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Explicit corrective feedback and gestures in pronunciation instruction: Effects on Egyptian ESL learners' oral accuracy

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Abstract

The present study investigated the effectiveness of using explicit corrective feedback (CF) and gestures in pronunciation instruction on the accuracy of both the interdental fricatives (voiced and voiceless) sounds: /θ/ pronounced as /s/, /ð/ pronounced as /z/, and the bilabial stop /p/ pronounced as /b/, which are problematic for Egyptian adult ESL learners.

The study investigated the pronunciation of 47 male and female adult non-native speakers of English between the ages of 18 and 35 learning English in the general English program of a private institution affiliated with one of the major universities in Egypt. The students were recruited based on their proficiency level which was within the range of intermediate to advanced, i.e. A2/B1 on the Common European Frame of Reference, based on their placement test scores. All participants were evaluated by three volunteer raters who were experienced teachers of English as a second language and MA TESOL holders. The participants were divided into two groups: a treatment group (27 participants) and a control group (20 participants) and were assessed based on pre- and post-performance assessments in the form of a matched guise procedure by the three raters. The researcher used one instrument in collecting the data: pre- and post-performance assessments in the form of a matched guise procedure for both the treatment and the control group. To illustrate, each participant was (1) asked to insert a picture in a given frame showing a word that has one of the target sounds, and (2) read a scripted monologue during the first session of the semester before any pronunciation instruction. After the treatment interventions, each participant was given different pictures to insert in a frame – as mentioned above – and a different scripted monologue to read during session 12. A four-stage experiment: (1) presentation/recording, (2) listening to the recording/corrective feedback (explicit CF for the treatment group/recasts for the control group) and modeling the target sounds, (3) practicing, recalling and recognizing the target sounds, and (4) presentation/recording, was conducted on the two groups (treatment and control) to study the effectiveness of using explicit corrective

feedback (CF) and gestures in pronunciation teaching of the target problematic sounds (/θ/, /ð/, /p/) of Egyptian ESL learners over methods like repetition and recast of the target problematic sounds. The raters were then given the recordings of the same participants pre- and post- performance, without knowing that these recordings were for the same learners – and their task was to evaluate these voices based on a frequency count scale to quantify the degree of accuracy of the target sounds and fill in a commentary on the participants' pre- and post- recordings to qualitatively assess their overall comprehensibility in connected speech and to compare the differences between the natural speech post-test and the scripted monologue post-test. The scores for both groups were compared using T-tests to check for significant improvement in specific pronunciation features.

The results of the study showed a significant improvement in the pronunciation accuracy and overall comprehensibility of the participants in the treatment group who were exposed to explicit corrective feedback and gestures in pronunciation instruction as compared to the participants in the control group whose pronunciation proficiency did not show significant improvement.

This study presents a number of pedagogical implications and contributions as it supports the use of explicit corrective feedback and gestures in the classroom, and it highlights directions that could be targeted for further research.

Table of Contents

List of Tables

List of Abbreviations

- CELTA: Certificate in English Language Teaching to Adults.
- CERF: Common European Frame of Reference
- CF: Corrective Feedback
- ESL: English as Second Language.
- IPA: International Phonetic Alphabet.
- L1: The first language that was acquired by a person during childhood, and which is the language mostly used outside of school or workplace.
- L2: The second acquired language. In this case, L2 refers to English.
- MA TESOL: Masters in Teaching English to Speakers of Other Languages.
- T: The ESL teacher of the treatment group.

Chapter 1: Introduction

Speaking English as a second language (L2) is a difficult task for non-native speakers (Tatham & Morton, 2010). Despite the fact that they understand the language and have knowledge about lexicon and grammar, when it comes to speaking, their conversations often break down due to mispronunciation (Tatham & Morton, 2010). Indeed, research has indicated that "the acquisition of L2 pronunciation is generally viewed as a more challenging task than the acquisition of L2 grammar or vocabulary" (Kivistö de Souza, 2015, p. 90). Many researchers believe that pronunciation teaching has been ignored in ESL classrooms precisely due to (1) ESL teachers' belief that adult non-native English speakers will not be able to attain accurate L2 pronunciation, or (2) the lack of training that makes these teachers ill-equipped to give more attention to pronunciation teaching (Derakhshan & Karimi, 2015; Elliot, 1995; Gilakjani, 2012; Levis & LeVelle, 2012; Morley, 1991).

This presents a problem as English plays a key role in global communication. Hence, it is essential that speakers pronounce their words accurately in order to make their speech comprehensible (Panapob & Kohdtkam, 2017). This is likewise expressed by ESL students, as "learners want to be understood and often have a keen interest in improving their L2 pronunciation" (Dlaska & Krekeler, 2013, p. 25). English pronunciation presents an array of problems particularly among Egyptian adult non-native speakers because the Arabic language (LA) has phonetic and phonemic systems that are different from English (Wahba, 1998). Therefore, the role of ESL teachers is to facilitate pronunciation learning for their students by understanding their needs and guiding them through utilizing the best pronunciation instruction methods available (Gilakjani, 2012).

Gesture-based learning is one of the pronunciation instruction methods that is considered to be quite effective in the language comprehension and production processes (Kendon, 2004; Kita, 2009; Willems and Hagoort, 2007). Gestures are the figurative movements which are performed by speakers

while they are speaking (Gullberg, 2009) and are an important tool in learners' acquisition process of the target language due to close links between gestures and language (Gullberg, 2006).

For example, Gullberg's (2009) research indicated that associating gestures with speech can be considered as a compensatory device, or a method of complementing speech with actions, in L2 acquisition. In her research, she summarized three studies that examined the development of the semantic representation of placement verbs, i.e. *place* and *put* among native Dutch children who were acquiring the Dutch language, in addition to French and English adults who were also learning Dutch. The findings of the study revealed that although the French and English learners continued to resort to the use of their L1 semantic representations to convey their meanings, the use of gestures enabled them to express the meaning and content that was not easy for them before. Gestures as a compensatory device helped children as well as adults to develop better semantic representations. Even though the study provides limited evidence that gestures mainly act as a support channel, the data supported the theoretical concept that gestures constitute an integrated system that opens new possibilities in the acquisition process.

Smotrova (2017) also considered the use of gestures in pronunciation instruction and she examined using it in teaching L2 pronunciation to a beginner ESL class in an American university. The objective of the study was to explore how gestures can be used as an educational and learning tool during L2 acquisition. For example, "the teacher slowly pronounces the word *specialized*, accentuating each syllable and separating them with brief pauses. She also marks the syllables with her body by slightly nodding her head and tapping the fingers of her left hand with her right hand" (Smotrova, 2017, p. 69). The study tackled the pedagogy of L2 pronunciation, suggesting that gestures should be part of ESL classroom practices.

In addition to gestures, over the years there has been a sustained interest in the role of corrective feedback in second language acquisition (Horbacauskiene & Kasperaviciene, 2015). Various researchers have looked at types of corrective feedback as well as how this feedback contributed to the acquisition of a language (Mackey, Gass & McDonough, 2000). Today, researchers studying the acquisition of second languages strongly advocate correcting errors explicitly, stating that corrective feedback promotes acquisition of second language when the feedback is given once the student has executed the error (Doughty, 2001; Ellis, 2009).

The emphasis on using gestures and giving explicit corrective feedback has gained popularity recently in pronunciation training (Ouni, 2011). For example, Ouni (2011) investigated people's awareness about controlling their tongue movements in a study based on two experiments. In the first experiment, participants were instructed to perform some tongue movments, and they were evaluated by using ultrasound imaging of their tongues that was recorded during the experiment. No feedback was provided to the participants. However, in the second experiment, a short training session was added in which participants could observe the ultrasound imaging of the real time movements of their tongues. The primary goal of this study was to amplify the awareness of using proper tongue movements. Findings of the study revealed that without giving explicit corrective feedback of the proper articulation, it is not an easy task to effectively control tongue movements, but there was evidence that using explicit corrective feedback in pronunciation instruction, even over a short time span, helped in improving the learners' L2 pronunciation.

In addition to the aforementioned studies, some researchers have focused on exploring the specific phonetic challenges – like pronouncing unfamiliar L2 sounds – that adult non-native ESL learners struggle with. Binturki (2008) and Barros (2003), for example, stated that there are some general pronunciation errors which many Arab ESL learners struggle with. The /p/, /v/ and /Ɵ/ sounds

are among these common problematic sounds that Egyptian ESL learners face (Barros, 2003) as they are pronounced as /b/, /f/ and /s/, respectively. Egyptians thus have significant problems and specific needs in their L2 pronunciation that make them good subjects on which to conduct experiments.

A major gap in the research is that there are a very limited number of studies that have incorporated using both gestures and explicit corrective feedback in pronunciation instruction to improve adult ESL learners' L2 pronunciation accuracy in general and among the Egyptian population in particular. Therefore, it is essential for understanding and improving adult ESL learners' L2 pronunciation to research the underlying issues and to explore more effective strategies for overcoming them. Inspired by the aforementioned studies, the present study aims to investigate the effectiveness of using explicit corrective feedback (CF) and gestures in pronunciation instruction on the accuracy of both the interdental fricatives (voiced and voiceless) sounds: /θ/ pronounced as /s/, /ð/ pronounced as /z/, and the bilabial stop /p/ pronounced as /b/, which are problematic for Egyptian adult ESL learners.

Research Questions

Since the English language is the language which is the most in demand in the world for the educational, social and political success of a person, many students and adults are interested in learning English as a second language. However, attaining accurate pronunciation of some problematic sounds, as mentioned above, remains difficult. Thus, the study posed the following two research question aiming to find solutions for teaching these sounds.

1- What is the effect of using explicit corrective feedback (CF) and gestures in pronunciation instruction on the accuracy of the problematic sounds (/θ/ pronounced as /s/, and /ð/ pronounced as/z/) of Egyptian adult ESL learners?

2- What is the effect of using explicit corrective feedback (CF) and gestures in pronunciation instruction on the accuracy of the problematic sound (/p/ pronounced as /b/) of Egyptian adult ESL learners?

The researcher expects that employing explicit corrective feedback (CF) and gestures in pronunciation instruction will have positive impact on the accuracy of both the interdental fricatives (voiced and voiceless) sounds: /θ/ pronounced as /s/, /ð/ pronounced as /z/, and the bilabial stop /p/ pronounced as /b/, which are problematic for Egyptian adult ESL learners.

Delimitations

Pronunciation instruction is a controversial issue (Elliot, 1995; Gilakjani, 2012; Levis & LeVelle, 2012; Morley, 1991; Thomson & Derwing, 2015). Many studies have been conducted to examine and explore the most effective methods to teach pronunciation, either on the segmental or the supra-segmental level (Burns, 2003; Gullberg, 2010; Housen & Kuiken, 2009; Levis & LeVelle, 2012).Based on the aforementioned literature, the researcher limited this study to explore the impact of using gestures and explicit corrective feedback on the articulatory accuracy of the target problematic sounds (/θ/ pronounced as /s/, /ð/ pronounced as /z/, /p/ pronounced as /b/) and the overall comprehensibility of Egyptian ESL learners studying English in the English language program of a private institution affiliated with one of the major universities in Egypt. With the goal of answering the two research questions raised above, the study employed a matched guise procedure as an instrument to quantify the improvement acquired (if any) for each sound separately. In other words, the study measured whether the two aforementioned methods were able to help learners attain the desired pronunciation for the target sounds equally. Finally, as comprehensibility is a very broad term that involves a considerable number of supra-segmental features, the study was limited to measure the overall comprehensibility of the participants' speech based on the articulatory accuracy of the

pronunciation of the target sounds at the segmental level in isolated words and in context. For example, students were shown a picture of a "*thong*" (flip-flop), a person inhaling and exhaling air -*"breathe"*, and a *"pin"* and were asked to insert them in a sentence. In this case, if the sounds /Ɵ/, /ð/ and /p/ are pronounced mistakenly as /s/, /z/ and /b/ respectively, the overall meaning of the sentence may cause confusion for some interlocutors.

To conclude, the study is limited to an investigation of the effects of using gestures and explicit corrective feedback in pronunciation instruction on the accuracy of the problematic sounds (/θ/, /ð/, /p/) of Egyptian adult ESL learners in Egypt. Learners' isolated words (picture activity) and connected speech (scripted monologues) productions were recorded and then scored by three raters to assess the accuracy of pronouncing the target sounds and the overall comprehensibility of the participants based on a given scale (See Appendix 1 & 2).

Definition of Constructs

This section includes both theoretical and operational terms that were used in the current study.

