhere else

3c. If somewhere else, where?

4a. Do you speak English during your English lessons?

☐ Yes

☐ No

☐ Sometimes

4b. If NO or SOMETIMES, why not?

☐ I find it scary

☐ I do not know how to say the words

☐ I do not understand the words

☐ Other

4c. If OTHER, explain

8.3 Incorrect pronunciation

8.3.1 Experimental group (participants 1 to 32) pre-test and post-test

Pre-test   post-test

Participant 1

/tʌf/	(though)	/tʌf/	(though)
/tri:/	(three)	/vɪlɪtʃ/	(village)
/vɪlɪtʃ/	(village)	/si:brə/	(zebra)
/si:brə/	(zebra)	/su:/	(zoo)
/su:/	(zoo)	/ɪsɪ/	(easy)
/ɪsɪ/	(easy)	/dʒi:ns/	(jeans)
/dʒi:ns/	(jeans)	/θen/	(then)
/tʃanʃ/	(change)	/kəgʃ/	(change)

Participant 2

/θɔ/	(though)	/θɔt/	(though)
/mɔdər/	(mother)	/werɪ/	(very)
/werɪ/	(very)	/sɪbrə/	(zebra)
/wɪlədʒ/	(village)	/weɪl/	(veil)
/sebra/	(zebra)	/su:/	(zoo)
/weɪl/	(veil)	/dʒi:ns/	(jeans)
/su:/	(zoo)	/tʃeɪnʃ/	(change)
/brɔdar/	(brother)	/sɪp/	(zip)
/ɪsɪ/	(easy)		
/dʒi:ns/	(jeans)		
/tʃeɪnʃ/	(change)		
/wədɑr/	(weather)		
/sɪp/	(zip)		

Participant 3

/ θao/	(though)	/tɔ:θ/	(thought)
/sebra/	(zebra)	/tʌf/	(though)
/su:/	(zoo)	/sebra/	(zebra)
/ɪsɪ/	(easy)	/su:/	(zoo)
/dʒi:ns/	(jeans)	/ɪsɪ/	(easy)
/sɪp/	(zip)	/sɪp/	(zip)

Participant 4

/θaoug/	(though)	/θɔŋ/	(though)
/tri:/	(three)	/wɪlədʒ/	(village)
/wɪlədʒ/	(village)	/sɪbra/	(zebra)
/sɪbra/	(zebra)	/weɪl/	(veil)
/weɪl/	(veil)	/so:/	(zoo)
/su:/	(zoo)	/ɪsɪ/	(easy)
/ɪsɪ/	(easy)	/tʃeɪnʃ/	(change)
/dʒi:ns/	(jeans)		
/wɪdiəo/	(video)		
/tʃeɪnʃ/	(change)		
/weθə/	(weather)		
/sɪp/	(zip)		

Participant 5

/teləwɪʃn/	(television)	/tɪŋk/	(think)
/tɪŋk/	(think)	/tɔ:/	(though)

/tɔ:/ (though) /mɔdə/ (mother)

/werɪ/ (very) /werɪ/ (very)

/tri:/ (three) /tri:/ (three)

/wɪlətʃ/ (village) /səbra/ (zebra)

/səbra/ (zebra) /weɪl/ (veil)

/weɪl/ (veil) /so:/ (zoo)

/so:/ (zoo) /ɪsɪ/ (easy)

/ɪsɪ/ (easy) /dʒi:ns/ (jeans)

/dʒi:ns/ (jeans) /tɜmb/ (thumb)

/wɪdiɔo/ (video) /den/ (then)

/tɜmb/ (thumb) /tʃeɪnʃ/ (change)

/den/ (then)

/tʃeɪnʃ/ (change)

/sɪp/ (zip)

Participant 6

/tɪŋk/ (think) /θɔr/ (though)

/tɔur:/ (though) /werɪ/ (very)

/mɔdə/ (mother) /vɪlətʃ/ (village)

/werɪ/ (very) /sebra/ (zebra)

/tri:/ (three) /steidʃ/ (stage)

/wɪlətʃ/ (village) /dʒi:ns/ (jeans)

/sebra/ (zebra) /θen/ (then)

/veɪl/ (whale) /ʃeɪnʃ/ (change)

/su:/ (zoo) /wetər/ (weather)

