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EFFECT OF PROSODY AWARENESS TRAINING ON THE QUALITY OF CONSECUTIVE INTERPRETING BETWEEN ENGLISH AND FARSI

PROEFSCHRIFT

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Contents

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Leiden, April 2017

Chapter one

General introduction

1.1 About the dissertation

There were a number of things that triggered my interest in the field of interpreting and phonetics. First of all, being a foreign language learner myself and having studied English, Turkish and German as three foreign languages, pronunciation, foreign accent and intelligibility of my own speech have inevitably been serious issues for me at least during the last decade of my life. There were two topics in particular that helped me to narrow down my focus. A seminar on teaching English as foreign language set me off thinking of the importance of prosodic features and intonation for the intelligibility of speech. But more important to my inspiration was my interpreting class in connection with the issue of language pedagogy. One of the issues raised in this class was that according to some linguists the best way for foreign language learners of English to learn the pronunciation perfectly was to increase their phonetic awareness. The issue of learning English language to be an interpreter developed into my interest in a related area: Farsi and English prosodic features awareness for Iranian student interpreter trainees. The prevailing interest in my case was the question of whether there are ways of teaching pronunciation that would provide students with tools to better understand second language prosodic features and intonation while receiving the incoming message, so that they can interpret the message more adequately.

The aim of the dissertation is to investigate the role of prosodic feature awareness training on the quality of interpretation achieved by interpreter trainees. It aims to establish a solid platform for developing theories on training interpreters. Also, the study aims to get results which may increase both the intelligibility and naturalness of our systems within speech production and raise the efficacy of recognition in our interpreting. So far, no empirical studies have been done on the effect of prosodic awareness on the quality of interpreting.

The dissertation tries to investigate the issue of prosodic feature awareness training on different aspects of interpretation and also looks at the current ongoing problematic areas in the curriculum of interpreter training programs.

The remainder of this introductory chapter gives an overview of the chapters in the rest of this dissertation. **Chapter 2** gives an introduction to the interpreting process, tries to look at different dimensions of this process, and elaborates some prominent issues on the pedagogy of interpreting. **Chapter 3** investigates the effect of prosodic feature awareness training on the quality of consecutive interpreting from English into Farsi by interpreter trainees, i.e. interpreting from a foreign language into one's native language

– which we will also refer to as 'straight interpreting'. The quality of the interpreting performance is established by immediate intersubjective ratings on ten different aspects of interpreting quality given by three expert judges.

If prosody awareness has a beneficial effect on this process, then it must be the case that the increased awareness contributes to better word recognition (awareness of word stress) and to better comprehension (e.g., through anticipating on prosodic phrase structure and focus marking) of the input language, i.e. English. The specific effect of prosodic awareness training on these two subskills of the interpreting process from foreign into native language is tested in the next two chapters. **Chapter 4** systematically investigates the effect of awareness training of prosodic features on the development of word recognition skills for Farsi-English interpreter trainees. **Chapter 5** investigates the effect of awareness training of prosodic features on the development of listening comprehension for Farsi-English interpreter trainees. **Chapter 6** is a replication of the experiment carried out in Chapter 5, with one crucial complication in that it compares the relative contribution of awareness training of segmental features with that of prosodic features on developing listening comprehension in English as the target language.

Chapter 7 investigates the effect of explicit teaching of prosody on consecutive interpreting performance from Farsi into English by interpreter trainees, i.e., from native into foreign language – which process is often referred to as 'inverse interpreting'. Increased prosodic awareness should be especially beneficial in the output in the foreign language rather than help to understand the input speech – which should not be a problem since the input speech is in the interpreter's native language.

Chapter 8 tries to relate the intersubjective expert judgments to objective measures of interpreting quality that can be expected to correlate with the judgments. Objective measures can be either counts of errors in transcripts of the interpretations or phonetic measures of fluency of delivery. If such correlates can be found, the expert judgment can be predicted by some combination of objective measures. If the prediction is sufficiently accurate, expert judgments could be dispensed with in the future and be replaced by objective measurements.

We hypothesize that the beneficial effect of prosody awareness should be larger when interpreting into the foreign language (inverse interpreting) than when interpreting from foreign into native language (straight interpreting). In **Chapter 9** this directionality hypothesis is tested against the subjective ratings obtained in Chapters 3 (from foreign into native language) and 8 (from native into foreign language) on the one hand, and against the objective quality measures in Chapter 7 on the other.

Chapter 10 investigates the effective choice of methodology in teaching prosody for interpreter trainees. It compares the explicit teaching vs. implicit teaching of prosody for Farsi-English interpreter trainees.

Chapter 11, finally, summarizes the main points of the dissertation, formulates the overall conclusions of this dissertation, suggests pedagogical implications and makes recommendations for future research.

All the experimental chapters have been, or will be, published as independent articles, either in professional journals or in conference proceedings. Each chapter is therefore self-contained. Nevertheless, it might help the reader if some background knowledge is presented by way of general introduction to the topic of interpreting. This will lead to some overlap with explanations given in the individual chapters.

1.2 Training future interpreters

Imagine a situation where person A only speaks and understands his native language A and person B only commands his native language B. Imagine next that the languages A and B are so different from each other that no mutual intelligibility is possible. Such situations abound in the world of international commerce, politics and diplomacy. Communication between A and B then requires the help of an interpreter, i.e. an intermediary third person who commands both languages. The interpreter listens to speaker A, the sender, and then formulates speaker A's intentions in the other language B so that B, the receiver, will understand the message. If sender and receiver switch roles, then the interpreter first listens to language B and provides a rendition of B's intentions using appropriate formulations in language A. Interpreting is different than translating, since interpreting uses spoken language only and is immediate: the interpreter has to come up with a rendition of the speakers message in real time. A translator takes written input, and can generally take as much time as is needed to consult dictionaries, grammars and other translation tools to deliver a polished product in the target language. An interpreter has to deliver on the spur of the moment. Interpreting, therefore, is a very complex and cognitively demanding linguistic skill.

Two kinds of interpreting are used in practice. The first is simultaneous interpreting, where the interpreter has to provide a rendition of message A in language B while speaker A is producing continuous speech. This requires listening and understanding input speech in language A while at the same time producing output speech in language B. The second type is called consecutive interpreting. Here the interpreter waits until the sender has produced a complete paragraph in his language A. The sender is then silent for a while, allowing the interpreter time to reproduce in language B his rendition of what he has just heard. Consecutive interpreting avoids the dual task of listening and speaking at the same time (in different languages) but has the disadvantage that the interpreter has to keep a fairly precise representation of speaker A's intentions in memory during the time that A is talking. This puts a heavy burden on the interpreter's working memory, possibly more so than in simultaneous interpreting (e.g., Timarová et al. 2015). The present dissertation is entirely about this second type of interpreting, i.e., consecutive interpreting.

People may well think that anyone who knows two languages can do an interpreting job but it is not true. To be a qualified interpreter one needs intensive training. In order to produce qualified interpreters through effective training, the curriculum of interpreter training programs should be looked upon carefully. In my view, the interpreter training curriculum as it is currently implemented in Iran demands reconsideration through incorporating recent findings from applied linguistics so that future interpreters can communicate messages more effectively between two parties (such as A and B above).

One of the neglected areas in interpreting training programs are sounds and prosody, i.e., the first phenomena interpreters are exposed to in the communication of messages. In the field of interpreting, one of the first deficiencies which are perceived clearly is a lack of experienced instructors who are familiar with the theoretical aspects of message perception and communication. The most important reasons would be that most interpreters are not qualified instructors themselves, because they are not aware of linguistic principles underlying message communication, especially the importance of prosody in message communication (e.g., Pearl 1995, Yenkimaleki & Van Heuven 2013, 2016a, b). Producing pedagogical materials based on recent findings in the area of phonetics and their application in interpreter training programs is felt necessary.

In this regard, my personal work experience as an instructor in interpreter training programs led me to the idea of modifying the current existing syllabus by systematic investigation of awareness training of prosodic features for interpreter trainees and its effect on the quality of their performance.

1.3 Prosody awareness and interpreting

Massey (2007) claims that translation and interpreting pave the way for people with different language backgrounds to communicate with each other even if they do not understand each other's language. Nolan (2012) also believes that translators, by translating materials from source language into target language, make information available in a comprehensible fashion for lots of people who would otherwise have no access to these materials. Moreover, he states that, before translating, the translator has the opportunity to conduct comprehensive research of different sources in order to achieve an accurate reproduction of the original meaning of the text but the interpreter, when listening to the source language, is to transfer the message to the audience on the spot; he has no time for any research or to consult with others during the interpretation process. Massey (2007: 1) holds that in the past there has been a tendency to perceive interpreting as an alternative form of translation, but from the second half of the 20th century onwards differentiation between the two areas has become necessary.

Whalley and Hansen (2006) talk about prosodic sensitivity. They state that prosodic sensitivity has three elements which contribute to linguistic rhythm awareness. These elements are (i) lexical stress, which would be any syllable in a word that receives emphasis, (ii) intonation patterns, which would be the rise and fall of pitch that over the course of the sentence, and (iii) pause patterns, which can be between words or anywhere in the utterance that would correspond with punctuation mark in a written text.

Prosodic feature awareness training can be useful for interpreters both in speech production and speech recognition. Studying the role of prosodic awareness can provide a solid platform for developing theories of training interpreters. Mahjani (2003) states that prosodic feature awareness may enhance the naturalness and intelligibility of language in speech production and can also lead to more efficient processing of input speech during the interpreting process. Investigations in this area can make us understand different interactions between prosodic structure and other linguistic or para-

linguistic domains (syntax, semantics, pragmatics…). Therefore, different languages with various prosodic types and with different intonation patterns widen our horizon to understand the importance of prosodic feature awareness and can help us develop efficient training methods that pave the way to communicate messages from one language to another.

Huber (2005) pointed out that interpreters systematically take advantage of prosodic properties of the non-native language to access complementary and compensatory information in message perception and to resolve ambiguities of utterances. Moreover, Derwing et al. (1998) experimentally demonstrated that awareness training resulted in better intelligibility of utterances produced by second-language learners who had been instructed to emphasize the prosodic feature of stress; later those second language learners were found to transfer their acquired perceptual skill to spontaneous speech production as well. Therefore, considering all the aspects in training future interpreters, paying attention to prosodic features as an important aspect in the curriculum seems of utmost importance.