Theoretical definitions of terms and constructs

1. Comprehensibility: It is "a judgment of how easy or difficult an individual's pronunciation is to understand" (Gilakjani, 2012, p. 5). For this study, comprehensibility was measured only on whether the accuracy of pronunciation of the target sounds makes the speakers' words easy or difficult to understand, and if these pronunciation inaccuracies (if any) cause any confusion in meaning.

2. Accuracy: It is "the ability to produce error-free speech" (Housen & Kuiken, 2009, p. 461) and "the conformity of second language knowledge to target language norms" (Wolfe-Quintero,

Inagaki & Kim, 1998, p.4). For the purpose of this study, accuracy was measured only for the following sounds: (/θ/, /ð/, /p/).

3. Explicit corrective feedback: It is a form of feedback that gives "learners explicit information on how to achieve a desired performance" (Dlaska & Krekeler, 2013, p. 26).

4. Gestures: They are defined as the movement of a body part, such as the hand or head, to express a meaning or an idea" (Gilakjani, 2012, p. 5).

Operational definitions of terms and constructs

Inspired by Gibson (2008), and Dlaska & Krekeler (2013), the focus of the study is on the accuracy of the spoken target sounds and word comprehensibility and not on reading skills. Therefore, the difficulty of the scripted monologues that were used in the connected speech activity was minimized and each text took 75-120 seconds to be read. The following aspects are the ones that were operationalized in order to measure the effectiveness of the pronunciation teaching methods in question. These aspects are adapted from the speaking assessment rubric of the institution involved in the study for proficiency levels A2/B1 based on the CEFR metric as follows:

1. Accuracy: It was assessed on a frequency count scale (Appendix 1) based on (1) a number of pictures of the target sounds (/θ/-/s/, /ð/-/z/,/p/-/b/) which were given to the students to insert in a frame. For example, a picture of a pear with brown skin was shown, and learners were asked to fill in a given frame: *"the _____ has brown skin".* In this case if the /p/ sound was mispronounced as /b/, raters scored zero for this participant, while a score of one was recorded if the sound was correctly pronounced (Appendix 1). Secondly, participants read a short story for 75-120 seconds. Raters then used the same frequency scale (Appendix 1) to assess the accuracy of pronouncing the target sounds in context with nil L1 interference.

2. Overall Comprehensibility: It was assessed firstly based on a picture that was shown to learners asking them to insert the word in the picture into a given frame (sentence). For example, a picture of a man having a bath was shown, and learners were asked to fill in the given frame: *"the man is having a _____".* In this case if the /Θ/ were mispronounced as /s/ and confusion happened, raters would show this in their commentary (Appendix 2). Secondly, students were asked to read a short story in 75-120 seconds, then raters filled in a commentary (Appendix 2) assessing whether the learners' story was comprehensible or if the inaccuracies in pronouncing the target sounds (/θ/, /ð/,/p/) caused any confusion.

3. Explicit corrective feedback (CF): For this study explicit CF is a type of feedback that was given as a form of explicit instruction in the articulation of the sounds, in addition to signaling with gestures to enable students to recall it easily and to remind them of the need to self-monitor their articulation, which is contrasted with less elaborate feedback which consists merely of recasting and modeling the sounds without discussing their articulatory manner.

4. Gestures: For the present study, gestures are the tool used in pronunciation instruction to develop the accuracy of the target sounds of the participants. The researcher developed and designed a code of gestures that were used to non-verbally represent the target sounds.

As these aforementioned research questions and conceptual definitions guided this research, this paper will now move to review the relevant literature that has informed the researcher's interest in examining and exploring the effectiveness of using explicit corrective feedback and gestures as pronunciation instruction tools. It will then outline the gaps that exist in this literature and proceed with how this proposed study can hopefully contribute to understanding the available teaching methods, and how they can be utilized to help Egyptian adult ESL learners improve and enhance their L2 pronunciation accuracy of the target sounds.

Chapter 2: Literature Review

The difficulties of achieving accurate pronunciation present a considerable challenge to teachers and students interested in the acquisition of second languages (Gilakjani, 2012). In fact, some SLA researchers have regarded obtaining accurate L2 pronunciation as an unattainable goal if learners were not exposed to L2 in early childhood. Thus, ESL teachers have focused instead on teaching other language skills (Godson, 2004; Sinha et al., 2009). Nevertheless, the increasing need for communicative skills by adult learners has led researchers and teachers to pay more attention to pronunciation accuracy and overall comprehensibility in their teaching practices. Burns (2003), for example, suggested that learners would communicate better if they had comprehensible and intelligible pronunciation skills, despite the fact that their exchanges might still have grammatical and lexical inaccuracies. However, Derwing and Munro (2009) argued that although phonological inaccuracies as a communicative attribute have minor effects on learners' intelligibility and comprehensibility, learners are nonetheless concerned about reducing them.

Accordingly, many studies have examined what can be done to help students improve their pronunciation. Several of them examined either the effects of using explicit corrective feedback or gestures in pronunciation teaching on the learners' accuracy and overall comprehensibility. Amand and Touhami (2016) argued that explicit corrective feedback and pronunciation instruction help L2 learners develop their pronunciation. In addition, Kelly (2002) and Goldin-Meadow and Wagner (2005), on the other hand, examined the positive effects of the use of gestures in developing ESL learners' L2 pronunciation and they stated that using hand gestures in L2 learning is highly effective. Using explicit CF or gestures as a pronunciation instruction tool has thus become a subject of interest to many researchers, language practitioners, and theorists (Horbacauskiene & Kasperaviciene, 2015).

The following section will review the literature and research supporting the use of gestures and explicit corrective feedback in L2 acquisition in general and pronunciation in particular. It will then outline the particular pronunciation challenges of Arab learners of English as an L2, and propose how these aforementioned methods can contribute to overcoming them.

Gestures as a learning tool

Roth (2001) noted that gestures play a central role in human cognition and that they constitute pervasive elements of human communications across different cultures. Even some individuals who are congenitally blind use gestures while talking. He also stated that there is no educational research which primarily focuses on the role of gestures in learning and the implications which they hold for evaluating and designing learning environments. The basic purpose of his study was to provide a review of the literature in education, psychology, linguistics and anthropology in order to analyze the use of gestures and focus on how it is relevant to teaching, learning and retaining knowledge. The conclusion of the study asserted that the study of gestures in education presents an open field of research.

Indeed, most of the educational research that has been conducted on gesture usage as a learning tool was done on other fields than SLA (Goldin-Meadow, 2003). Nevertheless, the findings of these studies "point to the importance of student gesture, which visualizes certain aspects of the learning processes, which otherwise would have remained obscure" (Smotrova, 2014, p. 7). Due to the findings of these two researchers and other scholars, SLA researchers have begun to develop more interest in determining whether the use of gestures is an effective tool in L2 ESL classrooms (Smotrova, 2014).

Gestures and teaching methods

The previous section outlined how the view that gestures are positive and effective tools in learning in general has been supported by many studies (Allen, 1995; Goldin-Meadow, 2003; Tellier, 2008). However, few studies have incorporated them as their interventions (Allen, 1995; Tellier, 2008). Nonetheless, for many decades of language teaching, SLA researchers and teachers have attempted to incorporate gestures into classroom practices (Smotrova, 2014). For instance, in the second half of the 19th century, ESL teachers tended to use one of the major principles of the natural method in language teaching, connecting between a word and its real thing by gesturing, as it was hypothesized that L1 and L2 acquisition processes are similar (Smotrova, 2014). In the late 19th – and early 20th century, the use of gestures in language learning was introduced in French, German and US schools (Richards & Rodgers, 2001). Berlitz, for example, implemented this method in his school, asking teachers to "never translate: Demonstrate. Never explain: Act" (Richards & Rodgers, 2001, p. 12). Thus, using gestures in the classroom became a rule there. In 1982, Asher proposed the total physical response (TPR), with the assumptions that (1) the processes of developing L1 and L2 are similar, and (2) most of the speech addressed to children is in the form of imperatives. The meaning of a word or phrase was hence interpreted through gestures and bodily movements (Asher, 1982). Thus adults, like children, should engage the right hemisphere of their brain using motor activities to be able to produce the language (Smotrova, 2014). The Silent Method (Gattegno, 1972) was another language teaching method that used gestures. In this regard, Richards and Rodgers (2001) stated that the teacher had to be "facile and creative as a pantomimist and a puppeteer" (p. 86), while eliciting and presenting the new language input.

Gestures as a language learning tool

Academic researchers' interest in exploring the relationship between language acquisition and gesture has increased in the last three decades, which has led to some pedagogical implications related to learning and teaching (Smotrova, 2014). Orton (2007) noted that the introduction of gestures in second language learning is based on an understanding of the spontaneous and natural use of gestures. He stated that gestures help in facilitating mastery and competence in the language because they signal clues to the cognitive processes which underlie language acquisition and help in recognizing the interference or transference of the first language.

Many scholars are now researching the relationship between gestures and speech, among whom are Kelly, Manning and Rodak (2008), who asserted that people of all cultural backgrounds and ages use gestures when they speak, making it evident that gestures provide insight into cognition and language development. Moreover, they indicated that research in education suggests that teachers could utilize gestures in order to become more effective in different aspects of the profession, including student assessment, communication, and the ability to instill understanding of abstract concepts in difficult domains like mathematics and language (Kelly et al., 2008).

According to Macedonia and Von Kriegstein (2012), gestures and language are independent systems which reciprocally influence each other, i.e. performing gestures while learning any phrase or a word enhances its retrieval as compared to only verbal learning. In their study they summarized some results of neuroscientific and behavioral studies. They indicated that neural representations of words consist of complex networks that connect motor acts (gestures or movements) and perceptions which occur during learning. To illustrate, it can be said that gestures reinforce the sensory representations of phrases and words and hence they become resistant to decay.

A study by Tellier (2008) examined the impact of gestures on the memorization of second language lexical items by young learners. This study involved 20 French children (mean age 5.5) who were divided into two groups. These learners were required to learn eight words in the target language. One of the groups was taught lexicon using pictures, whereas the other one was taught the target words using gestures. In one of the tests that was conducted by the researcher to measure the children's productive knowledge of the vocabulary, the children were shown pictures in the first group and gestures in the second group, and were asked to produce the English words. The results showed that the children of the latter group were able to produce more words correctly than the first group. Findings of the study revealed that gestures significantly influenced memorization of the second language lexical items.

Iverson & Goldin-Meadow (2005) additionally found that children also use gestures in order to communicate before using words. The question in this regard arises as to whether gestures just precede development of language or are fundamentally tied to it. In this study, approximately 10 children were examined while making the transition from a single word to a combination of two words to explore whether gestures hold a strong relation to the syntactic and lexical development of children. Findings of the study showed that (1) many of the lexical items which children initially expressed in gesture form turned out later to be part of their verbal lexicon, and (2) children who were able to say the words accompanied with gestures were the first to produce a two-word combination like "bird-nap." These findings showed the strong link between speech and gestures.

Gestures in pronunciation instruction

The idea of using gestures in pronunciation instruction is new to ESL classroom practices (Smotrova, 2014). Smotrova (2017) defined gestures as "the intrinsic link between verbal sounds and bodily movement produced while speaking" (Smotrova, 2017, p. 60). She examined using gestures in

teaching L2 pronunciation to a beginner ESL class at an American university. The objective of the study was to explore how gestures were used as an educational and learning tool during L2 speech acquisition. The study assessed 32 hours of video recordings of both the instructor and the learners' gestures in classroom interactions over a period of a month and a half in order to analyze the learning functions of gestures. She observed that "beats and clapping were employed to mark stressed syllables, T used her fingers to count syllables, and produced downward and upward movements of the hand to visualize the related intonation patterns" (Smotrova, 2017, p. 63). The study demonstrated that using gestures is a powerful instructing and learning tool that helped in advancing learners' control over an assortment of L2 aspects, including vocabulary, pronunciation, and grammar. In other words, using gestures developed the learners' "identification and production of syllables, word stress and the rhythm of speech" (Smotrova, 2017, p. 59). The experiment tackled the pedagogy of L2 pronunciation, suggesting that gestures should be part of the ESL instructors' teaching practices in order to enhance learners' L2 pronunciation.

Other studies additionally found a relationship between the use of gestures and L2 and their contribution to the learning of L2 pronunciation. McCafferty (2006) stated that native Chinese ESL learners employed beats to learn L2 syllable structures and stress-timed rhythmic patterns. In his view, gestures helped L2 learners get a "physicalized (kinesic) sense of the rhythm, stress and intonation of the language which created metaphoric representations/actions, schemas, images of prosody" (p. 205), which in turn led to enhancing and developing learners' L2 prosody, i.e. stress, rhythm, and intonation (McCafferty, 2006).