/bradrɜr/ (brother)

/steidʃ/ (stage)

/ɪsɪ/ (easy)

/dʒiːns/ (jeans)

/tʌmb/ (thumb)

/θen/ (then)

/tʃeɪnʃ/ (change)

/wetə/ (weather)

/sɪp/ (zip)

Participant 7

/θɔːt /	(though)	/θɔː/	(though)
/mɔdə/	(mother)	/mɔdə/	(mother)
/triː/	(three)	/triː/	(three)
/sibra/	(zebra)	/wʌɪldgaɪdʒ/	(village)
/suː/	(zoo)	/sebra/	(zebra)
/steidʃ/	(stage)	/soː/	(zoo)
/ɪsɪ/	(easy)	/steidʃ/	(stage)
/dʒiːns/	(jeans)	/ɪsɪ/	(easy)
/mʌnt/	(month)	/dʒiːns/	(jeans)
/tʃeɪnʃ/	(change)	/tɜmb/	(thumb)
/weθə/	(weather)	/tʃeɪnʃ/	(change)
/sɪp/	(zip)	/sɪp/	(zip)

Participant 8

/θɔː /	(though)	/θʌː /	(though)

/sibrə/   (zebra)   /sibrə/ (zebra)

/su:/   (zoo)   /ɪsɪ/   (easy)

/ɪsɪ/   (easy)   /dʒei:ns/ (jeans)

/dʒi:ns/   (jeans)

Participant 9

/tɪŋk/   (think)   /trut/   (thought)

/trut/   (thought)   /tag/   (though)

/taug/   (though)   /mɔdə/   (mother)

/werɪ/   (very)   /tri:/   (three)

/tri:/   (three)   /valeʃ/   (village)

/valeiʃ/   (village)   /sebra/   (zebra)

/sebra/   (zebra)   /su:/   (zoo)

/weɪl/   (veil)   /brʌdɜr/   (brother)

/so:/   (zoo)   /steitʃ/   (stage)

/brʌdɜr/   (brother)   /dʒi:ns/   (jeans)

/steitʃ/   (stage)   /tʌb/   (thumb)

/ɪsɪ/   (easy)   /mʌnt/   (month)

/dʒi:ns/   (jeans)   /den/   (then)

/tɜmb/   (thumb)   /tʃeɪnʃ/   (change)

/mʌnt/   (month)   /sɪp/   (zip)

/den/   (then)

/tʃeɪntʃ/   (change)

/sɪp/   (zip)

Participant 10

/teləwɪʃn/ (television)   /teləwɪʃn/ (television)

/tɪŋk/   (think)   /tɪŋk/   (think)

/taw/   (thought)   /taw/   (thought)

/tao/   (though)   /tao/   (though)

/mɔdə/   (mother)   /mɔdə/ (mother)

/werɪ/   (very)   /tri:/   (three)

/tri:/   (three)   /wɪləidʃ/ (village)

/wɪləitʃ/   (village)   /sibra/ (zebra)

/səbra/   (zebra)   /weɪl/   (veil)

/weɪl/   (veil)   /su:/   (zoo)

/su:/   (zoo)   /dʒi:ns/ (jeans)

/brɔdə/   (brother)   /tʌmb/ (thumb)

/steitʃ/   (stage)   /mʌnt/ (month)

/ɪsɪ/   (easy)   /tʃeɪnʃ/ (change)

/dʒi:ns/   (jeans)   /wədɜ/ (weather)

/wɪdiɔ/   (video)   /sɪp/   (zip)

/tamb/   (thumb)

/mʌnt/   (month)

/ten/   (then)

/tʃeɪnʃ/   (change)

/waidɜ/   (weather)

/sɪp/   (zip)

Participant 11

/θɔ:g/	(though)	/θɔ:/	(though)
/tri:/	(three)	/tri:/	(three)
/vɪlətʃ/	(village)	/sibrə/	(zebra)
/si:bra/	(zebra)	/weɪl/	(veil)
/su:/	(zoo)	/su:/	(zoo)
/steitʃ/	(stage)	/steitʃ/	(stage)
/ɪsɪ/	(easy)	/ɪsɪ/	(easy)
/dʒi:ns/	(jeans)	/dʒi:ns/	(jeans)
/ten/	(then)	/θen/	(then)
/wedə/	(weather)		
/sɪp/	(zip)		