1.4 Teaching prosody to interpreters

Studies in the teaching of prosody of English as a foreign language (EFL) during the last decade have made clear the significance of suprasegmental (i.e. prosodic) features (e.g., stress, rhythm and intonation) in the production of language and perception of spoken messages (Anderson-Hsieh et al. 1992, Anderson 1993, Brazil et al. 1980; cited in Chela-Flores 2003: 1). Moreover, it has also been found (Derwing, Munro & Wiebe 1998) that EFL students who had received awareness training emphasizing supra-segmental features, would transfer their knowledge to spontaneous language production in the real world. However, prosodic feature awareness training is not a priority in most EFL and interpreting programs or in materials for instruction (which are currently lacking). The lack of teaching suprasegmentals is not due to extensive gaps in theoretical insights or lack of pedagogical materials but to the fact that practitioners consider it unimportant (Chela-Flores 2003). Rather, the lack of attention seems to be due to the intrinsic difficulty found in the teaching of stress and intonation (Roach 1991: 11; cited in Chela-Flores 2003). In line with this view, Roach (1996: 47) claims that applied linguists should differentiate between what native English speakers do and what the needs of learners of English as a second language would be.

Therefore, according to the findings of my studies and the experimental work that I did, it is highly recommended that curriculum designers of interpreting programs include prosodic feature awareness training in the necessary syllabus for training future interpreters in order enhance the quality of communication of the message. Moreover, material producers for interpreting programs should include the technical aspects and theoretical discussion of prosodic awareness in their materials for instructors in academic settings.

1.5 The issue of directionality

It is rarely the case that translators or interpreters are perfect bilinguals with equal command of both their working languages. Typically, the translator or interpreter learnt one language as the mother tongue, and acquired the second working language at a later stage in life, as a foreign language during a training program as part of a university curriculum. This, obviously, leads to an asymmetry in the proficiency with which the two languages are spoken and perceived. There is a substantial body of literature that shows that speakers and listeners have a (much) poorer command of non-native languages than of their native language. Even in the case of so-called perfect (or early) bilinguals some asymmetry persists, so that one language is dominant over the other. It is also well documented that receptive (sometimes called 'passive') language skills are better developed than a speaker/listener's productive (or 'active') skills. For instance, our passive vocabulary is larger than the active vocabulary: we recognize and understand a much wider range of words than the words that we would actively use ourselves (e.g., Laufer 1998, Brysbaert et al. 2016). Similarly, we are able to interpret syntactic structures that we would never produce spontaneously. The wider scope of our receptive linguistic knowledge will be found both when performing in the native and in the foreign language.

Hypothetically, these two observations have far-reaching consequences for the quality of translation or interpreting jobs. Translators/interpreters will be able to process and interpret highly complex sentences and specialized vocabulary in a non-native working language, which they will not be able to produce in that language themselves. Once interpreted, however, it will be easy for the translator/interpreter to come up with adequate structures in his native language that would express the message he has distilled from the non-native input. In the reverse case, the interpreter will have no difficulty in understanding the input in his native language, but severe loss of quality will be incurred when the message is expressed in the limited vocabulary and restricted and less readily accessible grammatical structures in the non-native target language. The handicap of having to express oneself in a non-native target language will be larger for interpreters than for translators. A translator (of written text) may consult dictionaries, grammars, and a range of digital tools and resources so that, with enough time and effort, the quality of the non-native language will come close to the native ideal. Interpreting a spoken message, however, demands that the interpreter produce the non-native equivalent (almost) instantaneously and without consultation of external resources.

The (predicted) greater difficulty of translating or interpreting from one's native language into a foreign language, as opposed to translating from a foreign language into one's mother tongue, is referred to as the issue of 'directionality' (e.g., Beeby 2009). Directionality has received relatively little attention in the field of translation and interpreting studies. Though some scholars have recently started to discuss it in terms of their own intuitions and experiences, the phenomenon has not been investigated systematically. In fact, the directionality problem has been practically evaded for a long time. Translation into the foreign language, also called 'reverse translation', was simply disapproved (e.g., Newmark 1988) until the 1990s when some scholars started to investigate this issue (e.g., Pavlović 2013). Most translators in the western world trans-

late into their first language (Pokoin 2000). While there are translators who work into their second language, this is less common practice and it is imbued with negative connotations (Kearns 2007). Some scholars (e.g., Newmark 1988) believe that inverse translation, i.e. into the foreign language, results in non-authentic text. Newmark goes even further and says that translation into the second language may well result in amusement and laughter on the part of the native recipient. Be this as it may, an interpreter training curriculum should pay attention to both directions of translating (or interpreting) since translation into the foreign language may be necessary when no first-language translators (or interpreters) are available. Therefore, in this study the issue of directionality is investigated systematically, in an attempt to answer the question which direction of interpreting (straight or inverse) is more sensitive to prosody training.

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Chapter two

Interpreting and its pedagogy: Some prominent issues

Abstract

Interpreting is regarded as a useful communication device when two persons (A and B) who do not speak each other's language, want to exchange information through spoken language. The technique involves the help of a third person, a go-between or interpreter, who speaks and understands both languages. Speaker A produces a stretch of speech, which the interpreter then summarizes and translates into language B. Speaker B's response, is then transferred by the interpreter into language A, and so on. Interpreting studies have been set up to provide a model of the interpreting mechanism, which in turn may be used to set up and improve training programs for student interpreters. When interpreting, the interpreter has to keep (a semantic representation of) the input speech in memory, while formulating the equivalent as a suitable output in the source language. Research in the area of interpreting has not been enough and this field has not flourished the way it should. The curriculum of interpreting studies needs to be modified in order to meet the needs of interpreter trainees so that it can pave the way for training the qualified next generation of interpreters. One of these changes can be in the materials which are instructed at the interpreter training programs. A comprehensive curriculum should be designed such that contrastive phonetics of the working languages is included in it. Establishing comprehensive rules and guidelines for speech production and teaching of prosody is difficult compared with the specific second language learner problem in pronunciation which can be easily corrected in second language learning classes. The nature of prosodic features is inherently complicated and because of the complexity of prosodic feature errors, no specific teaching methodology deals with them appropriately and most of the teaching methods are focused on segmental aspects in second language learner's pronunciation problems. The choice of methodology in the teaching of prosody can be an important aspect as well. The choice of methodology should target individual differences between learners in different contexts. So, it demands that instructors, who are the models in most cases for the interpreter trainees, be conscious and proficient enough in the perception and production of prosodic features of the language(s) that they are working with.

Keywords: Prosody, awareness training, memory, curriculum, interpreting studies, Farsi sound system

2.1 Introduction[1]

On the etymology of interpreting Pöchhacker (2004) states that interpreting was prevalent in some societies before writing and translation. In most of the Indo-European languages interpreting has been used by words that etymologically they are different with translation (Pöchhacker 2004). Mahmoodzadeh (1992) defines interpreting as presenting in the target language the closest possible meaning of what is uttered in the spoken source language, either simultaneously or consecutively, preserving the intention of speaker. Shuttleworth and Cowie (1997: 83) define interpreting as oral translation of speech or text.

Interpreting differs from translation in a number of important respects. First, interpreters should be highly proficient oral communicators. Second, in contradistinction to translators, who have the time to edit the translation, interpreters should render the message on the spot without having time to edit or review their formulations. Third, interpreters should be proficient and qualified enough to do their job without consulting any persons, reference works and other tools whereas this latter practice is possible in translation. Fourth, interpreters are always in the process of making on-the- spot decisions and taking communicative risks. Therefore, they are under a higher level of stress when doing their job compared with translators (Shuttleworth & Cowie 1997).

Interpreting does have different dimensions in practice which should be studied according to their specific features. Pöchhacker (2004) looked at this aspect and pointed out that interpreting cannot be called oral translation of a message. He argues that if we do that, then interpreting would be excluded from signed languages. He stated that by invoking the distinguishing property of 'immediacy', interpreting it can be differentiated from translation. The other aspect in interpreting would be that interpreters do not have time to process the incoming message so that they have to do their job on the spot. In this regard Pöchhacker (2004: 11) holds that through giving importance to the immediacy of text processing, interpreting would be a kind of translation that transfers a message in the target language through a one-time oral (or signed, as the case may be) presentation. According to Kade (1968), interpreting is a kind of translation in which the input (source language) text is presented just once and the output in the target language is processed and rendered under such time pressure that there would be no time for correcting (reported in Pöchhacker 2004). Seleskovitch (1978) sees interpreting as not being oral translation of words; rather it uncovers a meaning and makes it explicit for others. She believes that there are three stages in the act of interpreting:

1. Auditory perception: in this stage, the interpreter attempts to comprehend the input message. This is done through a complicated process of analysis.
2. Quick discarding of lexis and retaining concepts and ideas that represent the input message: in this stage, the interpreter should act properly and promptly, otherwise

[1] This chapter is based on Yenkimaleki, M. (2015). Pedagogy of interpreting reviewed: Some prominent issues. *Scientific Bulletin: Educational Sciences Series Journal,* 1, 52−69 and Yenkimaleki, M. (2016). Why prosody awareness training is necessary in training future interpreters. *Journal of Education and Human Development*, 2, 256−261.

concepts would get discarded and only some scattered words and structures would remain.
3. Immediate production of target language utterances: in this stage, the meaning representation of the input message is reformulated using the vocabulary and grammatical structures of the target language.

In simultaneous interpreting these three processes take place at the same time. In consecutive interpreting the processes mentioned under (1) and (2) are carried out simultaneously as well; it is only the third process that is delayed until the speaker finishes the chunk of text to be translated. As explained in chapter 1, keeping the meaning representation of the input speech in memory until the speaker reaches the end of the chunk, puts a heavy burden on the interpreter.