Hudson (2011) also indicated that gestures can be used in segmental and supra-segmental pronunciation instruction for adults. In her study on teaching pronunciation to university ESL learners, she modeled the word "taught" while gesturing with her hands the sound /ɔ/. To illustrate, the teacher

used fingers and hands to mark vowel sounds, moving both hands apart to highlight long vowel sounds and bringing the thumb and index finger of both hands into contact to highlight short vowel sounds.

Rosborough (2011) also used gestures as a pronunciation learning tool to teach blending of sounds, i.e. /kr/ and /br/. The teacher tended to make a beat to highlight the sounds /k/ and /r/ separately, but she clapped instead of beating in order to help students picture and feel the difference when the sounds were blended.

Thus, the pedagogy of using gestures as a learning tool in pronunciation instruction, aiming at changing the fossilized pronunciation errors in adult ESL learners' L2 is supported by research (Acton, 1984; 2013). Traditional methods like recasts and repetition were seen as insufficient, and hence ESL teachers needed to involve new and innovative learning strategies like gestures and body movements to enhance the quality of pronunciation of vowels and consonants (Acton et al., 2013).

Amand and Touhami (2016) carried out a study that looked into the effectiveness of using both gestures and explicit corrective feedback as an instruction tool to teach voiceless stops of words in a sequence like "that cat" [ðætkæt], rather than using implicit feedback (Amand & Touhami, 2016, p. 377). The study targeted three groups of native French learners of English at three different proficiency levels. The teacher used "gestures to help the learners coordinate their mouth movement with a simpler hand movement like closing fingers into a fist or by placing the finger tips close to the mouth thus feeling the presence and absence of a burst" (Amand & Touhami, 2016, p. 381). The results showed that using gestures and explicit corrective feedback as a tool in pronunciation instruction have helped learners to develop better accuracy which in turn has helped to make their words more comprehensible.

The effectiveness of these two methods, explicit corrective feedback and gestures, are the central element of this thesis. As the preceding sections have reviewed the literature and research

regarding gestures, the following section will review the effectiveness of corrective feedback as a language teaching and learning tool.

Corrective feedback as a language learning tool

Errors are a natural part in any new language learning acquisition process (Ahangari & Amirzadeh, 2011). It is normal that learners commit phonological, syntactical and lexical inaccuracies. Correcting these errors is important or else they will become fossilized (Ahangari & Amirzadeh, 2011).

Sheen (2007) investigated the effectiveness of using explicit CF as compared to recasts and concluded that the oral production of participants who received explicit CF on their errors significantly outperformed those who received recasts. She stated that "the more informative type of correction resulted in the acquisition of articles, whereas simply providing learners with the correct form through recasts did not" (Sheen, 2007, p. 318).

Thus, the ways to correct learners' errors are subject to much debate. The next section will outline the research around this debate, and will demonstrate the effectiveness of explicit corrective feedback.

Explicit corrective feedback and recasts in teaching pronunciation

The effectiveness and usefulness of corrective feedback and its value for error treatment have been repeatedly studied (Horbacauskiene & Kasperaviciene, 2015). Rydal (2005) found that ESL teachers prefer to give feedback indirectly as a form of recast or repetition rather than giving it explicitly, though many studies challenge the effectiveness of this approach.

Rodriguez and Perdomo (2002) examined the effects of using recasts as a type of feedback on university students' oral production in a university in Venezuela. They were able to state that using recasts to correct the learners' erroneous L2 oral production significantly helped in developing their L2

pronunciation. Nevertheless, many researchers have argued against this claim (Ellis, 2006; Sheen, 2006). For instance, Ellis (2006) and Sheen (2006) both stated that although recasts were ineffective, they have been widely used in classroom practices. They also recommended that ESL teachers should consider utilizing more explicit corrective feedbacks in their teaching practices to help ESL learners overcome their errors.

Another comparative study arguing for the effectiveness of explicit feedback came from Dlaska and Krekeler (2013) who studied the impact of using explicit corrective feedback in pronunciation instruction on ESL learners' accuracy and overall comprehensibility as opposed to repetition and recasts. In their study, 169 adult German participants were divided into two groups; one group was subjected only to implicit corrective feedback (recasts and repetitions) in which the students listened to their own recordings, and then listened to their teachers modeling the desired pronunciation. In this control group, learners were left to bridge the gap between their pronunciation and the desired one on their own. Learners in the treatment group received explicit corrective feedback on their pronunciation from five experienced teachers along with listening to their recordings and their teachers' models. The learners' performances were rated by two raters who compared the quality of two recordings, pre- and post-intervention, for each learner. The results of this study showed that the inclusion of explicit corrective feedback significantly increased the effectiveness of pronunciation instruction. When the raters compared the 85 pairs of speech samples recorded before and after the learners had listened to their own recorded pronunciation and to model speech, the second samples from only 18 of 85 learners (21%) were judged to be easier to comprehend than the first. The raters found 37 of 84 learners (44%) easier to comprehend after the participants had received explicit CF from the teacher (Dlaska & Krekeler, 2013, p. 30). This study thus demonstrated that explicit CF is an effective tool for teaching pronunciation as compared to using repetition and recasts.

Recasts or explicit corrective feedback as an instruction tool can provide an indication to learners that they are using the target language incorrectly (Russell & Spada, 2006). However, Baker and Burri (2016) indicated that ESL teachers are challenged by how and when to give feedback on a learner's pronunciation. They stated that a number of teachers neglect or limit the feedback to students, particularly on their pronunciation inaccuracies, for a variety of reasons. In their study they examined the case of five experienced ESL instructors teaching English for Academic Purposes (EAP), with a focus on learners' pronunciation inaccuracies using explicit corrective feedback. The study was conducted on a 14-week EAP program with a focus on pronunciation teaching, which was specifically designed to develop learners' L2 oral communication skills. The program involved five levels of English, starting at high-beginner and continuing to advanced. The results from classroom observations, stimulated recall interviews and semi-structured interviews revealed that teachers should utilize explicit corrective feedback in their pronunciation instruction as it significantly helped in developing learners' pronunciation as compared to using repetition and recasts.

This aforementioned view has been supported by several studies, such as Amand and Touhami (2016) who noted that explicit corrective feedback and conscious pronunciation instruction helps L2 learners develop their phonology. Moore (2001) as well stated that the erroneous form produced by learners should be explicitly corrected immediately after being executed. For example, if the student said "zi:s" instead of "ði:z", teacher should explicitly explain the difference to help the learner reach the desired pronunciation.

Zohrabi and Behboudnia (2017) compared and investigated delayed and immediate effects of different forms of corrective feedback on treating the segmental-word level pronunciation errors of Iranian adult ESL learners studying English in Tabriz. Participants in this quasi-experimental study were divided into three main groups: (1) implicit, (2) explicit and (3) a control group. Each group

consisted of 20 EFL learners. Pre-tests were administered before the treatment in order to measure later the long term effects of recasts and repetition as compared to explicit corrective feedback on the segmental pronunciation errors. The study also included a delayed post-test along with the immediate post-test in which learners read a passage that included 40 problematic words. The findings of the immediate post-test of the study revealed that implicit as well as explicit feedbacks are both effective in reducing the errors of learners L2 pronunciation whereas the delayed post-test results showed that the group that was subjected to explicit corrective feedback was able to attain better segmental-word level pronunciation.

Another study by Gómez Lacabex and Gallardo Del Puerto (2014) was conducted to examine the impact of a six-session phonetic training on the English vowel sound "schwa" for 75 Spanish ESL learners (age 12) in a primary school. The perceptual awareness of the students on the occurrence of "schwa" in the unstressed positions in the English language was tested for three groups. Group one was trained using vowel sound identification and auditory discrimination practices, group two was trained using listening and repetition practices, while group three did not receive any phonetic training, but had a native teacher instead. The learners who underwent explicit phonetic intervention were significantly better able to identify the incorrect vowels in the post-test more than the group with native exposure. The findings of the study acknowledged the positive effects of the explicit pronunciation instruction using explicit corrective feedback on the perceptual awareness of L2 vowel sounds in a classroom setting, and showed how it contributed in developing L2 pronunciation learning.

Arabic-speaking learners

Very little research has been done in order to investigate the common problematic issues that Arabic-speaking learners experience on their journey of learning English pronunciation (Saadah, 2011). The few studies that have been done on the problematic issues faced by Arabic-speaking

learners have identified the following sounds as problematic ones [/p/, /v/, /r/, /l/, /Θ/, /ð/, /ŋ/, /tʃ/, /dʒ/] (Barros, 2003). Barros (2003) stated that these problems are caused (1) because some consonant sounds that exist in the English phonetic system, like /p/, do not exist in Arabic, (2) while other consonant sounds like /r/ exist in the phonetic systems of both languages, but the place and manner of articulation is different.

Khan (2015) investigated the difficulties in English pronunciation that are encountered by Saudi school learners with Arabic as their L1 when they pronounce the English consonants /ʒ/, /ŋ/, /tʃ/. Data for this study was collected through classroom observations and questionnaires. The findings of the study revealed that the participants of the study had considerable difficulties in pronouncing L2 consonant sounds that do not exist in L1 like /p/, /tʃ/, /dʒ/, /ʃ/, /ŋ/, as well as those consonants which exist in L1, like /t/ or /k/, yet have a different manner and place of articulation. Results in this regard demonstrated that "the first five consonant sounds out of twenty-nine sounds, which show a considerable percentage of mispronunciation in order of difficulty were; /p/ at all positions, /ʒ/ in word final position, /r/ in word final position, /tʃ/ in word medial position, /ŋ/ in word medial position" (Hago & Khan, 2015, p. 92).

Thus, the challenges in English pronunciation among EFL Arab learners arise from the numerous distinctive aspects between the phonological systems of Arabic and English. To illustrate, "some English consonants do not exist in the Arabic sound system like /p/, /ŋ/ and /v/ and even these consonants which seem similar to some Arabic consonants like /t/ or /k/, are not identical, but different in the manner and even in the place of articulation" (Hago and Khan, 2015, p.86).

Gap in research

The English language is the medium through which the whole world can communicate. Thus, many adults who seek educational and social betterment have become interested in learning English as

a second language. However, Egyptian ESL learners have noteworthy issues in their L2 pronunciation (Wahba, 1998) which made them a convenient sample to examine the effectiveness of using gestures and explicit corrective feedback in pronunciation instruction on their pronunciation accuracy and overall comprehensibility. Based on the aforementioned literature there are two major research gaps that need to be filled in order to help adult ESL learners develop their L2 pronunciation. The gaps are identified as follows: (1) few studies have investigated the positive effects of using both gestures and explicit corrective feedback together as a tool in pronunciation instruction to improve adults' ESL learners L2 pronunciation accuracy, (2) and the studies that specifically investigate the Egyptian population in this regard are very few. Therefore, this study did further research and exploration of this matter to hopefully help enhance and develop adult ESL students in general and Egyptian ESL learners in particular with regard to L2 pronunciation accuracy. In light of the previous literature, and inspired by the similar aforementioned studies, the present study investigated the effectiveness of using explicit corrective feedback and gestures in pronunciation instruction on the accuracy of the sounds: /θ/ pronounced as /s/, /ð/ pronounced as /z/, /p/ pronounced as /b/, which are problematic for Egyptian ESL learners.

Based on the aforementioned research findings, this study followed a mixed methods research design to analyze the effects of using explicit corrective feedback (CF) and gestures in pronunciation instruction on the accuracy of the problematic sounds (/θ/ pronounced as /s/, /ð/ pronounced as /z/, /p/ pronounced as /b/) of Egyptian ESL learners studying English in the English language program of a private institution affiliated with one of the major universities in Egypt. Finally, as no similar studies have been done on the same context, the researcher believes that this study may serve as motivation to linguistic scholars to conduct more studies on this subject matter.

Chapter 3: Methodology

This chapter covers the basics of the research design, data collection and analysis procedures, treatment methods, and instruments for the current study. It outlines the basics of the pilot study as well that was conducted in order to highlight the framework on which this study was based.

Research Design

This study employed a mixed methods research design, in which the researcher used one instrument – a matched guise procedure (Lambert, 1960) – to collect the required data and analyze it (1) quantitatively by using a frequency count scale (Appendix 1), and (2) qualitatively by using a commentary (Appendix 2) to evaluate the participants' performance after the treatment. This research design is appropriate for this study because it accommodates the data collection method that the researcher used.