Participant 12

/teləwɪʃn/	(television)	/teləwɪʃn/	(television)
/tru:/	(thought)	/truθ/	(though)
/truθ/	(though)	/wɪləidʃ/	(village)
/tri:/	(three)	/sibrə/	(zebra)
/vɪlədʃ/	(village)	/weɪl/	(veil)
/sibra/	(zebra)	/su:/	(zoo)
/weɪl/	(veil)	/steitʃ/	(stage)
/su:/	(zoo)	/ɪsɪ/	(easy)
/steitʃ/	(stage)	/wi:diə/	(video)
/ɪsɪ/	(easy)	/den/	(then)
/dʒi:ns/	(jeans)	/tʃeɪnʃ/	(change)

/den/   (then)

/tʃeɪnʃ/   (change)

Participant 13

/θaw/   (though)   /tʌf/   (though)

/tri:/   (three)   /səbra/ (zebra)

/vɪləidʃ/   (village)   /su:/   (zoo)

/səbra/   (zebra)   /steitʃ/ (stage)

/su:/   (zoo)   /ɪsɪ/   (easy)

/steitʃ/   (stage)   /dʒi:ns/ (jeans)

/ɪsɪ/   (easy)

/dʒi:ns/   (jeans)

/tʃeɪnʃ/   (change)

/sɪp/   (zip)

Participant 14

/θɔ/   (though)   /θɔ/   (though)

/vɪlədʃ/   (village)   /sibrə/ (zebra)

/sibrə/   (zebra)   /weɪl/ (veil)

/weɪl/   (veil)   /su:/   (zoo)

/steidʃ/   (stage)   /brʌθə/ (brother)

/ɪsɪ/   (easy)   /dʒi:ns/ (jeans)

/dʒi:ns/   (jeans)   /tʃeɪnʃ/ (change)

/den/   (then)   /θen/   (then)

/sɪp/   (zip)

Participant 15

/teləwɪʃn/	(television)	/teləwɪʃn/	(television)
/tɪŋk/	(think)	/tɜk/	(though)
/tʌf/	(thought)	/mɔdə/	(mother)
/tʃʌf/	(though)		
/mɔdə/	(mother)	/vɪləidʃ/	(village)
/tri:/	(three)	/sebra/	(zebra)
/wɪlətʃ/	(village)	/waɪl/	(veil)
/sebra/	(zebra)	/brɔdə/	(brother)
/so:/	(zoo)	/ɪsɪ/	(easy)
/brɔdə/	(brother)	/dʒi:ns/	(jeans)
/steitʃ/	(stage)	/waɪdiɔ/	(video)
/ɪsɪ/	(easy)	/tʃeɪnʃ/	(change)
/dʒi:ns/	(jeans)	/wədɜ/	(weather)
/wɪdiɔ/	(video)		
/tamb/	(thumb)		
/mʌnt/	(month)		
/ten/	(then)		
/tʃeɪnʃ/	(change)		
/wedɜ/	(weather)		
/sɪp/	(zip)		

Participant 16

/teləwɪʃn/	(television)	/tao/	(though)
/mɔdə/	(mother)	/mɔdə/	(mother)

/werɪ/   (very)   /wɪləitʃ/ (village)

/tri:/   (three)   /sebra/ (zebra)

/wɪləiʃ/   (village)   /wi:l/   (veil)

/sibra/   (zebra)   /so:/   (zoo)

/wi:l/   (veil)   /brɔdə/ (brother)

/so:/   (zoo)   /steidʃ/ (stage)

/brɔdə/   (brother)   /ɪsɪ/   (easy)

/steidʃ/   (stage)   /dʒi:ns/ (jeans)

/ɪsɪ/   (easy)   /mɔnt/ (month)

/dsi:ns/   (jeans)   /tʃeɪnʃ/ (change)

/dsi:n/   (Jean)   /wətɜ/ (weather)

/wɪdiɔ/   (video)   /sɪp/   (zip)

/tɜmb/   (thumb)

/mɔnt/   (month)

/tʃeɪnʃ/   (change)

/wədɜ/   (weather)

/sɪp/   (zip)

Participant 17

/teləwɪʃn/   (television)   /tɪnk/   (think)