There are a lot of studies about different aspects in interpreting focusing on theories of interpretation but the pedagogy of interpreting has not has not looked in any depth at what goes on in the interpreter training settings. Gonzalez-Davies is one of the few scholars who do pay attention to classroom practice in interpreter training, specifically memory training (Gonzalez-Davies 2005). Previous studies mostly focus on different dimensions of interpreting itself and do not consider the classroom variables in interpreter training. A perspective which pays attention to both aspects is felt necessary (Gonzalez-Davies 2005). Gonzalez-Davies also emphasizes the teaching techniques in interpreter training. She points out that after the pedagogical debate which resulted in the communicative approach in the 1970s and 1980s, the methods of foreign language teaching have undergone radical changes (Candlin 1978, Brumfit & Johnson 1979). Gonzalez-Davies (2005) also raises some fundamental issues regarding the number of academic settings which train instructors in interpreting studies, the familiarity of instructors in the field of interpreting with pedagogical approaches and principles of training interpreters, the syllabus of interpreting, the materials of teaching in this field, the procedure of applying teaching methods, different teaching methods for undergraduate as opposed to postgraduate studies, the people who can actually teach interpreting, and assessment procedures in interpreting. She concludes that these issues cannot be resolved unless more empirical studies are done on these aspects.

Researchers in the field of interpreting and those are train interpreters do not often collaborate. In this regard, Gonzalez-Davies holds that teachers, theorists and professional interpreters are three parties who could help interpreter trainees. She states that creativity in interpreting cannot be taught but interpreting can be systematically instructed so that, by focusing on theoretical issues, the overall quality of interpreting can be enhanced. There are different views regarding innateness of virtues (e.g., Weischedel 1977) or non-innateness of virtues for interpreters (Gonzalez-Davies 2005). Hervey and Higgins (1992) look at this aspect from the macro-level and consider the inborn talent and the acquired skills in interpreting by asserting that interpreters should take advantage of their inborn talent as well as their learned skills in interpreting. There would be two perspectives for those who are not sure of formal teaching of interpreting. The interpreter trainees who have an inborn talent for interpreting easily develop full proficiency and those who do not have inborn talent for interpreting learn some degree of proficiency through formal teaching in interpreting.

Niska (2005) holds that there are a lot of academic settings which train interpreters as the need for the profession of interpreting has recently increased. Most of these institutions are located in Europe but there are some universities and interpreting schools elsewhere in the world as well.

2.2 A typology of interpreting

There are several types of interpreting that can be distinguished depending on the context in which they occur (Dukate 2009). It should be mentioned that there is a great deal of overlap between some types of interpreting. Anderson (2002) categorized not only different types of interpreting from early sociological analysis but he also presented a three-part interaction model for interpreting, in which a bilingual interpreter has a vital role in mediating between two monolingual interactants. Pöchhacker (2004) pointed out that this is commonly known as bilateral interpreting or dialogue interpreting. Both these terms are closely associated with 'liaison interpreting'. While context-dependent interpreting foregrounds the directionality of interpreting, dialogue interpreting highlights the mode of communicative exchange (Pöchhacker 2004).

International conference interpreting, which is nowadays the most prominent manifestation of interpreting, emerged as a recognized specialty in the early twentieth century, when official French-English bilingualism in the League of Nations was first introduced in international conferencing (Pöchhacker 2004). International conference interpreting came about in order to follow the policy of linguistic equality among the nations in the European Union. Now it is practical in virtually any field of activity including multilateral diplomacy, for which it was initially introduced. It is therefore no longer associated with one particular institutional setting or context (Pöchhacker 2004).

The two best known manners of interpreting that are discerned most are simultaneous and consecutive, which will be discussed in the next section more in detail. It seems appropriate at this point to draw a line of distinction between the two terms 'interpreting' and 'interpretation'. While the term 'interpretation' has often been used interchangeably with interpreting, some writers and researchers insist that the former term should be avoided in this context (Mahmoodzadeh 1992). Keeping a distinction between these terms is of particular importance in the case of court interpreting, among other fields, where interpretation in the sense of 'conveying one's understanding of meaning and intentions' is an activity which interpreters are strictly asked to avoid (Pöchhacker 2004).

2.3 Modes of interpreting: consecutive and simultaneous interpreting

Before the 1920s, it was not necessary for interpreters to make a terminological distinction between simultaneous and consecutive interpreting. After the 1920s, however, technical equipment was developed which enabled interpreters to work simultaneously so that from that moment onwards, consecutive and simultaneous modes of interpreting were distinguished (Pöchhacker 2004).

Shuttleworth and Cowie (1997) define consecutive interpreting as one of the two basic modes of interpreting. Consecutive interpreting is the process by which the interpreter listens to a (sometimes fairly lengthy) section of speech delivered in a source language (while sometimes taking notes, serving as a memory aid rather than being a shorthand transcription of all that is said) and then producing an oral rendition of the same message in the target language.[2] Jones (2014: 5) defines consecutive interpreting as "the interpreter listening to the totality of a speaker's comments, or at least a significant passage, and then reconstituting the speech with the help of notes." Some speakers prefer to talk just for a few sentences and then invite interpretation, in which case the interpreters may rely solely on their memory. On the other hand, in simultaneous interpreting, the participants wear headphones, and the interpreter renders the speaker's words into the target language as the latter continues speaking. The interpreter usually works in a sound-proofed booth that enables everyone involved to focus optimally on the task without the distraction of hearing another language. In order for ideas to be put into words, they must first get clarified in minds. Another person's ideas when encoded, without having the possibility of repeating them word for word (which is what normally does not happen in interpreting), must be put into a clear, structured analysis by the interpreter. To do that, the individual ideas that are expressed by the speaker must be fully understood by the interpreter (Jones 2014). Understanding (decoding the source language), analyzing (computing meaning), and re-expressing (encoding in the target language), are therefore, respectively, the three fundamental components of an interpreter's work.

2.4 Pedagogy of interpreting

Interpreting as a field of scientific inquiry is understudied and has not flourished the way it should. Ma (2003) points out that interpreting as a recently grown-up profession has been recognized in international communities. Interpreters assist people to overcome to language barriers and mediate between people from different communities in their communication. Therefore, on order to accomplish their tasks, they have to have special talents and learned skills, and so the skills which are necessary for qualified interpreters have received considerable attention. According to an analysis of interpreting itself, all the authorities in this field agree that the final goal of teaching interpretation would be to train required skills for interpreters. Looking at the social context and the setting of interpreting, Pöchhacker (2004) mentions that if interpreting is viewed from a historical perspective, the most labeling factor for it would be the social context where the interpreting was performed. In the past, interpreting was conducted when different linguistic and cultural communities got into contact with each other for one reason or another. Moreover, it was used intra-socially when mediation of communication was necessary in heterolingual societies. Considering the ultimate goal of interpretation and its different dimensions, Musyoka and Karanja (2014: 196) claim that the final goal of interpretation would be for the message to have the same impact on the audience of the target language as it was supposed to have for the audience in the source language. Interpretation is a multi-faceted phenomenon

[2] Consecutive interpreting is very typically used in court. Court interpreting is considered a specialist field on its own (Gallez 2014).

which has a sender, a channel and a recipient – like other types of communication. Moreover, they argue that the most important principle in interpreting would be the language proficiency since they believe that interpreting is beyond the rendering of words from source language into target language. It needs getting the meaning of the speech and perceiving the sense of message before transferring it to the target audience. So, it demands that the interpreter should be completely familiar with subject of the message and by considering the context, take advantage of not only the verbal information but also any other types of information in communicating meaning to the audience.

Garzone (2000), looking at the growing field of interpreting and problems associated with it, points out that studies in the field of interpreting focused on different dimensions of interpreting – including information processing, memorization, note-taking, lateralization, psychomotoric and neural activity in interpreting and cultural aspects of it. Binhua and Lei (2009) pay attention to the pedagogy of interpreting and its research challenges. They believe that the growing field of interpreting programs made different scholars more interested than in the past in research in methodological issues in this area and in trying to develop a comprehensive curriculum and syllabi for training interpreters. In some countries this current wave has caused the curriculum of interpreting studies to undergo modifications so that it can meet the needs of interpreting programs. Moreover, Binhua and Lei (2009) argue that interpreting these days is a job with considerable social prestige; they assert that good socio-economic conditions including advantageous academic settings have paved the way to enhance the position of interpreter training programs.

Some scholars, however, believe that just modifying the interpreting curriculum is not enough and that other types of training are also necessary. Kornakov (2000), discussing other dimensions of interpreter training, such as psycho-linguistic training, points out that in training future interpreters the psycholinguistic aspects should be taken into account since self-training and self-preparation would be the most important part of the work. The instructor can help the trainees through guidelines and exercises which can be advantageous in doing their job in future. Kalina (2000) examined the training problems some instructors have faced. Instructors felt that methods and strategies in order to accomplish their goal should be research-based but found no answers to practical questions. Accordingly, Kalina (2000) asserted the need of empirical studies to resolve problems associated with choices to be made in interpreter training, especially studies on the effectiveness of different methodologies in training interpreters.

In summary, the different points of view summarized above converge on the idea that the interpreting curriculum needs to be modified in order to meet the needs of students so that it can make them qualified interpreters. One of these changes concerns the length of interpreter training. The training period at present in Iran is in most of the cases too long. Most students do not show any interest to enter into training settings since they think that it would take a long time for them to graduate and find a job in their field. Therefore, they prefer to embark on other, related fields. Another aspect requiring change would be the quality of training which needs to be reconsidered and modified. In some domains of interpreting at this time there is no training of prosodic features and differences therein between the source and target language involved in the

interpreting task. A third aspect can be the syllabus of instructors in different classes which needs to be studied to see which points and domains function better compared to other ones. Therefore, according to the nature of learning, sound and logical decisions should be taken in order to get good results.

The following points should receive more attention in interpreting studies. Firstly, a comprehensive curriculum should be designed while cooperating with scholars in this field. As Sawyer (2004) pointed out, the most important problem in doing studies on the interpreting curriculum would be unreliable document sources (Pym 1998). Collecting these documents from different academic settings and schools of interpreting studies is so difficult because in most of the cases it is unknown where the documents are archived. Secondly, implementation of the new curriculum should be done with more attention to training settings. In this regard, Sawyer (2004) asserted that the complexity of curriculum design and perceiving this issue by practitioners should be taken into account. Expertise in different dimensions should be available when implementing those aspects and there should be reliable assessment procedures to see whether the curriculum is effective or not. Thirdly, students' performance should be evaluation in different universities according an educational plan with careful attention to all aspects of learning. As for evaluation of students' performance a new policy should be applied. As new software and technologies have become available, the evaluation can be done more precisely than before. However, the evaluation should not include just the performance of students but the entire curriculum and its implementation should also be taken into account.