The research studied the effect of using explicit CF and gestures in pronunciation teaching in order to develop the accuracy of the target problematic sounds (/θ/ pronounced as /s/, /ð/ pronounced as /z/, /p/ pronounced as /b/) of Egyptian ESL learners studying English in one language center in Egypt. To measure the effect of using these two pronunciation teaching methods as compared to using methods like repetition and recasts (Dlaska & Krekeler, 2013), a four-stage experiment was conducted on two groups, a control group and a treatment group. The sequence of the stages for both groups was as follows: (1) presentation/recording, (2) listening to the recording/corrective feedback (explicit CF with gestures for the treatment group /recasts for the control group) and modeling the target sounds, (3) practicing, recalling and recognizing the target sounds, (4) presentation/recording. The researcher used one instrument to collect data: pre- and post-performance assessments in the form of a matched guise

procedure (Lambert et al., 1960) for both the treatment and the control group. To illustrate, each participant was asked to (1) insert a picture in a given frame, i.e. *this is a* _____ (showing them a picture of a word that has one of the target sounds), (2) read a certain scripted monologue during the first session of the semester before any pronunciation instruction, (3) after the treatment interventions, each participant was given different pictures to insert in a frame – as mentioned above – and a different scripted monologue to read during session 12. The two stages were recorded and were scored by three volunteer raters based on a matched guise procedure scale (Lambert et al., 1960). Raters have the following characteristics: (1) they all are experienced ESL teachers, and (2 the three are MA TESOL holders. The raters were given the recordings of the same participants pre- and post- performance – without knowing that these recordings were for the same learners – and their task was to (1) evaluate these voices based on a certain scale to quantify the degree of accuracy of the target sounds, and (2) fill in a commentary on the participants pre- and post- recordings to qualitatively assess their overall comprehensibility in connected speech and to compare the differences between the natural speech – i.e. inserting a picture in a given sentence – post- test and the scripted monologue post-test.

Data Collection Procedures

Participants

The participants of this study were adult non-native speakers learning English in the General English Program of a private institution affiliated with one of the major universities in Egypt. The sample was composed of both males and females between 18-35 years of age. This sample is appropriate for answering the research questions because the participants' erroneous pronunciation can represent the widespread problems in pronunciation among Egyptian adult learners, studying English as a second language. Thus, targeting this sample helped the researcher examine how the learners'

accuracy in pronouncing the target sounds is affected by the pronunciation instruction methods adopted by their ESL teachers.

The aforementioned program is offered to adults to help them develop their English language skills, and to prepare them for a better academic and business life. The students are placed in the program based on their performance in this private institution placement test that places them in one of 16 levels, all based upon the Common European Frame of Reference (CEFR). Students in each level meet twice every week, for six consecutive weeks, and each class meeting is three hours long.

Most of the students that were recruited for this study are public university graduates or current undergraduates. The students' proficiency level was elementary to intermediate, i.e. A2/B1 on the CEFR, based on their scores on the placement test. These proficiency levels were chosen particularly as (1) they were the ones in which the required number of participants needed for the experiment could be enrolled, and (2) the language proficiency level of the enrolled students is far enough along to have been given previous pronunciation instruction, but not yet completely fossilized.

The experiment involved five classes, each consisting of 10-15 students.In the five classes, there were a total number of "75" students, but only 47 of them consented to be analyzed and were willing to give the extra time to do their pre- and post-test recordings .These 47 participants were divided into two groups, in which 20 were placed in the control group and 27 were placed in the treatment group. The control and treatment group were both instructed by their regularly assigned ESL teachers. The treatment group was instructed by the researcher. The control group was taught by their regular instructor who uses indirect corrective feedback methods. As the treatment group was advantaged by having the researcher herself as their instructor, the researcher was keen to pay the control group two visits to ensure that they are not disadvantaged by any means. Through these two

visits the researcher was also able to observe the other instructor, and to ensure that he was using implicit feedback and recasts in his pronunciation instruction.

Treatment

The treatment that was used in this study was designed to give learners a chance to develop better accuracy using explicit corrective feedback and gestures in pronunciation instruction. The treatment is based on Dlaska and Krekeler's (2013) method of giving explicit corrective feedback in L2 pronunciation teaching, and the Amand and Touhami (2016) model of personalizing sounds through gestures – by accompanying each sound with a physical move that resembles it.

The experiment was carried out during the regular allocated class time over a period of six weeks, and 47 adult Egyptian learners who are studying English in a private institution affiliated with one of the major universities in Egypt, participated in it. The treatment was done for the 27 students in the treatment group as follows: (1) presentation/recording, (2) listening to the recording/explicit corrective feedback and modeling target sounds using gestures, (3) practicing, recalling and recognizing the target sounds, (4) presentation/recoding. Similarly, the 20 students in the control group were subjected to the same stages except for stage two. That is to say, in stage two the control group mistakes were corrected using repetition and recasts instead of giving them explicit CF.

Inspired by Gibson (2008) and Dlaska and Krekeler (2013) and as the focus of the study is on the accuracy of the target sounds, learners' development was measured through reading and recording scripted monologues. Using these scripted monologues enabled the researcher to eliminate other variables like learners' fluency and vocabulary range effects (Gibson, 2008; Dlaska & Krekeler, 2013). The difficulty of these scripted monologues was minimized by having each text take 75-120 seconds to be read, as the focus of this study is on pronunciation skills and not on reading skills. Consistent with

Nation and Newton (2009) learners were also asked to look at pictures that have one of the target sounds and to insert the word that each picture refers to in a given sentence.

To illustrate, a pre-treatment assessment was given during the first session of the semester for both groups, and was recorded prior to any pronunciation instruction, in which students were assigned a task to watch a video and insert a picture in a given frame, then read a scripted monologue. The previously mentioned four stages were then implemented using different topics in each session for six consecutive weeks. During session 12, students were asked to insert a different picture in a given frame and to read another scripted monologue which was recorded for the post-treatment assessment.

In the institution where the study was conducted, all classes are based on the task-based method. Thus, the experiment for this study involved four stages to fit into that model.

Stage (1): Presentation/Recording: Students in the control and the treatment group encountered the required input (the target sounds: /θ/, /ð/, /p/) in a video or audio and answered some focus questions in groups. They then (1) looked at some pictures and inserted the words that each picture refers to in a given sentence, and (2) read a related scripted monologue and recorded both activities on their mobiles. The Teacher (T) monitored the students and took notes of the mistakes and then generic feedback was given.

Stage (2): (a) Treatment group - explicit corrective feedback/gestures: In this stage the target sounds (/θ/, /ð/, /p/) were isolated to explain how to pronounce them correctly. For example, T used some pictures to demonstrate how to pronounce /θ/, /ð/ and /p/ comparing them to /s/, /z/ and /b/, respectively. The International Phonetic Alphabet (IPA) symbols of these sounds were drawn on the board, and then each sound was accompanied firstly with a description of how to articulate it, followed up with a movement that resembles it and a model word. For instance, when the students said /sæŋk/

instead of /θæŋk/, the T drew the symbol /θ/ on the board, guiding students to put the tip of their tongue between the upper and the lower teeth and to push air as if they are spraying a perfume. T demonstrated the articulation holding an empty bottle of perfume asking learners to produce the sound and to act like spraying. Then, they practiced saying /θæŋkjuː/. Afterwards, students were asked to repeat the same gestures, doing the sound and saying the model word until they mastered it. The same method was used to introduce the soud /ð/, in which the T drew the symbol /ð/ on the board and guided the learners to put the tip of their tongue between the upper and the lower teeth and to vibrate their vocal cords as if they are producing the sound of a silly bee. T demonstrated the articulation using her hands to act like a bee asking the learners to produce the sound acting like a bee, then they practiced saying /ðɪs/. Afterwards, students were asked to repeat the same gestures, doing the sound and saying the model word until they mastered it. Similarly T introduced the soud /p/, in which she drew the symbol /p/ on the board and guided the learners to bring their lips together, to hold the air in their chests and then to release it with a strong blow. T demonstrated the articulation showing her students her left hand fist, and taping with her right hand palm on the top of her left fist asking the participants to produce the sound acting like her, then they practiced saying /pɪnk/. Afterwards, students were asked to repeat the same gestures, doing the sound and saying the model word until they mastered it.

(b) Control group – repetition and recasts: In this stage learners were asked to listen to their recordings and to take notes of their mistakes. T then read the same scripted monologue – which the learners have recorded – so as to model the desired pronunciation for them. T used repetition drills to correct the learners' errors and to help them bridge the gap between their performance and the desired one.

Stage (3): Practice/Recall/Recognize: In this stage learners in both groups were encouraged to practice the target sounds. This enabled the teacher to test the learners' comprehension, recognition and

recall of the correct pronunciation of the target sounds. T demonstrated how to distinguish between different sounds and how to identify them using picture-activities (Newton & Nation, 2007).

Stage (4): Presentation/Recording: This was the final stage, and its main objective was to assess both groups performance after the interventions. Students were asked to (1) look at some pictures – one for each target sound – and to insert them as previously mentioned in a given sentence, then (2) read a final scripted monologue. These two activities were recorded to examine whether using gestures and explicit corrective feedback in pronunciation instruction helped Egyptian ESL learners develop their accuracy of the target sounds (/θ/, /ð/, /p/).

Data Recording

Data for the pre- and post-treatment assessment was collected during regular class time, in which the pre-treatment assessment was performed and recorded during the first session of the semester, and the post-treatment assessment was performed and recorded during session 12. Thus, each participant was recorded twice, one at the pre- and one at the post-treatment stages.

Instrument

The research instrument was a matched guise procedure scale (see Appendices 1 & 2). This instrument was critical to answering the research questions. The matched guise procedure was performed on a convenience sample of Egyptian adult non-native English speakers in a specific language center in Egypt. It was administered to the students in order to observe how the target pronunciation instruction methods, i.e. giving learners explicit corrective feedback and using gestures, can be effective in developing the accuracy of the target problematic sounds (/θ/-/s/, /ð/-/z/,/p/-/b/) of Egyptian ESL learners, learning English in one language center in Egypt.

Matched guise procedure: Pre- and post- performance assessment

The matched-guise technique, as introduced in Lambert et al. (1960), is a procedure in which recorded voices are played to a group of raters, who then evaluate these voices based on a certain scale. For this study, each participant in both the treatment and the control group did two picture activities and read two monologues, in which the first recording of both activities was done prior to any pronunciation instruction, while the second one was done post instruction. Raters were given the recordings as if they were all produced from different learners and were asked to score them according to a given scale (see Appendices 1 & 2). This was meant to highlight the variations in the participants' performance, hence, (1) the degree of improvement of the target sounds accuracy can be quantified, and (2) some qualitative assessments can be made to compare the differences between the isolated words – i.e. inserting a picture in a given sentence – post- test and the scripted monologue post-test.

The purpose of using this instrument is to investigate the benefits of giving explicit CF and using gestures in L2 pronunciation instruction and their effects on the learners' accuracy of the target sounds.

Materials

This study used a different video or audio as a source of input for each session. The video or audio was five minutes long. This elicitation material was used to expose the students to the target sounds. The study used some pictures, some IPA symbols, and some realia tools to model the target sounds and to help learners visualize their manner of articulation. A Sony audio recorder was used to record the pre- and post-treatment recordings by the learners, which were submitted to raters in the matched guise activity.

Data Analysis Procedures

Raters

Data was collected using a matched guise procedure as previously mentioned. The researcher asked three judges to volunteer in this study. They were asked to rate the recordings based on the given scale and to write a commentary of the matched-guise activity (Appendices 1 & 2). The three raters presented a wide range of expertise in the ESL teaching field. The researcher recruited three MA TESOL holders, of which one teaches general English and the other two teach Academic English in two reputable universities in Egypt. The researcher asked the raters to rate the recordings using a given ranking scale and to fill in a commentary on each participant's performance.

Using these ratings and commentaries, the study was able to explore, quantitatively and qualitatively, the effectiveness of the aforementioned pronunciation teaching methods on developing the accuracy of the Egyptian adult ESL learners' problematic sounds (/θ/, /ð/, /p/). Raters were asked to attend a rating training and a norming session. In this training, the researcher explained the ranking scale and explained to the raters the definition of accuracy needed for the purpose of this study as previously mentioned in the operationalized definitions.

After the explanations were given, all the raters were asked to rate a series of recordings based on the given definitions. The raters were required to place each participant's recording on a frequency count scale to evaluate their accuracy of the target sounds, and then to fill in a commentary on each participant's performance to evaluate their overall comprehensibility. The ratings of each judge were discussed by the whole committee in order to minimize the discrepancies and obtain rater reliability.

Pre- and post-treatment assessment t-Test

Raters then received the collected data to score it. Results of the pre- and post-intervention recordings of the two groups (the control and the treatment) for each rater was compared using t-tests, followed up by comparing the scores of the three raters with each other using ANOVA for both the pre- and post-intervention recordings, aiming to highlight insignificant variance between them, thus the data reliability can be ensured.