/tɪnk/   (think)   /tɔη/   (thought)

/taogt/   (thought)   /tɔη/   (though)

/tao/   (though)   /tri:/   (three)

/tri:/   (three)   /wɪlədʃ/ (village)

/wɪləidʃ/   (village)   /sebra/ (zebra)

/sibra/ (zebra) /weɪl/ (veil)

/weɪl/ (veil) /so:/ (zoo)

/su:/ (zoo) /ɪsɪ/ (easy)

/brɔdə/ (brother) /dʒi:ns/ (jeans)

/steidʃ/ (stage) /wɪdio/ (video)

/ɪsɪ/ (easy) /tɜmb/ (thumb)

/dʒi:ns/ (jeans) /mɔnt/ (month)

/wɪdiɔ/ (video) /sɪp/ (zip)

/tɜmb/ (thumb)

/mɔnt/ (month)

/tʃeɪnʃ/ (change)

/wədɜ/ (weather)

/sɪp/ (zip)

Participant 18

/tɪnk/ (think) /θru/ (though)

/θɔ/ (though) /vɪləidʃ/ (village)

/tri:/ (three) /sibra/ (zebra)

/vɪləidʃ/ (village) /ɪsɪ/ (easy)

/sibra/ (zebra) /dʒi:ns/ (jeans)

/su:/ (zoo) /ten/ (then)

/ɪsɪ/ (easy) /tʃeɪnʃ/ (change)

/dʒi:ns/ (jeans) /sɪp/ (zip)

/tʃeɪnʃ/ (change)

/sɪp/ (zip)

Participant 19

/θao/	(though)	/θao/	(though)
/mɔdə/	(mother)	/tri:/	(three)
/tri:/	(three)	/vɪləd∫/	(village)
/vɪləid∫/	(village)	/sibra/	(zebra)
/weɪl/	(veil)	/weɪl/	(veil)
/brɔdə/	(brother)	steid∫/	(stage)
/steid∫/	(stage)	/ɪsɪ/	(easy)
/ɪsɪ/	(easy)	/tɜmb/	(thumb)
/dʒi:ns/	(jeans)	/dʒi:ns/	(jeans)
/valk/	(walk)	/den/	(then)
/wɪdio/	(video)	/teɪn∫/	(change)
/tamb/	(thumb)		
/den/	(then)		
/teɪn∫/	(change)		
/wədɜ/	(weather)		

Participant 20

Not present at post-test

Participant 21

Removed

Participant 22

/θao/	(though)	/θɔt/	(though)
/tri:/	(three)	/ɪsɪ/	(easy)
/vɪləid∫/	(village)	/dʒi:ns/	(jeans)

/sibra/   (zebra)   /tʃeɪnʃ/ (change)

/su:/   (zoo)

/steidʃ/   (stage)

/ɪsɪ/   (easy)

/dʒi:ns/   (jeans)

/tʃeɪnʃ/   (change)

Participant 23

/taʊ/   (though)   /tə/   (though)

/tri:/   (three)   /vɪləidʃ/ (village)

/vɪlətʃ/   (village)   /sibra/ (zebra)

/sibra/   (zebra)   /su:/   (zoo)

/su:/   (zoo)   /steidʃ/ (stage)

/brɔdə/   (brother)   /ɪsɪ/   (easy)

/steidʃ/   (stage)   /dʒi:ns/ (jeans)

/ɪsɪ/   (easy)   /tʃeɪnʃ/ (change)

/dʒi:ns/   (jeans)   /θɪp/   (zip)

/tɜmb/   (thumb)

/mʌuf/   (month)

/θen/   (then)

/tʃeɪnʃ/   (change)

/wedə/   (weather)

/sɪp/   (zip)

Participant 24

/teləwɪʃn/   (television)   /trakt/ (thought)

/tɜg/ (thought) Skipped though

/tɜ:g/ (though) /wɜrɪ/ (very)

/mɔdə/ (mother) /tri:/ (three)

/wɜrɪ/ (very) /vɪləidʃ/ (village)

/tri:/ (three) /sebra/ (zebra)

/wɪləitʃ/ (village) /weɪl/ (veil)

/sebra/ (zebra) /su:/ (zoo)

/weɪl/ (veil) /brɔdə/ (brother)