2.5 The interpreting process

Some scholars look at the immediacy and mental aspect of interpreting and they believe that the processes in the mind of interpreters cannot be observed. They give the example of moving leaves when the wind blows. People can see the movement of leaves and based on that they understand the wind blows. It would be the same in interpreting: people can see the mediation of meaning between two parties but not what goes on in the mind of interpreters and their actual mental processes (Gile, 1988, 1999, Moser-Mercer 1997, 2000, Pöchhacker 2004, Roy 1999). In the interpreting process there are different variables which are all interrelated. The first important element would be concentrating on the source message in order to perceive and analyze it (Colonomos 1992). In this stage the competence of the interpreter and his technical knowledge of the subject matter would be of utmost importance. Of course, the culture and environment in which the interpreting takes place can have a determining role in the transfer of the message.

Ma (2003) emphasizes the role of the interpreting process by mentioning different aspects which are necessary in interpreting. She pointed out that the interpreting process starts with a perception procedure, which then goes on to a decoding procedure. She believes that in the perception stage through auditory and visual perception, the interpreter perceives the message. She states that in this stage listening ability and the setting impact on the quality of interpretation. Then, in the decoding stage, the interpreter extracts the information in linguistic and non-linguistic codes by processing

the stored information in the perceptual auditory storage. In the third stage the message is reproduced. Here the factors which have an impact on the quality of message would be the source, the speaker, the background knowledge and the linguistic competence of the interpreter. Ma asserted further that listening in interpreting is a more complicated process than general listening since the settings and the physical context where the communication is done influence interpretation. Time management and constraint could make the interpreter render the message at a furious pace and noise in the context of interpreting makes the perception of the message difficult for the interpreter (Ma 2003). Then she goes ahead and talks about the recording procedure, which may involve note-taking. The fourth stage is the encoding stage, which would be activation of relevant knowledge in the mind to transfer the message to the audience. Here the choice of words and appropriate structures would be of utmost importance. The fifth and last stage of interpreting process would be the expressing stage. At this stage the interpreter expresses his/her message with the chosen structure to the audience. Self-esteem and self-confidence of the interpreter play a very important role in this stage.

Therefore, the interpreting process starts with perception of the message. Interpreters should be skillful enough to understand the message in the source language, which demands their familiarity with the cultural nuances, setting of interpretations and the type of participants in decoding the message. The first and second steps are of utmost importance for interpreter trainees so that they should develop strategies to perceive the message comprehensively. Then the interpreters should compute meaning with the exposure to the target language and activation of relevant knowledge in their mind to find appropriate equivalences according to the genre of participants. And, in the final stage, they would encode meaning of the perceived message with the appropriate structure and style according to the type audience and settings.

2.6 Omission in interpreting

Generally, the norm is that interpreters should have a complete transfer of the source text to the audience, which does not leave any room for omission. This issue has received a lot of attention in typologies of errors and error analysis. But we know that in some cases omission of some aspects in interpretation enhances the quality of interpreting and as a result communication of message is done properly. Pym (2008) explicitly pointed out that omission, quality of message and the context in which the communication is done, are related. He stated that the high quality in transferring of the message by the interpreters would not be tantamount to transferring all the points in the source text. He pointed out that the quality of interpreting would be to what extent the communication act has achieved it goals. Supporting this perspective, Jones (2014) pointed out that interpreters in some situations are not in a position to render exact and complete messages. So, in such situations interpreters may omit part of the source text in order to relay a more coherent message to the audience. Therefore, in some cases, interpreters intentionally omit part of the source language because they want to transfer the gist of the message so that the audience can perceive the message easily. When this happens, the communication of the message between interpreters and the audience can be achieved comprehensively. We should know that in interpreting the important aspects and essentials are preferred over the completeness of message. However, the

omission issue in interpreting, which is the incomplete form of transfer of message from source language to target language, has been a controversial one. Sometimes omission is considered as an error but in other cases it is looked at as a technique which interpreters resort to in complicated situations, in cases in which they suffer from cognitive overload. Pym (2008: 95) differentiates between low risk omission and high risk omission and he claims that low risk omission would be a technique used by interpreters to manage the time they have to transfer the message; anything which is not perceivable, irrelevant and extra should not be interpreted. Thus, in these cases omission can be a technique which makes the interpretation more coherent. Gile (1995: 173) states that, generally, there would be some points that jeopardize interpretation. He summarizes them as follows: 1. High rate of delivery of language, 2. High density of information, 3. Strong accents, and 4. Incorrect grammar. Research shows that there is a positive relationship between delivery rate and omission by interpreters to the effect that faster delivery makes interpreters omit more redundancies of language.

In some cases the interpreters indeed resort to omitting some part of the message in the terminal stage of the interpreting process because of cognitive overload of their memory or due to fatigue. Whatever the reason, what is of utmost importance, is that the gist of the message should be transferred to the audience and at the same time the interpreters should be loyal to the basic structure of the message. It should not be altered in any way so that there would be misunderstanding in the communication of the message. Considering all these aspects, it should be pointed here, the omission issue in interpreting did not enjoy enough research in the past because of the different cultural contexts. Yet, this issue demands much more investigation.

2.7 Input and output in interpreting

Yenkimaleki and Van Heuven (2013, 2016, 2017) looked at the procedure of the interpreting itself and the role of memory in consecutive interpreting. In interpreting, the interpreter must keep a semantic representation of the input speech in memory, so as to provide acceptable output in the target language. The other aspect in interpreting and input processing would be the familiarity of interpreters with different dialects and pronunciations so that the interpreters may get the message easily and comprehensively. In this respect, Ma (2003) states that interpreters should be proficient enough to perceive the message on the spur of the moment, since the input to the interpreting process is spoken language: the physical sound stimulus evaporates long before the mediation is done. Since different parties in interpreting come from different situations, the procedure of formulating their intentions and their pronunciation will differ from each other. This demands knowing the source and target language rules of pronunciation. There would be some cases that interpreters have to interpret for non-native speakers, whose pronunciation would be difficult to follow because of mother-tongue influence. It would an advantage for interpreters to be familiar with different accents and types of pronunciation so that it can help interpreters in finding clues in perceiving the message and mediation of meaning successfully. There are a lot of non-native English speakers in different organizations in international settings who have different accents and pronunciation types, for instance Nigerian English or Spanish English – to mention just

a few. Therefore, familiarity with a wide range of types of accents and pronunciations seems to be a necessity for interpreters to accomplish their job.
The other important point would be the type of input for interpreter trainees in order to train them skillfully to perform their jobs. In this respect Jest (2011) believes that the ideas of Krashen could be applied here. Krashen (1982, 1985, 1998) emphasized the role of input for second-language learners. Krashen's (1985) input hypothesis states that input should be available and provided to the second language learners, and that input should be a little beyond the learner's current second-language competence. He uses the (i+1) formula to express this idea and says that the provided input should be of interest and relevant to the learner and learner should consciously pay attention to it. Jezo (2011) stresses the importance of understanding the available input. He claimed that the most important aspect for interpreters is to perceive intentions and ideas and not to limit themselves to words. It is practically possible to render the speaker's ideas and meaning without having to perceive every single word he utters or to reproduce every single expression used in the source-language speech.

Obviously, then, input and its understandability for interpreter trainees are important aspects of interpreter training which should be emphasized in the interpreting curriculum. When training interpreters, the ultimate goal in the first stage is to train learners in developing listening comprehension skills so that they have the potential of perceiving the message. Instructors need to expose learners to a range of authentic listening experiences and by doing so they could become familiar with different dialects and pronunciation types. This can be done by using lots of different authentic listening materials, such as stories, conversations and descriptive talks, which incorporate a variety of languages, whether formal or informal, spoken by native speakers or foreign speakers and training awareness in prosodic features of the second language so that interpreter trainees can perceive the points easily. All these activities and tasks will familiarize learners with real and natural listening material, thus, to some extent, problems like message perception, pronunciation, speed, culture, etc., will no longer be a problem anymore. Therefore, it can be concluded that the different points of view which were elaborated here, can be of great help for future interpreter trainees and instructors in the field of interpreting to perceive the message and improve the quality of their work. Moreover, instructors should bear in mind that being familiar with recent theories of message perception and production makes them raise their consciousness to train their students more efficiently.

2.8 Prosody

Prosody is defined as the ensemble of properties of speech which cannot be predicted from the mere linear sequence of segments (i.e. vowels and consonants) that make up a spoken sentence (e.g., Van Heuven 1994, Van Heuven & Sluijter 1996, Nooteboom 1997, Gussenhoven 2015). This is essentially a negative definition which is echoed by traditional term 'suprasegmentals'. The most important linguistic functions of prosody are: (i) to signal the boundaries of (larger) linguistic units in the time domain, such as paragraphs, sentences and phrases, (ii) to qualify the larger domain as finished (terminal boundary, after statements and commands), or unfinished (non-terminal boundary, after non-final clauses and questions), and (iii) to present one element within the

domain as the focus of information (accentuation). Prosody literally means 'accompaniment'. This etymology illustrates that the segmental structure basically defines the verbal content of the message (the words) as in printed text, while prosody imparts a musical layer to the utterances, e.g., the melody and rhythm (e.g., Van Heuven 1994).

Ahrens (2004) claims that prosody is a fundamental aspect of speech. Prosodic features are the necessary for the listener to process the incoming speech (cf. Cutler 1983). Prosody can be a representative of mental-cognitive processes of the speaker when he produces speech (cf. Goldman-Eisler 1958). Perception studies demonstrate that prosodic information carried by pitch and intensity can be used for language identification in conditions where sound units and phonotactics have been degraded (e.g., Mary & Yegnanarayana 2008, Mori et al. 1999, Kometsu et al. 2001).

Gut et al. (2006), paying attention to the teaching of prosody, urge that the goal of instructors in different academic settings should be to make second-language learners perceive and produce the prosodic features of the second language adequately. The needs of second-language learners can be targeted as either 'comprehensible communicative abilities' or 'near-native like language competence'. Instructors take advantage of different methodologies such as teaching theoretical aspects of prosody, consciousness raising of language structure, production exercises and perceptual training. Considering the needs of the students in different academic settings and their expectations, different methodologies can be employed. Instructors have applied different theoretical insights and methods in their training courses and through experience they always try to modify their methods. Gut et al. (2006: 5) refer to the important current problem of prosody awareness training in practice and how this relates to current theoretical issues. They claim that teachers put theories in practice in the classroom and that researchers produce theories but the experiences of the two parties would be different. An exchange of ideas between the two parties, i.e. the practitioners and theory makers, is fundamentally necessary but there is no formal setting for professional groups concerned with second language prosody to exchange perspectives.