Data analysis

This study used primary data, which is information collected via the matched guise test to help examine the effects of using explicit CF and gestures in pronunciation teaching on adult Egyptian adult ESL learners' pronunciation accuracy and overall comprehensibility

For each participant, two recordings were made before and after instruction. The researcher submitted the recordings to the three raters to be rated based on the given ranking scale (Lambert et al., 1960). Each student was given two codes- for pre- and post-intervention recording- and a participant number. Raters scored students in both groups using the given scale and commentary (Appendices 1 & 2). Afterwards, the researcher ran a descriptive analysis for each group measuring the averages of the agreement percentage between the raters. The averages for each group were then compared using inferential analysis. To illustrate, six t-Tests were run to compare the results of each group pre- and post- assessment, and then both groups were compared in order to test the effectiveness of the target pronunciation methods. The rationale of using three raters' scores is to ensure data reliability. All the analyses were conducted on Microsoft Excel and SPSS.

Pilot Study

This section will now move to outline the pilot study that was previously conducted through which the researcher was able to deduce some findings that helped to enhance the current study treatment. The study was based on the same research design, sample selection, and materials of the planned one (described previously), but changes were made in the treatment, instruments, and data collection and data analysis procedures in light of the challenges encountered in this pilot study. The findings of the pilot study helped in guiding the current study to answer the research questions relating to the effectiveness of using gestures and explicit corrective feedback in pronunciation instruction on the accuracy of the target sounds of Egyptian adult ESL learners.

The treatment used in the pilot study helped in giving learners a chance to develop better pronunciation accuracy using a task-based approach, giving pronunciation instruction using explicit corrective feedback (CF) and gestures. The treatment was based on Amand and Touhami's (2016) framework on L2 pronunciation instruction that involves raising the learners' awareness of their mistakes by (1) giving them immediate explicit corrective feedback, (2) personalizing sounds through movement and gestures, and (3) acting out scenarios to analyze the effects of using the two aforementioned methods in L2 pronunciation instruction on Egyptian adult ESL learners' accuracy and overall comprehensibility.

The experiment was run during the regular allocated class time over a period of two weeks for 24 Egyptian adult ESL learners studying English in a private institution affiliated with one of the major universities in Egypt. Explicit CF and hand gestures were used to teach the 12 students in the treatment group. The pre-performance assessment was given and recorded prior to any given pronunciation instruction, in which students were assigned a task to watch a video on "Cultures Different than Mine"

and to act a role play accordingly. Then, the previously mentioned four-stage treatment was implemented.

The study employed two instruments, namely interviews and a matched guise procedure. The matched guise procedure was used to investigate the effectiveness of the aforementioned pronunciation instruction methods, whereas interviews were conducted to explore how learners perceive their accents and how the pronunciation instruction methods used by their ESL teacher affected their accuracy and overall comprehensibility. Learners were asked to volunteer to answer four yes/no questions relating to the themes of acquiring better pronunciation and reducing L1 interference on L2. The rationale was to investigate the challenges and benefits of using gestures and explicit CF in L2 pronunciation instruction and their effects on the learners' accuracy and overall comprehensibility. Each of these instruments is provided in appendix 3 and appendix 4, respectively.

Data for the pre- and post-treatment assessment was collected during regular class time. However, for the interviews, students were asked to volunteer to come before class time. Students watched a video on cultural differences and were asked to answer some focus questions and to take a culture quiz. T gave the necessary pronunciation instruction as mentioned in the treatment, using the two methods mentioned. Then, T gave students the task to prepare a talk show on cultural differences. The students were divided into groups of three or four, in which each student had to choose a country to represent. Students were asked to speak about the location, history, education, food, customs and traditions of the country they chose. They were given 15 minutes to prepare and rehearse, and then they approached the front of the class and started acting. T recorded each group of learners, and then each group received their feedback using gestures and explicit CF. The students were then asked to re-rehearse and present again. T again recorded the post-treatment performance. Thus, recording was done twice, once before instruction and again immediately after it.

The experimental group had two weeks of treatment, using gestures in speaking collaborative tasks in class. To investigate the effect of the treatment, a t-test was conducted along with descriptive analysis. The findings indicated a significant change in the *p*-value of test scores for the treatment group, with a value 0.001 by rater 1 and 0.0001 by rater 2 ($p<0.05$), while the control group witnessed no significance with a value 0.44 by rater 1 and 0.058 by rater 2 ($p>0.05$). The findings of the study indicated a significant relation between the treatment and the improvement of the learners' accuracy.

This study was able to answer the research questions raised earlier. Firstly, the qualitative data results showed that, similar to Levis and LeVelle (2012), learners admitted that their teachers were ill-equipped to help them develop their pronunciation accuracy as some of them stated that despite learning English for more than 16 years, they are still unable to speak it. The study's quantitative analysis findings as well agreed with those of Amand and Touhami (2016) that using gestures and explicit CF in pronunciation instruction helped L2 learners develop their phonology. Furthermore, the findings of the study coincides with Kelly (2002), and Goldin-Meadow and Wagner (2005), that using hand gestures in L2 learning is highly effective, and that teaching pronunciation using gestures has improved the students' accuracy of the target sounds and enhanced their overall comprehensibility.

Limitations and challenges

This pilot study encountered some challenges that were classified in three main categories, as follows.

t-Test results. This pilot study was conducted on a small sample size, so the t-Test results might have some inaccuracies. Thus, findings needed to be dealt with carefully, while a bigger sample size was used in the actual study in order to improve the generalizability of the findings.

Scoring the recordings. The researcher needed to conduct a rater norming session rather than training each rater separately, to make sure that raters can rate the participant's recordings similarly. The rubric descriptors were somewhat ambiguous on some aspects like comprehensibility. This ambiguity was re-defined and the differences between the scales (1-5) were highlighted in the norming session. Raters were also asked to rate three recordings collaboratively as a sample to agree on the criteria of scoring. Moreover, some recordings were very hard to rate since the speakers often take turns in holding the conversation floor very quickly. Thus, in some cases it was impossible for the raters to distinguish which participant was talking. Thus, the actual study employed a monologue in the pre- and post-performance assessments rather than a dialogue. The researcher also considered the effect of doing the recording the second time on the students irrespective of the pronunciation training, as some improvement here may be simply from being more familiar with the content. Accordingly, the actual study employed a different monologue for each recording. Raters were also able to recognize that some of the speakers were the same, as a result of some coding inconveniences. Therefore, the researcher ensured that coding did not uncover the learners' guise.

Time limitation. The quantitative findings were based on a two-week treatment rather than six weeks as originally needed due to time limitations. The study was also unable to run a co-relational analysis between the two raters scoring of the pre- and post-performance assessment. Hence, a better time-managed feasibility chart was drawn for the actual study.

In conclusion, although the piloting phase encountered some challenges, it strongly contributed in clarifying certain issues in order to avoid them in the actual study and improve the strength of future data. This thesis incorporated the knowledge deduced from the limitations and challenges of this previous pilot study and was able to produce credible data that is capable of answering the research

questions related to the effectiveness of using gestures and explicit corrective feedback in pronunciation instruction on the accuracy of the sounds: /θ/ pronounced as /s/, /ð/ pronounced as /z/, /p/ pronounced as /b/, which are problematic to Egyptian adult ESL learners in Egypt. The following chapter will move to present the results of this study before moving to the final discussion chapter which will place these findings within the context of the existing literature.

Chapter 4: Results

This chapter reports the results of the present study that investigated the effect of using gestures and explicit corrective feedback in pronunciation instruction on adult ESL learners' pronunciation accuracy and overall comprehensibility. As the study follows a mixed-method design, the data was analyzed (1) quantitatively using both descriptive and inferential statistics, and (2) qualitatively using data tabulation. These analyses were used to reach a clear understanding of the data and to be able to draw a conclusion based on them. The data was collected during normal classes and consisted of a total of 47 participants, of whom 20 were in the control group and 27 were in the experimental group. The chapter is divided into two major sections, each addressing one of the research questions posed in the present study.

Quantitative Data Analysis

As the study aimed to investigate the effects of using gestures and explicit corrective feedback in pronunciation instruction on learners' pronunciation accuracy and overall comprehensibility, a group of paired t-tests were used hoping to answer the first research question, and to show the significance of the proposed hypothesis that the group receiving the treatment would outperform the control group on the post-performance assessments.

Treatment group and control group: t-Test results pre- / post-assessment for /Θ/, /ð/ and /p/ sounds

Table 1. Treatment group and control group - Isolated words activity

Table 1 shows the number of participants, in addition to the mean values and the standard deviation values of the matched guise activity for the treatment and the control group participants, for the pre- and the post-performance assessment, scored by raters 1, 2 and 3.

/Θ/

		Pre-test		Post-test		
	N	M	SD	M	SD	**p**
Treatment	27	2.111	1.5652	3.420	0.9201	0.000
Control	20	1.833	1.4633	2.033	1.6669	0.165

/ð/

		Pre-test		Post-test		
	N	M	SD	M	SD	**p**
Treatment	27	1.630	1.6841	5.012	1.6240	0.000
Control	20	2.217	1.9142	3.283	2.5584	0.000

/p/

		Pre-test		Post-test		
	N	M	SD	M	SD	**p**
Treatment	27	3.543	1.9625	4.444	1.4577	0.000
Control	20	4.667	1.5367	3.817	1.9089	0.000

The treatment group consists of 27 participants (n=27), and the control group consists of 20 participants (n=20). In the treatment group isolated activity, raters have reported for /Θ/ sound mean values of 2.111 and 3.420, and standard deviation values of 1.5652 and 0.9201 for pre-intervention and post-intervention respectively, whereas the control group has mean values of 1.833 and 2.033 and standard deviation values of 1.4633 and 1.6669 for pre-intervention and post-intervention, respectively. Thus, it can be observed from the given data that the improvement in score for the pre-intervention and post-intervention assessment for the treatment group is significant as $p<0.05$ ($p=0.000$), while the score of the control group for pre-intervention and post-intervention does not show any significant improvement as $p>0.005$ ($p=0.165$).

Raters also have reported for /ð/ sound in the treatment group mean values of 1.630 and 5.012, and standard deviation values of 1.6841 and 1.6240 for pre-intervention and post-intervention respectively, whereas the control group has mean values of 2.217 and 3.283 and standard deviation values of 1.9142 and 2.5584 for pre-intervention and post-intervention, respectively. Thus, it can be observed from the given data that the improvement in score for the pre-intervention and post-intervention assessment for the treatment group and the control group is significant as $p<0.05$ ($p=0.000$) and ($p=0.000$), respectively.

As for the /p/ sound in the treatment group, raters have reported mean values of 3.543 and 4.444, and standard deviation values of 1.9625 and 1.4577 for pre-intervention and post-intervention respectively, whereas the control group has mean values of 4.667 and 3.817 and standard deviation values of 1.5367 and 1.9089 for pre-intervention and post-intervention, respectively. Thus, it can be observed from the given data that the improvement in score for the pre-intervention and post-intervention assessment for the treatment group and the control group is significant as $p<0.05$ ($p=0.000$) and ($p=0.000$), respectively.

Table 2. Treatment group and control group - Connected speech activity

Table 2 explains the number of participants, in addition to the mean values and the standard deviation values of the matched guise activity for the treatment and the control group participants, for the pre- and the post-performance assessment, scored by raters 1, 2 and 3.

			/Ɵ/			
		Pre-test		**Post-test**		
	N	M	SD	M	SD	**p**
Treatment	27	3.309	2.547	7.593	1.9025	0.000
Control	20	2.817	2.709	3.883	3.009	0.000
			/ð/			
		Pre-test		**Post-test**		
	N	M	SD	M	SD	**p**
Treatment	27	3.938	3.8221	8.272	2.3875	0.000
Control	20	4.917	4.0892	4.650	3.5788	0.316
			/p/			
		Pre-test		**Post-test**		
	N	M	SD	M	SD	**p**

Treatment	27	6.444	2.8636	8.395	2.0596	0.000
Control	20	6.600	2.7752	8.133	1.6618	0.000

The treatment group consists of 27 participants (n=27), and the control group consists of 20 participants (n=20). In the treatment group connected speech activity, raters have reported for /Θ/ sound mean values of 3.309 and 7.593, and standard deviation values of 2.547 and 1.9025 for pre-intervention and post-intervention respectively, whereas the control group has mean values of 2.817 and 3.883 and standard deviation values of 2.709 and 3.009 for pre-intervention and post-intervention, respectively. Thus, it can be observed from the given data that the improvement in score for the pre-intervention and post-intervention assessment for the treatment group and the control group is significant as $p<0.05$ ($p=0.000$) and ($p=0.000$), respectively.