/su:/ (zoo) /steitʃ/ (stage)

/brɔdə/ (brother) /ɪsɪ/ (easy)

/steitʃ/ (stage) /dʒi:ns/ (jeans)

/ɪsɪ/ (easy) /mʌnt/ (month)

/dʒi:ns/ (jeans) /wədɜ/ (weather)

/wɪdiɔ/ (video) /sɪp/ (zip)

/tamb/ (thumb)

/mʌnt/ (month)

/tʃeɪntʃ/ (change)

/wetə/ (weather)

/sɪp/ (zip)

Participant 25

/taf/ (thought) /ta:k/ (though)

/ta/ (though) /werɪ/ (very)

/mɔdə/ (mother) /wɪləidʃ/ (village)

/werɪ/ (very) /sebra/ (zebra)

/vɪld/   (wild)   /waɪl/ (veil)

/wɪləitʃ/   (village)   /sibra/ (zebra)

/sibra/   (zebra)   /weɪl/ (veil)

/weɪl/   (veil)   /su:/   (zoo)

/su:/   (zoo)   /dʒi:ns/ (jeans)

/brɔdə/   (brother)   /mʌnt/ (month)

/steitʃ/   (stage)   /sɪp/   (zip)

/ɪsɪ/   (easy)

/dʒi:ns/   (jeans)

/waɪdiɔ/   (video)

/mʌuf/   (month)

/ten/   (then)

/tʃeɪnʃ/   (change)

/sɪp/   (zip)

Participant 26

Not present at pre-test

Participant 27

/θru/   (though)   /ɪsɪ/   (easy)

/ɪsɪ/   (easy)   /dʒi:ns/   (jeans)

/dʒi:ns/   (jeans)

Participant 28

/teləwɪʃn/   (television)   /teləwɪʃn/ (television)

/θɔ/   (though)   /θɔ/   (though)

/mɔdə/   (mother)   /werɪ/ (very)

/werɪ/	(very)	/tri:/	(three)
/tri:/	(three)	/vɪləidʃ/	(village)
/wɪləitʃ/	(village)	/sibra/	(zebra)
/sibra/	(zebra)	/su:/	(zoo)
/weɪl/	(veil)	/brɔdə/	(brother)
/su:/	(zoo)	/steidʃ/	(stage)
/brɔdə/	(brother)	/ɪsɪ/	(easy)
/steitʃ/	(stage)	/dʒi:ns/	(jeans)
/ɪsɪ/	(easy)	/maunt/	(month)
/dʒi:ns/	(jeans)	/den/	(then)
/wɪdiə/	(video)	/tʃeɪnʃ/	(change)
/tamb/	(thumb)		
/mʌnt/	(month)		
/tʃeɪnʃ/	(change)		
/wedə/	(weather)		
/sɪp/	(zip)		

Participant 29

/tɪnk/	(think)	/θaotʃ/	(though)
/trɔ/	(though)	/tri:/	(three)
/mɔθə/	(mother)	/wɪləits/	(village)
/tri:/	(three)	/sebra/	(zebra)
/vɪləitʃ/	(village)	/weɪl/	(veil)
/sebra/	(zebra)	/steidʃ/	(stage)
/weɪl/	(veil)	/ɪsɪ/	(easy)

/so:/ (zoo)   /dʒi:ns/ (jeans)

/steidʃ/ (stage)   /tɜmbə/(thumb)

/ısı/ (easy)   /tʃeɪnʃ/ (change)

/dʒi:ns/ (jeans)   /wedə/ (weather)

/tɜmb/ (thumb)

/mʌnt/ (month)

/ten/ (then)

/tʃeɪnʃ/ (change)

/wedə/ (weather)

/sɪp/ (zip)

Participant 30

/teləwɪʃn/ (television)   /teləwɪʃn/ (television)

/θɔ:t/ (though)   /θɔ/ (though)

/werı/ (very)   /wɪləitʃ/(village)

/tri:/ (three)   /sebrɑ/ (zebra)

/wɪləitʃ/ (village)   /steidʃ/ (stage)

/sebrɑ/ (zebra)   /ısı/ (easy)

/weɪl/ (veil)   /dʒi:ns/ (jeans)

/su:/ (zoo)   /steidʃ/ (stage)

/steitʃ/ (stage)   /mʌn/ (month)

/ısı/ (easy)   /θen/ (then)

/dʒi:ns/ (jeans)   /tʃeɪnʃ/ (change)

/wɪdiɔ/ (video)

/ti:n/ (then)

/tʃeɪnʃ/   (change)

Participant 31

Removed due to severe problems regarding reading.