I suggest that the same problem exists in the interpreting curriculum in Iran. Instructors in most of the cases are not aware of how prosody helps in message perception and they do not pay attention to it in their working syllabus; and in the few cases where instructors recognize the importance of prosodic feature awareness training, they are not competent and skillful enough to teach their learners to apply prosodic feature awareness strategies in the classroom. So, this issue needs more investigation in different academic settings in order to pave the way for training qualified future interpreters.

2.9 Prosody awareness training and the quality of interpreting

Jilka (2007), writing on the difficulty and problems associated with teaching prosody and training awareness of the learners, points out that establishing comprehensive rules and guidelines for speech production and teaching of prosody is difficult compared with second-language learning problems in the area of segmental pronunciation, since the latter type can be easily corrected. Jilka also says that the nature of prosodic features

is inherently complicated. Because of the complexity of prosodic feature errors, no specific teaching methodology deals with them appropriately and most of the teaching methods are focused on segmental aspects in second language learner's pronunciation problems. Research and data analysis of prosodic feature awareness has its own problems/difficulties. Gut (2007), for instance, claims that second-language prosody research in most cases deals with non-native intonation. The other prosodic domains and their relationships have not been studied comprehensively so far. Generally, investigations do not relate their results to non-linguistic factors which impact on the acquisition of prosody in the second language. The impact of second language learners' native language on their second-language prosody has been the only explanatory point in second-language learning. Ahrens (2004: 10), in order to solve some of the problems of instructors in prosodic feature awareness, states that technology should be called upon to solve the problems associated with this aspect. She claims that through computer-aided analysis of voice characteristics and prosody we can get more information on the relationships between prosodic domains. She also states that, despite the helpfulness of computer-aided analysis of voice characteristics, specialists in language pedagogy should seek active cooperation with experts in voice and signal processing in order to advance the technology. In another study on the effect of computer-assisted prosody training, Hardison (2004) claims that the most important impact of computer-assisted training would be on the acquisition of second-language prosody and on the segmental accuracy of second-language learners' speech. Moreover, she states that when the second-language learners were exposed to prosodic cues in their training it frequently facilitated the recall of lexical content of sentences. This finding is in line with exemplar-based learning models, in which all the attended perceptual details of different tokens are stored as traces in memory. In this study the easiest points to recall were the prosodic and lexical content; these attracted most of the learners' attention. Hirschfeld and Trouvain (2006) urge that there should be lots of studies to develop suitable methods for teaching prosody to second-language learners. It demands recognition of phonetic prosodic deviations, application of exercises in training programs and developing a sound assessment procedure for the mastery of prosodic features by second-language learners. Moreover, they state that systematic awareness training of prosodic features yields better intelligibility in the foreign language, which was illustrated by teaching practice in different academic settings.

Gussenhoven (2015) investigated the role of phonological prominence in the perception of emphasis in structures, which should be correctly perceived by learners in order to understand the message. He pointed out that different factors have impact on listeners' impression of the significance of (parts of) utterances, which in turn influence the listeners' judgments of the importance of words or syllables in them.

Hirschfeld and Trouvain (2007) point out that in the materials which are used in teaching prosodic domains to second-language learners, the choice of exercises is not made appropriately. The materials do not meet the specific needs of the students in providing cues that might enhance prosodic awareness. They argue that the materials should differ according to the learners' first language, their proficiency in the second language, the age of the learners and their learning goals. Moreover, the issue of proficiency of instructors with respect to prosodic features would be another important aspect. In this regard, Hirschfeld and Trouvain (2007) point out that teacher training

programs do not pay attention to the mediation of phonetic and pedagogical basics in training teachers. The result of this insufficient attention to train teachers satisfactorily would be that teachers are not sufficiently qualified to teach phonetic aspects, especially in teaching prosodic domains of the second language to second-language learners.

Therefore, the teaching of prosody should be given a more prominent role in the interpreter training curriculum. Also, in this respect, appropriate materials and data should be compiled carefully according to the mother tongue of the learners and the analysis of the data should be done by professionals to diagnose the gaps in the teaching and students' learning processes. The choice of methods in the teaching of prosody can be an important aspect as well. It should target individual differences between learners in different contexts. Moreover, the instructors themselves should be proficient enough to implement the materials to be developed in the training of prosodic features for the interpreter trainees.

The basic hypothesis underlying the present thesis is that that the interpreting training curriculum that is in use in Iran needs modification and – depending on the non-native languages involved – prosodic feature awareness training should be included in the curriculum of the training for future interpreters. This, in turn, demands that instructors, who are the models for the interpreter trainees, be conscious and proficient enough in the perception and production of prosodic features of the language(s) that they are working with. The materials which are produced for use in interpreter training should include prosody teaching and tasks which make the learners raise their consciousness of prosodic differences between the native language (in our case Farsi) and the second working language (English).

Although omission of message elements is viewed negatively by most instructors, they should be aware that in some cases omitting part of the message may facilitate the mediation of meaning without compromising the recipient's understanding since the interpreters, who are continually under time pressure, cognitively overloaded and tired by concentrating on demanding task, are released from this pressure.

The issues which were elaborated in this chapter, demand more investigation in different societies according to specific contexts. The results of such studies can be of great help for instructors, practitioners, producers of course materials, researchers in the field of interpreting and for future interpreters to improve the quality of their work. To accomplish this, instructors should bear in mind that they need to enter into an intensive exchange of ideas about what they consider good practice with researchers in this area so that the latter may subject these ideas to rigorous experimental testing.

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Chapter three

Effects of teaching prosody awareness on consecutive interpreting from English into Farsi

Abstract

This study investigates the effects of prosodic feature awareness training on the quality of interpreting by interpreter trainees. Two groups of student interpreters were formed. Participants were assigned to groups at random, but with equal division between genders (seven males in each group). The control group was then taught interpreting skills by the routine curriculum, while the other, experimental, group, spent part of the time instead on theoretical explanation and practical exercises emphasizing prosodic differences between Farsi and English. Three raters assessed the quality of the interpreter trainees' performance in a post-test in terms of accuracy, omissions, overall coherence, grammar, expression, word choice, terminology, accentedness, pace and voice. The results show that prosodic feature awareness training did have a statistically significant effect on the quality measures: the overall assessment of the experimental group was 14 points better (on a scale between 0 and 100) than that of the control group. Moreover, the difference was larger for the phonetic/prosodic quality scales (accentedness, pace, voice) than for the other scales. These results have implications for designers of curricula for training interpreters, material producers and all who are involved in foreign-language study and pedagogy.

Keywords: prosody; awareness training; interpreting studies; linguistic stress; English; Farsi

3.1 Introduction[1]

Prosody is the ensemble of properties of speech that cannot be understood from the mere linear sequence of segments (e.g., Nooteboom 1997, Van Heuven 2017). As a first approximation, prosody includes word and sentence stress, word tones, phrasing (by inserting pauses or signaling breaks between phrases, sentences and paragraphs), and intonation (speech melody). Prosody helps listeners to process and understand the incoming message. Therefore, it has an important role in speech communication (e.g., Cutler 2012, Mary 2012). Phonological awareness is the awareness of, and the ability to manipulate, the sound structure of language (Miller & Schwanenflugel 2006). By implication, prosodic feature awareness would then be the conscious capability on the part of a language user to perceive, interpret and manipulate the prosody of a language, i.e. its temporal and melodic properties. Tunmer and Herriman (1984) as well as Tunmer, Herriman and Nesdale (1988) have suggested that prosodic feature awareness develops later than awareness of properties of vowels and consonants. Shankweiler and Crain (1986) argue that conscious met linguistic awareness of phonemic structure (i.e. vowels, consonants and sequences of such segments that make up syllables) develops as a by-product of language acquisition. Thompson, Tunmer and Nicholson (1993) consider language an object of thought rather than the natural result of language acquisition. Instead, they claim that the processing of one's second language is contingent on conscious awareness of explicitly learned differences between the native and the second or foreign language. Therefore, prosodic feature awareness is not an automatic result of (second) language learning and can only be acquired through formal instruction (Huang, Lin & Su 2004).

Jackson and O'Brien (2011) claim that the relationships between prosody, second language speech production and second language comprehension are understudied and demand more investigation. Systematic studies should be done to learn how interpreters may exploit the relationships between prosody and meaning when decoding messages in the source language and encoding the same message in the target language. Such studies would also help second language learners in general. Therefore, the present experimental study investigates the effects of explicit on prosodic feature awareness training of interpreter trainees on the quality of their interpreting performance.

[1] This chapter will appear as Yenkimaleki & Van Heuven (2017). The effect of teaching prosody awareness on interpreting performance: An experimental study of consecutive interpreting from English into Farsi**.** *Perspectives: Studies in Translatology*, 15(1) (in press; DOI 10.1080/0907676X. 2017.1315824). It is an extended version of Yenkimaleki & Van Heuven (2013). Prosodic feature awareness training in interpreting: An experimental study. In L. Gómez Chova, A. López Martínez & I. Candel Torres (Eds.), *Proceedings of the 6th International Conference on Education, Research and Innovation, November 18-20, 2013, Seville, Spain*, 4179-4188.

3.2 Phonetics and interpreting

Translating (of written texts) and interpreting (of spoken text) are complex linguistic skills which are used by a bilingual intermediary when two (groups of) languages users A and B who do not understand each others' language, want to communicate (e.g., Massey, 2007). The go-between takes written or spoken text in the source language A as input and outputs a faithful semantic equivalent of the decoded message in the target language B (e.g., Nolan, 2012). In the past, there has been a tendency to perceive interpreting as an alternative form of translating, but from the second half of the 20th century differentiation between the two areas has become necessary (Massey, 2007, p. 1). Translators may avail themselves of a wide range of information sources, such as dictionaries, terminology lists and encyclopedias, to find the best possible translation equivalents. Interpreters, on the other hand, generally have to deliver their rendition of the input speech on the spot, with minimal delay. Although interpreters can do background research in preparation of an interpreting task, there is no time to consult any resources once the interpreting has begun.