Raters also have reported for /ð/ sound in the treatment group mean values of 3.938 and 8.272, and standard deviation values of 3.8221 and 2.3875 for pre-intervention and post-intervention respectively, whereas the control group has mean values of 4.917 and 4.650 and standard deviation values of 4.0892 and 3.5788 for pre-intervention and post-intervention, respectively. Thus, it can be observed from the given data that the improvement in score for the pre-intervention and post-intervention assessment for the treatment group is significant as $p<0.05$ ($p=0.000$), while the score of the control group for pre-intervention and post-intervention does not show any significant improvement as $p>0.005$ ($p=0.316$).

As for the /p/ sound in the treatment group raters have reported mean values of 6.444 and 8.395, and standard deviation values of 2.8636 and 2.0596 for pre-intervention and post-intervention respectively, whereas the control group has mean values of 6.600 and 8.133 and standard deviation

values of 2.7752 and 1.6618 for pre-intervention and post-intervention, respectively. Thus, it can be observed from the given data that the improvement in score for the pre-intervention and post-intervention assessment for the treatment group and the control group is significant as $p<0.05$ ($p=0.000$) and ($p=0.000$), respectively.

Treatment group versus control group: t-Test results pre- / post-assessment for /Ɵ/, /ð/ and /p/ sounds

Table 3. Treatment group versus control group - Isolated words activity

Table 3 explains the number of participants, in addition to the mean values and the standard deviation values of the matched guise activity in the isolated words activity for the treatment and the control group participants, comparing the pre- and the post-performance assessment of the two groups, as scored by raters the three raters.

	/Ɵ/						
	Treatment			**Control**			
	N	M	SD	N	M	SD	P
Pre-test	27	2.111	1.5652	20	4.833	1.4633	0.281
Post-test	27	3.420	0.9201	20	2.033	1.6669	0.000

	/ð/						
	Treatment			**Control**			
	N	M	SD	N	M	SD	P

Pre-test	27	1.630	1.6841	20	2.217	1.9142	0.061
Post-test	27	5.012	1.6240	20	3.283	2.5584	0.000

/P/

	Treatment			**Control**			
	N	M	SD	N	M	SD	P
Pre-test	27	3.543	1.9625	20	4.667	1.5367	0.000
Post-test	27	4.444	1.4577	20	3.817	1.9089	0.028

The treatment group consists of 27 participants (n=27), and the control group consists of 20 participants (n=20). Raters reported that for /Ɵ/ sound, the pre-intervention treatment group and control group mean values are 2.111 and 4.833, and the standard deviation values are 1.5652 and 1.4633, respectively. It can be observed from the data provided that there was no significant difference in the participants pre-intervention score as $p>0.05$ ($p=0.281$). Nevertheless, the post-intervention treatment and control group mean values are 3.420 and 2.033, and the standard deviation values are 0.9201 and 1.6669, respectively. Thus, it can be observed from the data provided that there is a significant difference in the post-intervention assessment score as $p<0.05$ ($p=0.000$).

Raters also reported that for /ð/ sound, the pre-intervention treatment group and control group mean values are 1.630 and 2.217, and the standard deviation values are 1.6841 and 1.9142, respectively. It can be observed from the data provided that there was no significant difference in the participants pre-intervention score as $p>0.05$ ($p=0.061$). Nevertheless, the post-intervention treatment and control group mean values are 5.012 and 3.283, and the standard deviation values are 1.6240 and

2.5584, respectively. Thus, it can be observed from the data provided that there is a significant difference in the post-intervention assessment score as $p<0.05$ ($p=0.000$).

As for the /p/ sound raters reported that the pre-intervention treatment group and control group mean values are 3.543 and 4.667, and the standard deviation values are 1.9625 and 1.5367, respectively. It can be observed from the data provided that there was significant difference in the participants pre-intervention score as $p<0.05$ ($p=0.000$). On the other hand, the post-intervention treatment and control group mean values are 4.444 and 3.817, and the standard deviation values are 1.4577 and 1.9089, respectively. Thus, it can be observed from the data provided that there is also a significant difference in the post-intervention assessment score as $p<0.05$ ($p=0.028$).

Table 4. Treatment group versus control group - Connected speech activity

Table 4 explains the number of participants, in addition to the mean values and the standard deviation values of the matched guise activity in the isolated words activity for the treatment and the control group participants, comparing the pre- and the post-performance assessment of the two groups, as scored by raters the three raters.

	/Θ/						
	Treatment			**Control**			
	N	M	SD	N	M	SD	P
Pre-test	27	3.309	2.5478	20	2.817	2.7090	0.272
Post-test	27	7.593	1.9025	20	3.883	3.0090	0.000

/ð/

	Treatment			Control			
	N	M	SD	N	M	SD	P
Pre-test	27	3.938	3.8221	20	4.917	4.0892	0.147
Post-test	27	8.272	2.3875	20	4.650	3.5788	0.000

/P/

	Treatment			Control			
	N	M	SD	N	M	SD	P
Pre-test	27	6.444	2.8636	20	6.600	2.7752	0.747
Post-test	27	8.395	2.0596	20	8.133	1.6618	0.420

The treatment group consists of 27 participants (n=27), and the control group consists of 20 participants (n=20).Raters reported that for the /Ɵ/ sound, the pre-intervention treatment group and control group mean values are 3.309 and 2.817, and the standard deviation values are 2.5478 and 2.7090, respectively. It can be observed from the data provided that there was no significant difference in the participants pre-intervention score as $p>0.05$ ($p=0.272$). Nevertheless, the post-intervention treatment and control group mean values are 7.593 and 3.883, and the standard deviation values are 1.9025 and 3.0090, respectively. Thus, it can be observed from the data provided that there is a significant difference in the post-intervention assessment score as $p<0.05$ ($p=0.000$).

Raters also reported that for the /ð/ sound, the pre-intervention treatment group and control group mean values are 3.938 and 4.917, and the standard deviation values are 3.8221 and 4.0892, respectively. It can be observed from the data provided that there was no significant difference in the participants pre-intervention score as $p>0.05$ ($p=0.147$). Nevertheless, the post-intervention treatment and control group mean values are 8.272 and 4.650, and the standard deviation values are 2.3875 and 3.5788, respectively. Thus, it can be observed from the data provided that there is a significant difference in the post-intervention assessment score as $p<0.05$ ($p=0.000$).

As for the /p/ sound raters reported that the pre-intervention treatment group and control group mean values are 6.444 and 6.600, and the standard deviation values are 2.8636 and 2.7752, respectively. It can be observed from the data provided that there was no significant difference in the participants pre-intervention score as $p>0.05$ ($p=0.747$). On the other hand, the post-intervention treatment and control group mean values are 8.395 and 8.133, and the standard deviation values are 2.0596 and 1.6618, respectively. Thus, it can be observed from the data provided that there is no significant difference as well in the post-intervention assessment score as $p>0.05$ ($p=0.420$).

The quantitative data analysis section will now move to compare and measure the variance among the three raters' results using ANOVA, aiming to show that there is no significance, which will basically ensure the collected data results reliability.

ANOVA Comparison of Raters' Results Variance

Table 5. ANOVA comparison between raters

In Table 5 the variance between the three raters' results was compared.

Isolated Word Activity		Sig.
Pre-test	/Θ/	0.397
	/ð/	0.317
	/P/	0.398
Post-test	/Θ/	0.015
	/ð/	0.886
	/P/	0.388
Connected Speech Activity		**Sig.**
Pre-test	/Θ/	0.024
	/ð/	0.905
	/P/	0.887
Post-test	/Θ/	0.595
	/ð/	0.996
	/P/	0.086

This table included the calculated p-values for the treatment and control groups, pre- and post-assessment, on the isolated words and connected speech activities across the three raters. In the isolated words activity for the /Θ/ sound the variation in all three raters evaluation pre-intervention is not significant as $p>0.05$ ($p=0.397$), whereas in the post-intervention there was variance in results as $p<0.05$ ($p=0.015$); however, there is still no significant variance between results as per the results illustrated in the previous tables. As for the isolated words activity for the /ð/ sound all 3 raters' evaluation pre- and post-intervention is not significant as $p>0.05$ ($p=0.317$) and ($p=0.317$) which shows no variance in results. Finally, as for the isolated words activity of the /p/ sound, the table reported that the variation in all three raters' evaluation pre- and post-assessment is not significant as $p>0.05$ ($p=0.398$) and ($p=0.388$) which correlates with the other two raters results. Moving to the connected speech activity on the /Θ/ sound, the variation in all 3 raters evaluation for pre-intervention shows

variance $p<0.05$ ($p=0.024$), yet the variation between all three raters post-intervention for this sound is not significant as $p>0.05$ ($p=0.595$), thus there is still no significant variance between results as per the results illustrated in the previous tables. As for the connected speech activity of the /ð/ sound, the variation in all 3 raters evaluation pre- and post-intervention is not significant as $p>0.05$, ($p=0.905$) and ($p=0.996$). Finally, the connected speech activity of the /p/ sound variation in all three raters' evaluation pre- and post-intervention is not significant as $p>0.05$, ($p=0.887$) and ($p=0.086$) which shows no variance between raters' results on this activity as well.

Based on the results, the researcher was able to analyze the data qualitatively as well. Thus, the following part in this chapter will outline the qualitative data analysis results, hoping to explore the effects of using explicit correct feedback and gestures in pronunciation instruction on Egyptian adult ESL learners' overall comprehensibility in two different activities: (1) isolated words activity, and (2) connected speech activity.

Qualitative Data Analysis

In this section the data will be qualitatively analyzed based on the three raters' commentaries comparing the overall comprehensibility of the participants in the treatment group and the control group, pre- and post- treatment, on both the isolated words and connected speech activities.

Qualitative Data Tabulation

Table 6. Commentary on treatment group & control group overall comprehensibility pre- and post-intervention

Table 6 shows the overall comprehensibility improvement percentages of the 27 participants in the treatment group and the 20 participants in the control group on the isolated words activity and the connected speech activity as reported by raters 1, 2 and 3.

Comprehensibility Improvement Percentage					
Isolated Words Activity			Connected Speech Activity		
	Treatment	Control		Treatment	Control
Rater 1	81%	55%	Rater 1	78%	55%
Rater 2	70%	70%	Rater 2	74%	55%
Rater 3	67%	45%	Rater 3	79%	10%

In the treatment group, on the isolated words activity and the connected speech activity, the participants whose speech was evaluated as awkward and incomprehensible most of the time pre-intervention improved, as their speech became difficult to understand at times but was judged to be overall comprehensible at the post-intervention stage. Participants whose speech was evaluated as awkward and incomprehensible some of the time pre-intervention also improved their speech became difficult to understand at times but overall comprehensible at the post-intervention stage. Participants whose speech was evaluated as difficult to understand at times but overall comprehensible pre-intervention improved as their speech became clear and overall comprehensible most of the time post-intervention. Participants whose speech was evaluated as clear and overall comprehensible most of the time pre-intervention improved as their speech became clear and comprehensible at all times post-intervention. Thus, the total improvement percentages of the treatment group as scored by raters 1, 2 and 3 on (1) the isolated-words activity are 81%, 70% and 67%, (2) and on the connected speech activity are 78%, 74% and 79%, respectively. Whereas on the isolated words activity and the connected speech activity of the control group only half of the participants whose speech was evaluated as awkward and incomprehensible some of the time pre-intervention improved as the speech became difficult to understand at times but overall comprehensible post-intervention. Also, only 44% of the participants whose speech was evaluated as difficult to understand at times but overall comprehensible pre-intervention improved as their speech became clear and overall comprehensible most of the time post-intervention. Thus, the total improvement percentages of the control group as scored by raters 1, 2

and 3 on (1) the isolated-words activity are 55%, 70% and 45%, (2) and on the connected speech activity are 55%, 55% and 10%, respectively.

To sum up, the treatment group percentage of improved participants as reported by raters 1, 2 and 3 on the isolated words activity are 81%, 70% and 67%, respectively, and the percentage of improved participants for the same group on the connected speech activity as scored by raters 1, 2 and 3 are 78%, 74% and 79%, respectively. However, in the control group, the percentage of improved participants scored by raters 1, 2 and 3 on the isolated words activity are 55%, 70% and 45%, respectively, and the percentage of improved participants of the same group on the connected speech activity for raters 1, 2 and 3 are 55%, 55% and 10%, respectively. In other words, based on the above findings it can be observed that the treatment was effective and that there are significant differences in the degree of improvement between the experimental group and the control group.

The following chapter will further discuss these findings and will explain how they can hopefully contribute to the existing research on the impact of using gestures and explicit corrective feedback in pronunciation instruction on adult ESL learners. It will then move to discuss the implications for L2 pedagogy and identify future avenues of research.