Participant 32

/teləwɪʃn/	(television)	/teləwɪʃn/	(television)
/tɪnk/	(think)	/tɪnk/	(think)
/dao/	(thought)	**/**tʌf/	(thought)
/tʌf/	(though)	**/**tʌf/	(though)
/mɔdə/	(mother)	/mɔdə/	(mother)
/tri:/	(three)	/tri:/	(three)
/wɪləitʃ/	(village)	/wɪləidʃ/	(village)
/sibra/	(zebra)	/sibra/	(zebra)
/weɪl/	(veil)	/waɪl/	(veil)
/so:/	(zoo)	/su:/	(zoo)
/brɔdə/	(brother)	/brɔdə/	(brother)
/steidʃ/	(stage)	/steidʃ/	(stage)
/ɪsɪ/	(easy)	/ɪsɪ/	(easy)
/dʒi:ns/	(jeans)	/dʒi:ns/	(jeans)
/wɪdiɔ/	(video)	/mʌnt/	(month)
/mʌnt/	(month)	/den/	(then)
/den/	(then)	/tʃeɪndʃ/	(change)
/tʃeɪndʃ/	(change)	/wedə/	(weather)
/wedə/	(weather)	/si:p/	(zip)
/sɪp/	(zip)		

Participant 33

/θa:t/	(though)	/θa:/	(though)
/werɪ/	(very)	/wɪləidʃ/	(village)
/tri:/	(three)	/sibra/	(zebra)
/wɪləitʃ/	(village)	/steidʃ/	(stage)
/seibra/	(zebra)	/ɪsɪ/	(easy)
/steid/	(stage)	/dʒi:ns/	(jeans)
/ɪsɪ/	(easy)	/tʃeɪnʃ/	(change)
/dʒi:ns/	(jeans)		
/mʌnt/	(month)		
/tʃeɪnʃ/	(change)		

Participant 34

/θɔ:/	(though)	/teləwɪʃn/	(television)
/werɪ/	(very)	/θɔ:/	(though)
/tri:/	(three)	/vɪləidʃ/	(village)
/wɪlədʃ/	(village)	/sebra/	(zebra)
/sebra/	(zebra)	/weɪl/	(veil)
/weɪl/	(veil)	/steidʃ/	(stage)
/steidʃ/	(stage)	/ɪsɪ/	(easy)
/ɪsɪ/	(easy)	/dʒi:ns/	(jeans)
/dʒi:ns/	(jeans)	/tʃeɪndʃ/	(change)
/tʃeɪndʃ/	(change)		
/sɪp/	(zip)		

Participant 35

/teləwɪʃn/ (television)   /θɜːrθ/ (though)

/tuːθ/ (thought)   /triː/ (three)

/θuθ/ (though)   /vɪlətʃ/ (village)

/werɪ/ (very)   /sibra/ (zebra)

/triː/ (three)   /suː/ (zoo)

/wɪlətʃ/ (village)   /brʌtə/ (brother)

/siːbra/ (zebra)   /steitʃ/ (stage)

/weɪl/ (veil)   /ɪsɪ/ (easy)

/suː/ (zoo)   /dʒiːns/ (jeans)

/steitʃ/ (stage)   /waɪdiə/ (video)

/ɪsɪ/ (easy)   /muːt/ (month)

/dʒiːns/ (jeans)   /tʃeɪnʃ/ (change)

/waɪdiə/ (video)   /watə/ (weather)

/moːnt/ (month)   /siːp/ (zip)

/tʃeɪnʃ/ (change)

/wetə/ (weather)

/sɪp/ (zip)

Participant 36

Not present at pre-test

Participant 37

/vɪləidʃ/ (village)   /vɪləidʃ/ (village)

/sebra/ (zebra)   /sebra/ (zebra)

/weɪl/ (veil)   /suː/ (zoo)

/suː/ (zoo)   /steidʃ/ (stage)