Prosodic sensitivity or awareness should be directed to three important elements: (i) lexical stress, i.e. the location of the syllable in a word that receives emphasis, (ii) intonation, i.e. the pattern of pitch rises and falls that is used to divide continuous speech into sentences and phrases and to mark specific units within those phrases as communicatively important, and (iii) temporal organization by which pauses (often reinforced by melodic means) are inserted between groups of words – roughly fulfilling the function of punctuation marks in a written text (e.g., Whalley & Hansen 2006).

Derwing, Munro and Wiebe (1998) have shown that awareness training led to better intelligibility of second-language learners who had instruction emphasizing prosodic feature of stress. Later, those second-language learners were found to transfer their acquired perceptual skills to spontaneous L2 speech production as well (Field 2005). Interpreters may be taught explicitly how to take advantage of prosodic properties of the (foreign) source language so as to exploit redundancies (i.e. complementary and compensatory information) in the input speech and resolve ambiguous of utterances (Huber 2005). In this way prosodic feature awareness training can be beneficial to interpreters (and interpreter trainees) both in speech production and speech recognition (e.g., Mahjani 2003). Studies of the efficacy of such training programs may contribute to theories of interpreter training and help us understand the interactions between prosodic structure and other linguistic or paralinguistic domains (syntax, semantics, pragmatics…). Therefore, studying and explicitly comparing different languages with different prosodic systems may help us understand the importance of prosody awareness and develop better teaching methods for training interpreters.

3.3 Prosodic consciousness in message perception

The impact of prosody on the development of speech is widely recognized (see e.g., Maddox & Conners 2009). Prosodic features are among the first to be picked by infants acquiring their first language. In fact, the acquisition of prosody may begin before birth, since the unborn child is exposed *in utero* to the low-frequency sounds produced by the

mother, which carry the information on the melody and rhythm of the mother's speech. Appealing to a first-in-last-out principle of learning and unlearning, it is often held that adult second-language learners relatively soon acquire an adequate perceptual representation and pronunciation of the segments of the foreign language but experience great difficulties in replacing the prosodic properties of the L1 by those of the L2 (Wanner & Gleitman 1982, Whalley & Hansen 2006). Prosody, as was argued in the previous sections, plays an instrumental role in the decoding and encoding of meaning. Segmentation of continuous speech into syllables, words and phrases, informing syntactic structure, and emphasizing content words and other salient information are some of the functions of prosody that facilitate the processing of speech (Whalley & Hansen 2006). For successful decoding of input speech and encoding speech output in the non-native language the L2 learner may benefit from an explicit comparison of the prosodic properties of his native language and those of the L2. Moreover, the importance of prosody for an interpreter in bilingual communication between two parties A and B would be the same as in monolingual communication (Ahrens 2004). Since the prosodic features which exist in the source language contribute to the message, they should be adequately expressed in the target language as well.

3.4 Stress

By stress we mean the property of a syllable to be more prominent than other syllables within the same word. In most languages that have stress, the location of the stressed syllable is a fixed property, which can be derived by the application of a simple rule or, when the system is more complex, can be looked up in a pronunciation dictionary. Accent, in contrast to stress, is a property of a word which makes it prominent within a larger prosodic domain (e.g., a phrase or utterance). In most languages, including those which we study in the present paper, it is difficult to predict which words will be accented and which ones will not; the choice ultimately depends on the communicative intentions of the speaker (see e.g., Bolinger's (1972) article 'Accent is predictable if you're a mind reader'). Prosody training, when applied to stress and accent, should make the learner aware, first of all, of the differences between the L1 and the L2 in regularities that determine which syllable is stressed at the word level and which words are accented at the sentence level. For instance, the L1 of the participants in the present study, Farsi, is a language that typically stresses the penultimate syllable in the word. The stress system of English is much more complex, with rules that take the weight of syllables (as determined by the presence of long vowels, diphthongs and coda consonants) into account (e.g., Kager 1989). In practice this means that Farsi learners of English cannot routinely stress the penultimate syllable in English but should learn the stress pattern for each English word separately and store it in their bilingual mental lexicon. However, stress and accent placement do not only differ across languages in phonological terms, i.e., of the rules and mechanisms that govern their location in the abstract linguistic structure of sentences. They also differ in phonetic terms. Stressed syllables may differ from unstressed syllables in loudness (i.e., acoustic intensity and spectral slope), duration, spectral expansion, and the size and segmental alignment of pitch changes (e.g., Lehiste 1970, Van Heuven 2014). Different languages may make different selections from these correlates or weigh them in different ways. For instance, Indian speakers of English execute a very late rise-fall pitch movement on the stressed

syllable of an accented word (as is normally done in Hindi), which is perceived by British-English listeners as stress on the next syllable, so that the word *character* (with stress on the first syllable) is perceived as *director* (with stress perceived and reproduced on the second syllable, Bansal 1966, quoted by Cutler 1983: 97).

Awareness of prosodic differences between native and foreign language should pay off when interpreting text from the L2 into the L1. In this process, explicit knowledge of the L2 prosody would help the interpreter process the incoming speech. In normal speech processing, under optimal listening conditions, prosody is redundant vis-à-vis the segmental information. This is the reason why most conventional orthographies do not explicitly mark word prosody. Stress marks are written in irregularly stressed words in Spanish but not in the spelling systems of other Western languages, including English. Sentence stresses ('accents') are never indicated in spelling, and only the deeper prosodic boundaries are expressed. Question and exclamation marks code meanings rather than specific melodies, and typically 'question' or 'exclamation' is coded in parallel by lexico-syntactic means (question words, word order). Prosody will assume a more important role, however, when segmental information is unreliable – due to a noisy communication channel. Moreover, even though prosody may supply less information than the segments do (sentences cannot be understood from prosodic information only, see e.g., Blesser 1972, Van Heuven 2017), word recognition and speech understanding are severely compromised if incorrect prosody is added to segmentally imperfect speech (e.g., Wingfield 1975, Cutler 1983, 2012, Van Heuven, 1985, 2008, Wang et al. 2011). Wingfield (1975), for instance, showed that prosodic breaks that do not match syntactic breaks result in incorrect sentence understanding, while Van Heuven (1985) found that one out of every two incorrectly Dutch stressed words were not recognized in poor quality synthetic speech – even though the same segmentally imperfect words were easily recognized when correctly stressed.

Listening to speech in a non-native language is inherently noisy, since the linguistic code of the input speech does not match the deep-rooted expectation pattern of the non-native listener (Cutler 2012). It is our hypothesis that drawing the non-native listener's attention to the specific characteristics of the L2 prosody (for instance its stress system), by intensive exposure to words with unexpected stress patterns and/or explicitly pointing out prosodic differences between in the L1 and L2, will help the non-native listener process the L2 input speech. We further assume that knowing how to exploit the redundancies imparted by word and sentence prosody in the L2 input pays off especially when the speech processing task is aggravated by the time pressure and heavy burden on working memory which is unavoidable in interpreting tasks.

Many researchers have emphasized the importance of awareness and 'consciousness raising' for second language learning (e.g., Schmidt 1990). Mainstream cognitive psychologists consider awareness a fundamental pre-condition to learning and even claim that that learning is impossible without conscious awareness (Brewer 1974, Lewis & Anderson 1985, Dawson & Schell 1987). In the field of foreign-language learning these views are reflected by, for instance, Bialystok (1978), who proposed a theoretical framework in which consciousness knowledge plays a key role. In a similar vein, Rutherford and Sharwood Smith (1985) asserted that drawing the learner's conscious

attention to the formal properties of the foreign language can be advantageous to second language learning.

It follows from the above that correct pronunciation and correct use of prosody is important for non-native speakers addressing a native audience. To be true, native listening is extremely robust and can deal with highly deficient speech input. However, when both the segmental information deviates by more than a critical amount from the native norm and the word and sentence prosody is defective, speech recognition and understanding are bound to break down (Cutler 2012). The importance of pronunciation in foreign language learning has been widely known by researchers and language instructors (e.g., Van Heuven 1986, Derwing 2003, Hişmanoğlu 2006). According to Wang and Lu (2011) the urgency of pronunciation teaching has increased with the progress of economic globalization, which demands communication between people from different countries with different native languages and cultures.

The present study addresses the importance of awareness of the stress system of English for Iranian interpreter trainees. In the experiment, English is the non-native source language while Farsi (Modern Persian) is the native target language. This is the default direction of the interpreting task (also called *recto* or straight interpreting). In later experiments, we will also study the effects of prosody awareness training on the quality of the production of non-native speech (i.e., English) when interpreting from native Farsi into English (so-called *verso* or inverse interpreting).

To sum up, then, we will experimentally test the claim that prosody awareness training, at the word and sentence level, will lead to improved performance by Iranian interpreter trainees when asked to interpret spoken English into Farsi.

3.5 Method

3.5.1 Participants

The participants of this study were 30 second-year students (14 males) who were chosen randomly out of 64 students who were studying BA in English Translation and Interpreting at the State University of Arak, Iran. They were then divided into two classes of 15 (7 males in each group) one of which would serve as the experimental group and the other as the control group. All participants, aged between 20 and 22, were native speakers of Farsi and took part in all training sessions during the semester.

3.5.2 Procedures

Before any instruction all participants took a pre-test of general English proficiency. This was done in order to ascertain that the two groups were equal in terms of their command of English at the beginning of the study. Obviously, interpreting from foreign English into native Farsi can only be done properly to the extent that the input language is understood. If the interpreter does not understand a word of the input language, there will be no meaningful output. The better the input is understood, the

better (*ceteris paribus*) the output. The test battery used was the standard Longman's TOEFL English proficiency test (paper-based version, http://www.ets.org/toefl/pbt/about/content/), with separate modules testing the learner's skills as follows:

(1) Listening comprehension: 30 questions about short conversations, 8 questions about longer conversations, 12 questions about lectures or talks (scores range between 31 and 68 points)
(2) Reading comprehension: 50 questions about reading passages (scores between 31 and 67 points)
(3) Structure and written expression: 15 exercises of completing sentences correctly and 25 exercises of identifying errors (scores between 0 and 6 points)
(4) Writing: one essay with a length of 250 to 300 words (scores between 31 and 68 points).

The score test takers receive on the Listening, Reading and Structure parts of the TOEFL test is not the percentage of correct answers. The score is converted to take into account the fact that some tests are more difficult than others. The converted scores correct these differences. Therefore, the converted score is a more accurate reflection of the ability than the raw score is. The final test score on the paper-based version of the TOEFL test ranges between 310 and 677. In the results section we report the raw scores on the four components as well as the overall TOEFL score (after weighting and conversion).