Chapter 5: Discussion and Conclusion

This chapter offers an interpretation and a detailed analysis of the data that was presented in the previous chapter to answer the two research questions that are posed in this study. In addition, it presents the contributions and implications of this study, its limitations and gives some suggestions for further research directions in this area.

Discussion of results

The study aimed to explore the effect of using gestures and explicit corrective feedback on students' pronunciation accuracy of some problematic sounds (/Ɵ/, /ð/, /p/) and the overall comprehensibility of their speech based on this accuracy. It answered two research questions: the first explored the effect of using explicit corrective feedback (CF) and gestures in pronunciation instruction on the accuracy of the problematic sounds (/θ/ pronounced as /s/, /ð/pronounced as /z/) of Egyptian adult ESL learners, and the second investigated how using explicit CF and gestures in pronunciation instruction will affect the accuracy of the problematic sound (/p/ pronounced as /b/) of Egyptian adult ESL learners.

Previously published studies have shown that classroom gestures help in improving students' pronunciation accuracy and overall comprehensibility of the target language. With the help of gestures and some visual representations, students were better able to articulate the target sounds accurately, and to better recall the correct sounds when needed. This is attributed to the teacher's gestures which help in making the aspects of pronunciation visible. That supports the findings of Kelly (2002) and Goldin-Meadow and Wagner's (2005) examination of the positive effects of the use of gestures in developing ESL learners' L2 pronunciation, as they stated that using hand gestures in L2 learning is highly effective.

Gestures were also important as the teacher used them to provide explicit corrective feedback to students, which involved positive results as compared to simple oral correction. Finally, by employing gestures followed by explicit corrective feedback, teacher's feedback gave more freedom to the students to acquire new understandings as it does not intrude on the student's ongoing response, which aligns with Amand and Touhami's (2016) argument that explicit corrective feedback and conscious pronunciation instruction help L2 learners develop their pronunciation.

As stated previously, SLA researchers have generally regarded obtaining accurate L2 pronunciation as an unattainable goal if learners were not exposed to L2 in early childhood (Gilakjani, 2012). There is therefore a need for an advanced learning technique to improve the accuracy of L2 pronunciation by ESL learners. The two learning techniques proposed in this research were able to facilitate accurate pronunciation of problematic sounds like /Ɵ/, /ð/ and /p/ for adult Egyptian ESL learners. The results that were presented in the previous chapter offer useful insight in how using gestures and explicit corrective feedback positively affected learners' pronunciation accuracy and overall comprehensibility. The statistical analysis revealed that the experimental group performed significantly better on the post-test as compared to the control group.

Quantitative data findings and discussion

Effects of using explicit CF and gestures in pronunciation instruction on ESL learners' accuracy of the problematic sounds /θ/ pronounced as /s/, and /ð/ pronounced as /z/

Treatment group and control group: t-Test results discussion for /Ɵ/ sound

In the isolated words and connected speech activities of the sound /Ɵ/, there was significant improvement in the treatment group scores reported by all raters post-intervention. As for the control

group, insignificant improvement was observed post-intervention on the isolated words activity, yet significant improvement was observed for them on the connected speech activity.

Treatment versus control group: t-Test results discussion for /Θ/ sound

In the isolated words activity and the connected speech activity for the sound /Θ/, a significant difference was observed in the post-intervention scores when the two groups were compared to each other as reported by all three raters.

These results show that classroom gestures were effective in improving students' accuracy on the target sound /Θ/. That is to say, the findings discussed above show that the teachers' gestures contributed to the students' L2 learning. Despite the fact that when comparing the control group scores pre- and post-tests some significance was observed, the treatment group outperformed the control group when the results of both groups were compared which shows the validity of the proposed hypothesis.

Treatment and control group: t-Test results discussion for /ð/ sound

In the isolated words and connected speech activities of the sound /ð/, significant improvements were observed for the treatment group post-test as reported by the three raters. However, the control group showed significant improvement in the isolated words activity post-intervention and no significant difference was observed in the connected speech activity for the same group as stated by all three raters.

Thus, the treatment group developed better accuracy in the pronunciation of this target sound post-intervention unlike the control group based on the isolated words and connected speech activities scores. This supports the fact that using explicit corrective feedback and gestures in pronunciation instruction for ESL learners' helped improve their pronunciation accuracy.

Treatment versus control group: t-Test results discussion for /ð/ sound

The post-test scores comparing the treatment group to control group for the sound /ð/ was also examined. In the isolated words and connected speech activities for the sound /ð/, a significant difference was observed across the three raters in the post-intervention scores

To conclude, the results obtained above are in alignment with the proposed hypothesis that using explicit corrective feedback and gestures in pronunciation instruction can help improve ESL learners' pronunciation accuracy based on the significant improvement of the treatment group as compared to the control group post-test results.

Effects of using explicit CF and gestures in pronunciation instruction on ESL learners' accuracy of the problematic sound /p/ pronounced as /b/

Treatment and control group: t-Test results discussion for /p/ sound

In the isolated words and connected speech activities of the sound /p/, significant improvement in pronunciation was observed in both the treatment group and the control group as provided by raters 1, 2 and 3

Treatment versus control group: t-Test results discussion for /p/ sound

Despite the fact that previous research findings showed significance in the participants' accuracy of the sound /p/ when results were compared within the same group (treatment pre-test to treatment post-test, and control pre-test to control post-test), the results of the post-test were all insignificant when the two groups were compared together (treatment versus control). To illustrate, in the isolated words and the connected speech activities for the sound /p/, when the treatment group post-test results were compared to the control group, no significant difference was observed across all three raters.

Quantitative findings interpretation

To conclude, the teacher for the treatment group incorporated a combination of gestures and body movements to make the pronunciation of the target sounds visible. Although these gestures are tied to the language-learning context and would hardly occur in everyday dialogue, and were in fact designed and consciously done by the teacher to be used as an instructional tool, they helped learners in the treatment group to develop better pronunciation accuracy and to significantly outperform their peers in the control group particularly in the post-tests assessments of the sounds /Θ/ and /ð/. As for the findings of the /p/ sound post-tests assessment, significance was observed within the same group comparisons, yet there was no significant difference observed when both groups were compared to each other. In other words, the finding that the treatment group outperformed the control group in the /Θ/ and /ð/ sounds only and does not outperform them in the /p/ sound might be related back to the fact that the control group participants' level of accuracy of that sound was more accurate since the beginning of the experiment as mentioned by their instructor, and as reflected in their results of pre- and post-interventions.

That is to say, it might be hypothesized that because the manner of articulation of the /p/ sound was familiar for the participants in the control group, it was easier for learner' in both groups to attain its pronunciation accuracy utilizing any of the pronunciation teaching methods used for the treatment or the control group. Nevertheless, as the /Θ/ and /ð/ sounds are not practiced in among Egyptians, it was difficult for the students in the control group to attain accuracy in pronouncing them, and hence the fact that the treatment group outperformed the control group in this area can be significantly attributed to the usage of the explicit corrective feedback and gestures in pronunciation instruction for this group, which eventually shows the positive effects of the proposed hypothesis.

Qualitative data findings and discussion

In addition to the quantitative results obtained based on the rankings of the three raters, a qualitative analysis was also conducted. It was observed from the results of all three raters of the qualitative analysis that the participants in the treatment group sounded more comprehensible than those in the control group in the isolated words and connected speech activities post-test results. Rater 1 reported an improvement in the overall comprehensibility of the participants in the treatment group of 81% and 78% in the isolated words and connected speech activities, respectively, whereas the control group reported a 55% improvement for both the isolated words and connected speech activity. Rater 2's post-intervention assessment of the participants' overall comprehensibility in the treatment group for isolated words and connected speech activities revealed an improvement of 70% and 74%, respectively. On the other hand, the control group improvement percentage on the isolated words and connected speech activities post-test were 70% and 55%. Finally, rater 3's post-test assessment of the treatment group for the isolated words and connected speech activities revealed an improvement of 67% and 79%, respectively, while the control group recorded an improvement of 45% and 10% on the isolated words and connected speech activities.

These results support Dlaska and Krekeler's (2013) research findings as they show vividly the efficiency of the usage of explicit corrective feedback and gestures in pronunciation instruction as it led to a significant improvement of the treatment group's overall comprehensibility in the isolated words activity as well as the connected speech activity. Thus, the difference in the improvement percentage between the treatment group and the control group can be attributed to the effectiveness of using explicit corrective feedback and gestures in pronunciation instruction.

In a nutshell, the hypothesis that employing explicit CF and gestures in pronunciation instruction would help in developing L2 ESL learners' pronunciation accuracy and overall

comprehensibility is supported by all the above research findings and results. This supports the findings of Amand and Touhami (2016) and Smotrova (2014) who argued that using explicit corrective feedback and using gestures in pronunciation instruction help L2 learners develop their pronunciation. The results of this study support the idea that explicit corrective feedback and gestures in pronunciation instruction could contribute to an improvement of this aspect of Egyptians' English learning.

Contributions to research on gestures in language learning

Much research has been conducted on the pedagogical functions of gestures. However, it has largely taken place outside of the field of language learning, while studies of the role of gestures in the language classroom have just begun to emerge (Goldin-Meadow, 2003). Earlier studies have shown the beneficial role of gesture in L2 learning, yet areas such as pronunciation have been under-researched (Smotrova, 2014; Horbacauskiene & Kasperaviciene, 2015). Therefore this study attempted to fill this gap by building on the previous research on the use of gestures in language classrooms, and analyzing the process of using gestures throughout the classroom experience which (1) helped in providing a picture of how students and teachers can employ and exchange information via gestures in L2 classrooms, and (2) showed how gestures mediated the learning of segmental aspects of L2 pronunciation.

Implications for L2 pedagogy

Even though previous studies have suggested their beneficial effects (Allen, 1995; Goldin-Meadow, 2003; Tellier, 2008), gestures are still not utilized as an important teaching tool in language learning (Allen, 1995; Tellier, 2008). Emphasizing the importance of non-verbal interaction between teachers and students, and the pedagogical benefits of gesturing should be brought to the awareness of teachers and compose an important part of their future teacher training programs. In addition, providing explicit corrective feedback is also an important tool to consider in the language classroom.

As contained in the Vygotskian view of the role of gesturing in L2 classrooms, gestures can enable leaners to picture and objectify imperceptible concepts and in this way, bring them into their consciousness (Smotrova, 2014). The study showed that the students were able to incorporate the information conveyed by the teacher's gestures into their L2 pronunciation. This suggests that teachers should acknowledge gesture as an important way to develop L2 pronunciation accuracy and overall comprehensibility. In addition, gestures also served as a superior instructional tool in comparison with the teacher's speech when it involved information that cannot be accessed easily through the verbal channel. These findings indicate that gestures should be acknowledged as an important tool in developing the knowledge and performance of language learners.

Future Directions

This study identifies promising directions for future research into the role of the affective and interactional functions of gestures in the language classroom. Further directions of study would be to expand the scope to include a larger number of learners and teachers, including learners of other ages and levels of proficiency. Other studies could usefully compare the effectiveness of adopting the recommended pronunciation teaching techniques according to different levels of instructor professional experience as well as the impact of this method on students of different cultural backgrounds.

Limitations

There are limitations regarding the scope of the research design and methodology. This research considered only a particular ESL group learning English in the general English program of a private institution affiliated with one of the major universities in Egypt. In other words, the scope was limited to only two levels of proficiency (A2/B1) and an observation sample of only 47 students and their two, instructors. Even though this allowed for an in-depth analysis of the role of using explicit corrective feedback and gestures in pronunciation instruction and helped in exploring their positive effects on

ESL learners' pronunciation accuracy and overall comprehensibility, it would be beneficial to expand the number of participants to further validate the findings and compare different groups of students. In addition, more than two instructors should take part in the experiment to make sure that any improvement is attributed to the proposed method and not to variation in the teachers' efforts.

The relatively short time frame of the study was also a limiting element. Future studies should conduct data collection over a longer period in which a pre-test should be done on the first session prior to any intervention, followed by a set of immediate, early post-tests, and delayed post-tests. These test schedules are meant to check how learners' understanding, recognition and recall abilities will develop over different periods of time.

Finally, as the researcher used to two different methods (gestures and explicit corrective feedback) in pronunciation instruction, it was difficult to decide which method was more effective in improving the learners' accuracy. Thus, the same experiment can be replicated using two treatment groups, in which one of them will be given the pronunciation instructions using gestures only, whereas the other team will receive the instructions using explicit corrective feedback, and thus any significant differences could be attributed to one or another of the two methods.

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Appendices

Appendix 1: Matched guise procedure ranking scale

The raters are given a set of recorded voices without knowing that some of them are for the same participants, and were asked to evaluate the accuracy of pronouncing the target sounds (/θ/, /ð/, /p/) in isolated words and connected speech for these individuals.