/steɪtʃ/	(stage)	/ɪsɪ/	(easy)
/ɪsɪ/	(easy)	/dʒi:ns/	(jeans)
/dʒi:ns/	(jeans)		
/wɪdiɔ/	(video)		
/tʃeɪnʃ/	(change)		
/sɪp/	(zip)		

8.3.2 Incorrect pronunciation – control group

Participant 38

/teləwaɪʃn/	(television)	/teləwaɪʃn/	(television)
Refused to say (though)		/θɔ:/	(though)
/sebra/	(zebra)	/vɪləidʃ/	(village)
/su:/	(zoo)	/sebra/	(zebra)
/steɪtʃ/	(stage)	/steɪtʃ/	(stage)
/ɪsɪ/	(easy)	/ɪsɪ/	(easy)
/dʒens/	(jeans)	/dʒi:ns/	(jeans)
/tʃeɪnʃ/	(change)	/tʃeɪnʃ/	(change)
/sɪb/	(zip)		

Participant 39

/θɔ:/	(though)	/θɔ:/	(though)
/tri:/	(three)	/werɪ/	(very)
/wɪləidʃ/	(village)	/tri:/	(three)
/si:bra/	(zebra)	/wɪləidʃ/	(village)
/weɪl/	(veil)	/si:brə/	(zebra)
/su:/	(zoo)	/weɪl/	(veil)

/steidʃ/	(stage)	/su:/	(zoo)
/ɪsɪ/	(easy)	/steidʃ/	(stage)
/dʒi:ns/	(jeans)	/ɪsɪ/	(easy)
/maunt/	(month)	/dʒi:ns/	(jeans)
/ten/	(then)	/wɪdiəʊ/	(video)
/tʃeɪnʃ/	(change)	/tɜmb/	(thumb)
/sɪp/	(zip)	/tʃeɪnʃ/	(change)
		/sɪp/	(zip)

Participant 40

/tɔt/	(though)	**/tɔt/**	(though)
/werɪ/	(very)	/tri:/	(three)
/fri:/	(three)	/vɪlətʃ/	(village)
/vɪlətʃ/	(village)	/si:bra/	(zebra)
/si:bra/	(zebra)	/su:/	(zoo)
/su:/	(zoo)	/steidʃ/	(stage)
/steidʃ/	(stage)	/ɪsɪ/	(easy)
/ɪsɪ/	(easy)	/dʒi:ns/	(jeans)
/dʒi:ns/	(jeans)	/tɜmb/	(thumb)
/tamb/	(thumb)	/ten/	(then)
/tʃeɪnʃ/	(change)	/tʃeɪnʃ/	(change)
/sɪp/	(zip)	/sɪp/	(zip)

Participant 41

/θɔw/	(though)	**/θɔw/**	(though)
/tri:/	(three)	/vɪlətʃ/	(village)

/vɪlətʃ/   (village)   /si:brα/ (zebra)

/si:brα/   (zebra)   /waɪl/ (veil)

/waɪld/   (veil)   /su:/   (zoo)

/su:/   (zoo)   /steitʃ/ (stage)

/steiʃ/   (stage)   /ɪsɪ/   (easy)

/ɪsɪ/   (easy)   /dʒi:ns/ (jeans)

/dʒi:ns/   (jeans)   /tʃeɪnʃ/ (change)

/tʃeɪnʃ/   (change)

/sɪp/   (zip)

Participant 42

/θɔt/   (though)   /θɔ:k/ (though)

/werɪ/   (very)   /werɪ/ (very)

/wɪleitʃ/   (village)   /wɪleiʃ/ (village)

/si:brα/   (zebra)   /si:brα/ (zebra)

/waɪl/   (veil)   /waɪl/ (veil)

/so:/   (zoo)   /su:/   (zoo)

/steidʃ/   (stage)   /steidʃ/ (stage)

/ɪsɪ/   (easy)   /ɪsɪ/   (easy)

/dʒi:ns/   (jeans)   /dʒi:ns/ (jeans)

/tɜmbao/   (thumb)   /tʃeɪnʃ/ (change)

/tʃeɪnʃ/   (change)   /sɪp/   (zip)

/water/   (weather)

/sɪp/   (zip)