The control group received routine instruction in interpreting, i.e., the routine curriculum and the syllabus which has been used in the English Translating and Interpreting Department of Arak State University. For this group, the techniques of interpreting, different aspects of interpreting, and types of interpreting were normally instructed and practiced. The experimental group spent 20 minutes less time per session on the routine curriculum and instead received awareness training on prosodic features of English (stress at word and at sentence level). Altogether each group took part in 18 sessions (two hours per session and one session every week) for a total of 36 hours of instruction. In both classes authentic extracts from spoken English were presented to the students, who then interpreted the extracts consecutively.

Formative quizzes administered from time to time during sessions of program in order to provide feedback on progress to both students and instructors. The same post-test was administered to both control and experimental groups alike to measure the quality of (consecutive) interpreting at the end of the treatment (see a sample of this test in Appendix 1). The test included ten 30-second extracts to be interpreted with two-minute intervals between extracts. The recorded extracts used in the instructional sessions were authentic English. They included news, political discussions and social interviews. In the choice of extracts careful attention was paid to sentences in which stress at the word and/or sentence level clearly affected meaning, as in e.g.: *the market is an institution in which wealth acquires power, wealth controls what gets produced and who gets it,* the word *wealth* was accented the first time it was mentioned but was de-accented the second time to indicate that the listener should not look for a new referent (for more information, see the three texts which were evaluated by the raters in Appendix 1, pp. 52–88).

Student-interpreters participated in the final test in a language laboratory in the presence of a classroom instructor. Students were seated in sound-proofed half-open cubicles which attenuated ambient noise well enough to yield clean recordings. They listened to the source texts being played to them over a loudspeaker at a comfortable listening level. The participants took note of whatever they heard in the extracts and wrote down their perception of the message. After every 30-second fragment they were allowed two minutes to consult their notes and to record an interpretation of the source text in Farsi. Recordings were made directly onto a digital computer through individual, table-mounted microphones.

Three out of the ten recorded texts per participant (see above) were then evaluated by three expert judges of interpreting quality. These were three senior colleagues in the Department of English in the Humanities Faculty of Tafresh University, Iran, i.e., a different university than the one that hosted the experiment. All three judges were experienced instructors in interpreting between English and Farsi, and did not know any of the students whose performance they were asked to judge. Evaluation criteria (see Table 3.1) were explained beforehand (based on Sawyer 2004). Judges rated the students' performance independently of each other in different rooms and at different times. The order in which the 30 student interpreters were rated was the same for all judges; subjects in the control group were presented before any of the students in the experimental group were rated. Raters were aware of this order. The three fragments selected for each subject were presented in immediate succession. The materials were played back over small loudspeakers without interruptions or repetitions; judges noted down their marks (one for each criterion) on paper evaluation sheets as the fragments progressed. Note that the criteria were weighted differently, as indicated in Table 3.1, as the maximum number of score points that the rater could award differed between scales.

Table 3.1. Ten evaluation criteria subdivided into three domains used in the quality judgment of interpreting performance. The numbers are the maximum score that can be awarded for the criterion at hand. The overall maximum score equals 100 points. After Sawyer (2004).

Meaning		**Language use**		**Presentation**	
Accuracy	20	Grammar	7	Pace	10
Omissions	15	Expression	7	Voice	10
Overall coherence	10	Word choice	7		
		Terminology	7		
		Accent	7		

The ten evaluation criteria are defined and motivated as follows:

(1) *Accuracy:* Interpreters should be faithful all the time to the meaning of source language. It means than an optimal and complete message should be transferred to the target language such that the content and intent of the source language should be preserved without omission or distortion. Accuracy of interpretation should be

a primary concern for interpreters. Discrepancies in meaning and intention between source and target text are not acceptable.

(2) *Omission:* Jones (2014) pointed out that interpreters in some situations have insufficient time to render exact and complete messages. In such situations interpreters may omit part of the source text and yet deliver a coherent message to the audience. To do so, interpreters may intentionally omit part of the source language and concentrate on transferring the gist of the message. As a consequence, some omissions are considered errors but in certain complicated situations they are unavoidable, e.g., when the interpreter suffers from cognitive overload. In this study omissions were not counted against the interpreter as long as the interpretation preserved the content and intent of the source language; if not, they were scored as errors.

(3) *Overall coherence:* Coherence is the extent to which the interpreter's output is meaningful and purposeful. Message coherence is a key aspect in interpretation, which includes conceptual connectedness, evaluative and dialogical consistency and textual relatedness.

(4) *Grammar:* In this study the attempt was made to evaluate the speech production of the participants observing the standard structural rules of English.

(5) *Expression:* Utterances should be appropriate regarding formality and informality with the target audience. Moreover, the utterances should be a manifestation of appropriate use of target language.

(6) *Word choice:* The choice of words in the target language should be done according to the genre of source language. Moreover, in interpreting the expectations of the audience (in relation to the social class they belong to) should be taken into account as well.

(7) *Terminology:* Interpreters should be familiar with technical terms of the subject matter that they are interpreting. In this study, the attempt was made to see to what extent the participants were choosing the technical terms when transferring the message.

(8) *Accent***:** Since the interpreter's intelligibility will depend on the quality of his/her pronunciation of the target language, the strength of the interpreter's accent was judged (in the case of interpreting into the interpreter's native language, this criterion applied more or less vacuously – and will vary only in so far as a strong regional accent would compromise the interpreter's intelligibility).

(9) *Pace:* It is widely recognized that a rate of delivery of speech between 100 and 120 words per minute (wpm) is optimal for English speech (e.g., Gerver 1969, Seleskovitch 1978, Lederer 1981). In the present study, an intuitive judgment was made of how optimal the interpreter's rate of delivery was, i.e., neither very slow nor so fast that intelligibility would be compromised.

(10) *Voice:* Generally an interpreter with pleasant and relaxed voice is more appreciated than one with a strained or nervous voice. An attempt was therefore made to judge globally to what extent the voice of the participants is appropriate for transferring the message.

3.6 Results

The results of the experiment will be presented in four sections. In § 3.6.1 we will review the basic outcome of the experiment, and the test to see whether indeed the prosody awareness training makes a significant contribution to the students' performance as consecutive interpreters. In § 3.6.3 we will analyze the effects of the awareness training in more detail. Since the training aims at improving the students' understanding of prosodic differences between English and Farsi, we will separately analyze each component of the post-test and test the hypothesis that components that specifically address prosodic skills in the interpreting performance should benefit more from the awareness training than other components. Finally, in § 3.6.3 we will attempt to find a statistical model that optimally predicts the quality of the student's performance as a consecutive interpreter from his/her component scores on the pre-test and the training program taken (i.e., with or without special emphasis on prosody).

3.6.1 Effect of training program

Table 3.2 summarizes the raw component scores of the proficiency test of the control group (upper part of table) and of the experimental group (bottom part), i.e., before conversion to standard scores.

As a statistical precaution, one-sample Kolmogorov-Smirnov (KS) tests were run to ascertain that the overall TOEFL proficiency scores were distributed both normally and uniformly. The results show that the distribution does not deviate significantly from normalcy, $z = .527$ ($p = .944$, two-tailed) nor from uniformity, $z = .803$ ($p = .539$, two-tailed). Moreover, a two-sample KS test showed that the shape of the distribution of the TOEFL scores did not significantly differ between the experimental and control group, $z = .913$ ($p = .375$). It was decided that standard parametric statistics can be safely used to analyze the data.

A t-test for unrelated samples then shows that none of the small differences on the pre-test and its components between the experimental and control group is significant, $t(28) = .415$ ($p = .682$) for Listening comprehension, $t(28) = 1.087$ ($p = .288$) for Structure and written expression, $t(28) = 1.421$ ($p = .168$) for Reading comprehension and $t(28) = -1.029$ ($p = .312$) for the overall TOEFL proficiency score.

From the ten interpreted texts recorded by each student, three were selected for further analysis. The same three texts were used for all 30 participants. These were the third, fourth and fifth fragments presented. It was felt that fragments 1 and 2 should be considered practice material, and that later fragments (6 through 10) might unduly suffer from fatigue on the part of the participants. The three fragments were presented to three expert raters, including the researcher, who rated the participants' performance on the post-test. The results of their rating are presented in Table 3.2 (control group in top half of table, experimental group in bottom half).[2]

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[2] I thank my colleagues at Tafresh University, Dr. Ahmadi (RA) and Dr. Majid (RM) for their willingness to act as raters in the experiment. The third rater was the present author (RY).

Table 3.2. Raw component scores on TOEFL proficiency test obtained by control (upper part) and experimental groups (bottom part). The rightmost column contains the standardized overall TOEFL scores computed from the component scores. Within each group subjects are listed in descending order of TOEFL score (TWE: stands for test of written English).

Nr.	Student	Gender	List. Comp	Structure and Writing	Reading Comp	TWE	TOEFL score
Control Group							
1.	SaM	Female	63	58	58	5.00	610.00
2.	PoP	Female	60	57	56	4.67	586.67
3.	DaD	Male	54	57	57	4.33	563.33
4.	EiM	Male	57	55	53	4.33	553.33
5.	KhR	Female	54	56	53	4.00	540.00
6.	ZaN	Female	53	54	52	4.00	530.00
7.	ElM	Female	52	53	50	4.33	513.33
8.	AtH	Female	52	52	50	4.00	510.00
9.	ReR	Male	51	52	50	3.67	506.67
10.	AlA	Male	50	52	50	3.33	503.33
11.	MaN	Male	49	52	50	3.00	500.00
12.	LeK	Female	49	51	49	3.00	490.00
13.	JaR	Male	48	49	49	3.33	473.33
14.	AsH	Male	47	48	49	2.67	446.67
15.	NeF	Female	47	48	49	2.67	446.67
Mean			52.2	53.1	51.7	3.76	518
SD			4.2	3.4	3.20	.73	46.52
Experimental group							
1.	AlR	Male	62	60	58	5.33	613.33
2.	MaH	Female	60	58	56	5.33	603.33
3.	RaM	Male	56	57	56	4.67	566.67
4.	MoH	Male	55	57	56	4.33	563.33
5.	NaN	Female	54	56	54	4.33	553.33
6.	SaK	Female	54	56	54	4.33	553.33
7.	ArA	Male	53	56	54	4.00	550.00
8.	ZoM	Female	53	56	54	4.00	550.00
9.	PaN	Female	52	54	56	3.67	546.67
10.	BaN	Male	52	51	54	3.33	523.33
11.	KiK	Female	51	54	51	3.67	516.67
12.	MaR	Female	50	51	49	3.33	493.33
13.	NaH	Male	49	50	49	3.00	480.00
14.	HaM	Male	48	50	49	2.67	476.67
15.	TaB	Female	47	48	49	2.67	446.67
Mean			53.1	54.3	53.3	3.91	535.77
SD			4.1	3.5	3.1	.84	47.58

Table 3.3. Post-test scores (on a scale from 0 to 100 = best) given by three raters for individual students in control group (upper part) and experimental group (bottom part). The rightmost column contains the mean of the three ratings. Subjects are ordered as in Table 3.2.