Isolated Words Activity

Code	/ɵ/				Total	/ð/						Total	/P/						Total	Comp./Not Comp.
	1	2	3	4		1	2	3	4	5	6		1	2	3	4	5	6		
2885.1					0							0							0	
2885.2					0							0							0	
2885.3					0							0							0	
2885.6					0							0							0	
2885.7					0							0							0	

Connected Speech Activity

Code	/ɵ/									Total	/ð/										Total	/P/										Total	Comp./Not Comp.
	1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9	10		1	2	3	4	5	6	7	8	9	10		
2885.1										0											0											0	
2885.2										0											0											0	
2885.3										0											0											0	
2885.6										0											0											0	
2885.7										0											0											0	

Isolated Words Activity								Connected Speech Activity							
Treatment - Pre				Treatment -Post				Treatment-pre				Treatment-Post			
Code	/ɵ/	/ð/	/P/	Code	/ɵ/	/ð/	/P/	Code	/ɵ/	/ð/	/P/	Code	/ɵ/	/ð/	/P/
2885.1	0	0	0	A00225066	3	3	2	2885.1	0	0	4	A00225066	5	4	7
2885.2	3	2	1	A00204052	3	6	1	2885.2	3	9	3	A00204052	9	8	7
2885.3	2	2	1	600181046	0	0	0	2885.3	6	6	8	600181046	0	0	0
2885.6	3	1	4	A00228866	4	6	5	2885.6	4	5	5	A00228866	8	10	9
2885.7	0	2	2	A00237814	2	4	5	2885.7	0	0	4	A00237814	7	8	10

Appendix 2: Rater overall comprehensibility commentary

Comprehensi-ble	**1**	**2**	**3**	**4**	**5**	**Not Comprehensi-ble**
	○	○	○	○	○	
	Speech was clear and overall comprehensi-ble at all times.	Speech was clear and overall comprehe-nsible at some of the time.	Speech was difficult to understand at times but overall comprehensible.	Speech was awkward and incomprehensi-ble some of the time.	Speech was awkward and incomprehensi-ble most of the time.	
Comments						

Appendix 3: Pilot study: Interview questions

1. Have you noted any major improvements in your English pronunciation throughout the semester?
2. Have you ever thought of giving up in learning English because of the problems you experience in communication, if there are any?
3. Would you like to be taught English using a different way than the current one used? If yes, what is it?
4. Would you like to add any recommendation to ensure your teacher addresses your pronunciation needs?

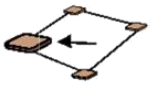
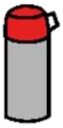
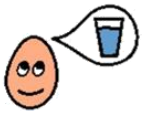
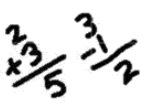
Appendix 4: Pilot study: Matched guise procedure template

The raters were given a set of recorded voices without knowing that some of them are from the same participants, and were asked to evaluate some pronunciation aspects for these individuals.

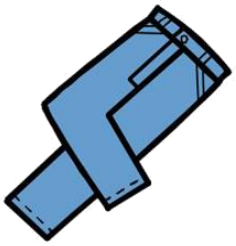
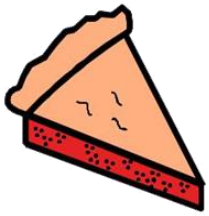
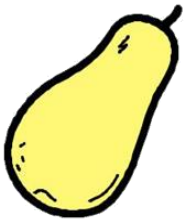
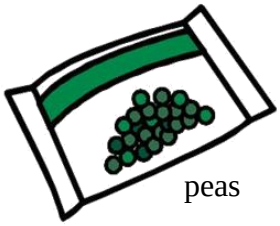
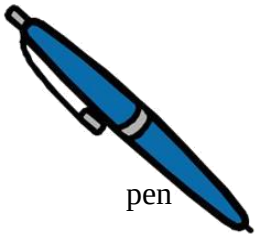
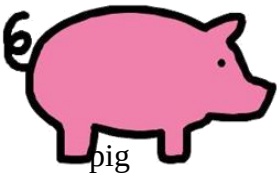
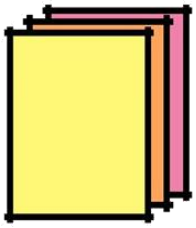
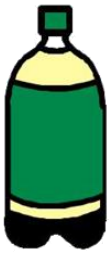
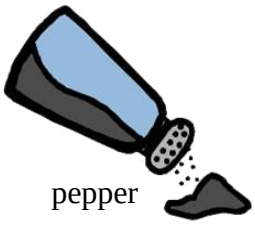
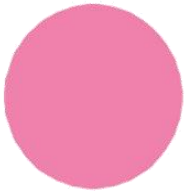
Student's Code/Number: How do you think the speaker sounds?						
1	2	3	4	5		
Comprehensible	○	○	○	○	○	Not comprehensible
Intelligible	○	○	○	○	○	Not intelligible
Fluent	○	○	○	○	○	Not fluent
Not accented	○	○	○	○	○	Accented
Self-confident	○	○	○	○	○	Not self-confident

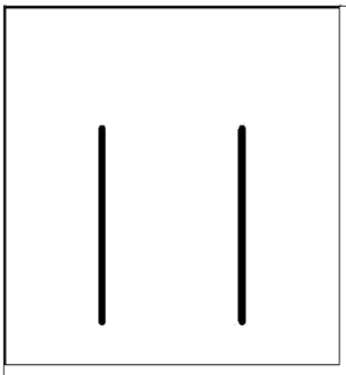
Appendix 5: Isolated words

START

thin 	three 	thunder 	third base 	think 	thank you 
Think about Math /th/ All Positions Articulation Game					Thanksgiving 
bathtub 	thimble 	throat 	thirty 	thermos 	thirsty 
earthworm 					
bathrobe 	toothbrush 	weather 	bathing suit 	feather 	mother 
					father 
wreath 	math 	dishcloth 	beneath 	tooth 	brother 
mouth 					

FINISH Made with Boardmaker - by Suzanne Richards MS CCC-SLP

pants 	party 	pudding 	pool 
 Push	 pie	 pizza	pear 
 peas	 pen	 pig	purse 
 puppet	 paper	 paint	 pop
 pepper	 pancakes	pink 	purple 



paper

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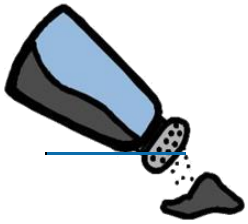
puppet

people



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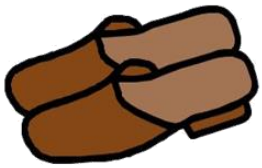

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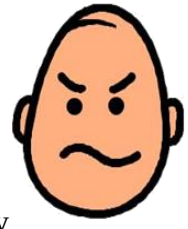

grumpy

teapot

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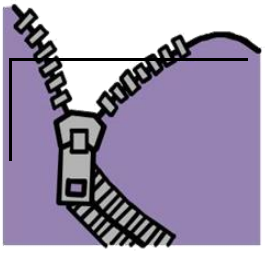
shampoo

puppy

open



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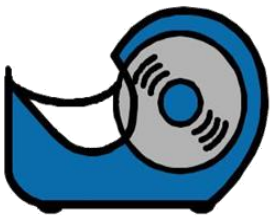

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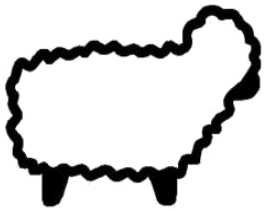
soup

soap



sheep

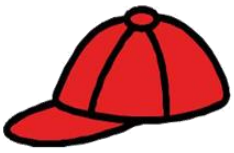
up

cup

stop

nap

help

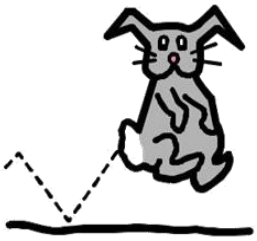


cap

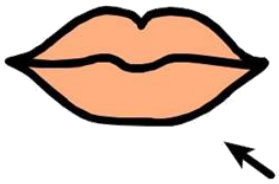
ship

jeep

pop

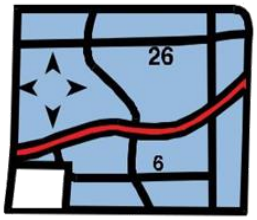


hop

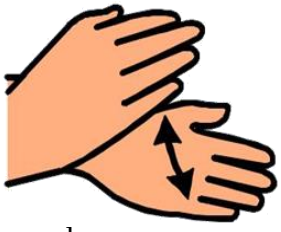


lip

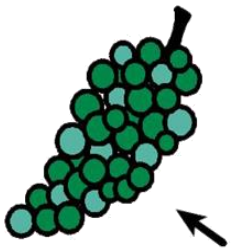
hula hoop



map



clap

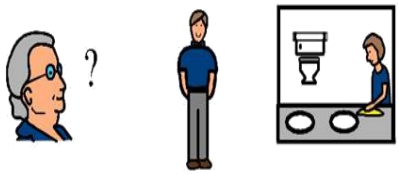


grape

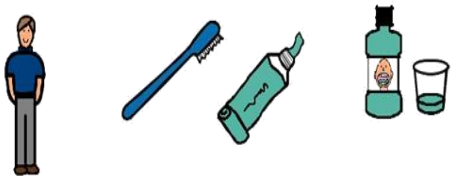
Appendix 6: Connected speech

My Grandmother is throwing a birthday party for my Father.

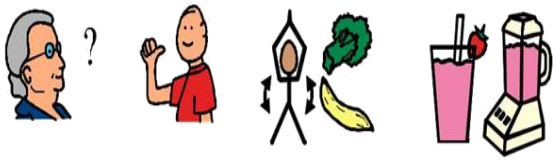
Grandmother asked my brother to clean the bathroom.



My brother put the toothbrush, the toothpaste, and the mouthwash away for the party.

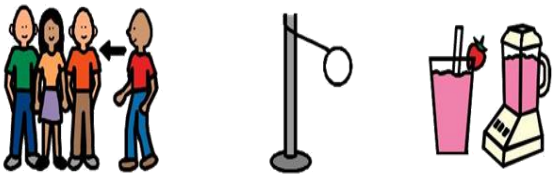


My grandmother asked me to make the healthy smoothies.

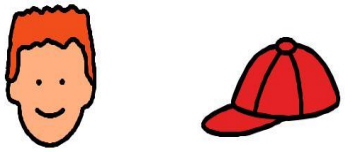


The weather was so nice for Father's birthday.

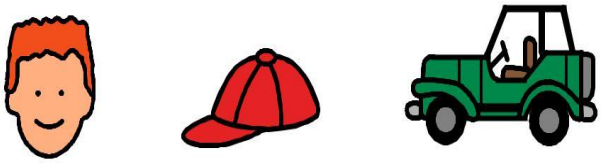
Together we went outside to play tetherball and drink smoothies.



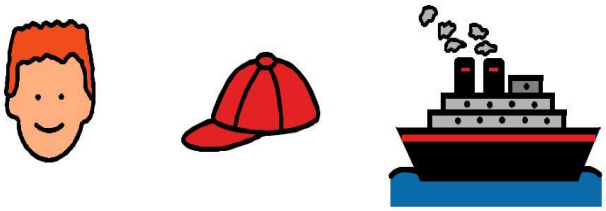
Kip lost his cap.



Kip looked for his cap in the jeep.



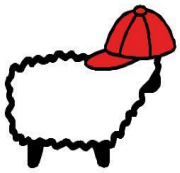
Kip looked for his cap in the ship.



Kip had to stop and ask for

help to find his cap.

Then the sheep walked by wearing Kip's cap.



Kip was so happy he hopped up and down.

Turning Thirty

Thelma's birthday was on Thursday and she couldn't decide how to celebrate. She was turning thirty and wanted this birthday to be special.

One idea she had was going to a steak house. A thick juicy steak would be part of a perfect meal for her birthday. Going to the spa and getting a massage would be therapeutic. Of course, that can be expensive, so if necessary she could just take a warm bubble bath.

Something she really wanted to do was to sit outside and eat popcorn during a thunderstorm, but she couldn't control the weather, so she would keep that as a backup plan. She had always wanted to visit South America too, but would have to save her money for a trip like that. Thelma thought about a short trip she could take and remembered the zoo was close by.

"The zoo had pythons, panthers, and a new mammoth exhibit, and those would be fun to see," she thought. All of this thinking was taking her strength. Thelma only had three hours of sleep last night because she had been up reading a case study for her ethics class. A moth had flown in her house and distracted her while reading. The distraction had kept her up later than she planned.