Participant 43

/θɔ/	(though)	/teləwɪʃn/ (television)
/werɪ/	(very)	/θɔ/	(though)
/wɪleitʃ/	(village)	/werɪ/ (very)
/sebra/	(zebra)	/wɪleiʃ/ (village)
/weɪl/	(veil)	/sebra/ (zebra)
/su:/	(zoo)	/weɪl/ (veil)
/steidʃ/	(stage)	/su:/ (zoo)
/ɪseɪ/	(easy)	/steidʃ/ (stage)
/dʒi:ns/	(jeans)	/ɪseɪ/ (easy)
/wɪdiəʊ/	(video)	/dʒi:ns/ (jeans)
/tʃeɪnʃ/	(change)	/tʃeɪnʃ/ (change)
/sɪp/	(zip)	/sɪp/ (zip)

Participant 44

/θɔt/	(though)	/tru:/	(though)
/vɪleitʃ/	(village)	/si:bra/ (zebra)
/su:/	(zoo)	/steidʃ/ (stage)
/steidʃ/	(stage)	/ɪsɪ/	(easy)
/ɪsɪ/	(easy)	/dʒi:ns/ (jeans)
/dʒi:ns/	(jeans)	/ten/	(then)
/tɜmb/	(thumb)	/tʃeɪnʃ/ (change)
/ten/	(then)
/tʃeɪns/	(change)
/sɪp/	(zip)

Participant 45

/truθ/   (thought)   /teləwɪʃn/ (television)

/truθ/   (though)   /təʊ/   (thought)

/werɪ/   (very)   **/**θəʊt/   (though)

/vɪleidʃ/   (village)   /werɪ/   (very)

/steidʃ/   (stage)   /vɪledʃ/ (village)

/dʒi:ns/   (jeans)   /steiʃ/ (stage)

/tʃeɪnʃ/   (change)   /dʒi:ns/ (jeans)

/wai:der/   (weather)   /trɜmb/ (thumb)

     /den/   (then)

     /tʃeɪnʃ/ (change)

Participant 46

/θag/   (though)   **/**θat/   (though)

/si:bra/   (zebra)   /vɪletʃ/ (village)

/so:/   (zoo)   /si:bra/ (zebra)

/steitʃ/   (stage)   /weɪl/ (veil)

/ɪsɪ/   (easy)   /so:/   (zoo)

/dʒi:ns/   (jeans)   /steitʃ/ (stage)

/tʃeɪnʃ/   (change)   /ɪsɪ/   (easy)

/vɪletʃ/   (village)   /dʒi:ns/ (jeans)

     /tʌmb/ (thumb)

     /ʃeɪnʃ/ (change)

Participant 47

/θaηk/   (though)   **/**θɔ/   (though)

/vɪleitʃ/   (village)   /mʌtə/ (mother)

/sebra/ (zebra) /vɪledʃ/ (village)

/weɪl/ (veil) /si:bra/ (zebra)

/so:/ (zoo) /so:/ (zoo)

/steidʃ/ (stage) /steidʃ/ (stage)

/ɪsɪ/ (easy) /ɪsɪ/ (easy)

/dʒi:ns/ (jeans) /dʒi:ns/ (jeans)

/ten/ (then) /tʃeɪndʃ/ (change)

/tʃeɪnʃ/ (change) /wəter/ (weather)

/water/ (weather) /sɪp/ (zip)

/sɪp/ (zip)

Participant 48

/tiŋk/ (think) /tiŋk/ (think)

/tag/ (thought) /təʊ/ (thought)

/tag/ (though) /tag/ (though)

/mʌder/ (mother) /tri:/ (three)

/werɪ/ (very) /vɪlidʃ/ (village)

/der/ (three) /sibra/ (zebra)

/vɪleitʃ/ (village) /so:/ (zoo)

/sibra/ (zebra) /brʌder/ (brother)

/so:/ (zoo) /steidʃ/ (stage)

/brʌder/ (brother) /ɪsɪ/ (easy)

/steidʃ/ (stage) /dʒi:ns/ (jeans)

/ɪsɪ/ (easy) /tɜmb/ (thumb)

/dʒi:ns/ (jeans) /ten/ (then)

/tɜmb/   (thumb)   /tʃeɪnʃ/ (change)

/tʃeɪnʃ/   (change)   /weter/ (weather)

/weɪter/   (weather)   /sɪp/   (zip)

/sɪp/   (zip)