No.	Student	RY	RA	RM	Mean score
Control group					
1.	SaM	84	83	85	84.0
2.	DaD	76	78	77	77.0
3.	PoP	81	80	79	80.0
4.	KkR	66	65	64	65.0
5.	EiM	69	70	68	69.0
6.	ZaN	63	64	62	63.0
7.	ElM	62	60	61	61.0
8.	ReR	54	53	55	54.0
9.	AtH	57	58	56	57.0
10.	AlA	52	50	51	51.0
11.	LeK	43	42	44	43.0
12.	MaN	46	48	47	47.0
13.	JaR	40	42	41	41.0
14.	AsH	38	36	37	37.0
15.	NeF	33	32	34	33.0
	Mean	57.6	57.4	57.4	57.5
	SD	15.9	16.0	15.5	15.8
Experimental group					
1.	AlR	92	93	97	94
2.	MaH	93	91	92	92
3.	NaN	81	80	82	81
4.	ArA	80	78	82	80
5.	RaM	88	90	89	89
6.	MoH	73	73	76	74
7.	SaK	84	86	85	85
8.	ZoM	70	73	70	71
9.	PaN	69	71	70	70
10.	KiK	61	62	60	61
11.	BaN	63	62	64	63
12.	MaR	58	60	59	59
13.	HaM	51	50	49	50
14.	NaH	53	55	54	54
15.	TaB	47	46	48	47
	Mean	70.9	71.3	71.8	71.3
	SD	15.1	15.2	15.8	15.3

To see whether the post-test scores by the three different raters are sufficiently reliable the inter-rater reliability was computed (using the SPSS Reliability subprogram) in terms of the intraclass correlation coefficients. This requires considering the way raters were selected, importance of specific raters, and the number of raters. Here, three randomly selected raters judged all participants on the same criterion. No individual rater was considered to be more or less important than the others. Absolute agreement and degree of consistency varied minimally. Therefore, a two-way random model was employed. In addition, because the reliability of the mean of all raters is aimed at, the intraclass correlation was computed as an overall measure of interrater consistency (this coefficient is identical to Cronbach's alpha). The intraclass correlation amounted to .997, which indicates a very high degree of agreement between the three raters. On the basis of this result, the mean rating score (right-most column in Table 3.3) is considered a valid estimate of the students' performance as consecutive interpreters.

In order to compare the results of both the control and the experimental groups and to know whether the difference in the means truly stems from the awareness training in stress at the word and at sentence level in interpreting taken by the experimental group (i.e., treatment), the t-test was employed. The independent-samples t-test was chosen to compare the means for the two groups of participants. Ideally, for this test, the subjects should be randomly assigned to two groups, so that any difference in response is due to the treatment and not to other factors, which conditions were clearly met in the present case (see above). Before running the t-test, the final test scores were submitted to the two-samples KS test to check the groups' final test results for normalcy, uniformity and homogeneity. It is concluded that the final scores (i.e., the mean interpreting performance ratings) of both groups are sufficiently homogeneous, so that t-tests (and other parametric tests) can be safely used, $z = 1.095$ ($p = .181$, two tailed).

Figure 3.1 plots the relationship between the pre-test (TOEFL test) and post-test (mean rating) scores of the individual students, with separate symbols for participants in the experimental group (filled symbols) and in the control group (open symbols).

The overall correlation between the pre-test and post-test scores was $r = .930$ ($N = 30$, $p < .001$). Correlations computed for each group separately are somewhat better, $r = .964$ for the control group and $r = .943$ for the experimental group ($N = 15$, $p < .001$ in both cases). The reason, obviously, why the correlation for separate groups are better than for the overall sample is that there is a systematic difference between them. Figure 3.1 shows that the performance on the post-test by the experimental group tends to be better than that achieved by the control group. This is visualized by the regressions lines drawn in Figure 3.1 for each group. The regression line for the experimental group is some 10 percentage points higher than that of the control group. This illustrates the point that the two groups do not differ in terms of their pre-test performance; the difference is in the post-test only, with better performance for the experimental group.

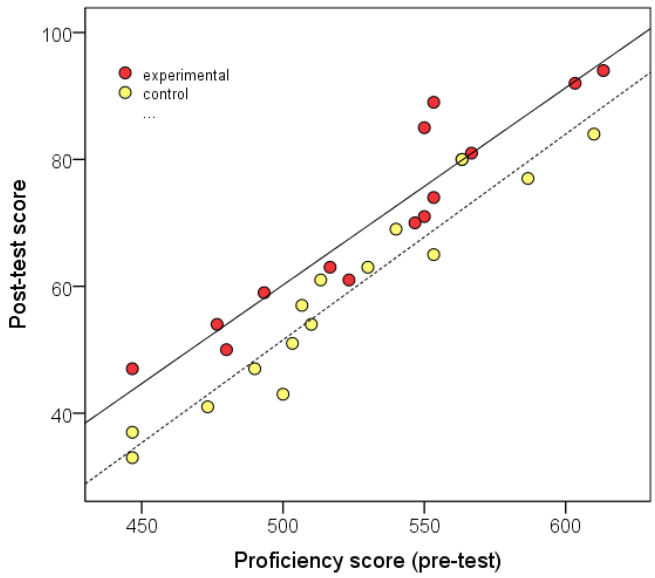

Figure 3.1. Post-test score plotted against the pre-test TOEFL score for each of 30 subjects. Members of the experimental group are indicated by dark/red symbols, members of the control group by light/yellow symbols. Linear regression lines have been drawn for each group separately.

An independent-samples t-test on the post-test scores (mean interpreting performance rating) for experimental and control groups shows that the advantage of the experimental group (71.3) over the control group (57.5) is highly significant, $t(28) = 2.440$ ($p = .001$, one-tailed).

The sharpest test of the effect of the prosodic awareness training can be obtained by determining for each student the difference between his/her position (relative to the peer group) in the pre-test and the post-test. In order to make such a comparison possible, the raw scores on the pre-test and of the post-test had to be converted to standard scores, by applying the z-transformation (i.e., by subtracting from each individual score the group mean score and then dividing the difference by the standard deviation). The resulting z-scores (with a mean of 0 and a standard deviation of unity for both the pre-test and the post-test) can be directly compared. The effect of the intervention (the training programs for the experimental and the control groups) can then be determined by computing the difference between the z-score on the post-test minus that of the pre-test. A positive difference in z-scores will indicate that the intervention was beneficial. The hypothesis is that the intervention will be more beneficial to the experimental group than to the control group. The effect will be stronger, and statistically more significant, than what was computed above, because the scores on the pre-test and the post-test are strongly correlated, so that a t-test on the difference scores should be much less contaminated by error variance. A t-test on the difference scores does indeed show that the .45-z advantage of the experimental group over the control group is highly significant, $t(28) = 4.062$ ($p < .001$).

3.6.2 Specific effects of awareness training on prosodic components of test

As was explained in § 3.6.1, both the TOEFL pre-test and the post-test scores were a (weighted) average of scores obtained by each student on specific groups of test items or components addressing different subskills. For instance, the TOEFL pre-test comprised separate test components assessing the student's listening comprehension, reading comprehension, grammatical knowledge and writing ability. The post-test scores were based on ratings by three experts for ten performance scales addressing different aspects of the student's interpreting performance. Some of these scales relate directly to prosody (e.g., Accent, Pace and Voice) while others clearly do not (e.g., use of Grammar, Choice of words and Terminology).

In the present section I will evaluate the effect of the prosody awareness training on the students' interpreting performance more directly and more specifically than in the preceding sections by analyzing the component scores on the post-test separately. The prediction would be that prosody awareness training should have a beneficial effect on the rating scales that relate to prosody rather than the other, non-prosodic rating scales. If this difference between the two sets of rating scales can be shown, the results clearly bear out that the training program addresses the student's prosodic subskills in the interpreting performance. In the ideal case we would hope to establish that the experimental training program boosts the student's performance on all ten rating scales but gives an extra boost to the prosodic subskills.

Table 3.4 lists the mean ratings (and the standard deviations) obtained by the 15 students in the control group (left) and the 15 in the experimental group (right). Table 3.4 shows that, with the exception of just one scale, i.e., Coherence, the experimental group outperformed the control group on all aspects of consecutive interpreting. Moreover, the results show that the improvement obtained for specific prosody-sensitive aspects of interpreting performance is definitely larger, in terms of statistical separation (i.e., magnitude of t) than for the non-prosodic rating scales. If we weigh the ten scales on a par, by directly comparing the sizes of t, the improvement on the three prosodic scales is indeed significantly larger than that on the other seven scales, $t(8) = 3.367$ ($p = .005$, one-tailed).

The overall conclusion of this section must therefore be that the experimental training program leads to a broad, general improvement in (nearly) all aspects of consecutive interpreting performance, but boosts prosodic skills most. This latter finding is what I would hope to expect from a training program that addresses prosodic skills and awareness.

Table 3.4. Mean and SD of rating scores obtained on ten aspects of consecutive interpreting by students in control and experimental group (N = 15 per group). The three scales at the bottom address specific prosodic components. The difference between the means (Experimental – Control), and the associated t- and p-values (df =28, two-tailed) are specified.

Scale	Range	Control group		Exp. Group		Difference		
		Mean	SD	Mean	SD	Mean	t	p
Accuracy	1..20	11.6	3.1	14.4	3.1	2.7	2.444	.021
Omissions	1..15	9.5	2.4	11.0	2.4	1.6	1.790	.084
Coherence	1..10	7.6	1.4	7.2	1.6	–.4	–.728	.473
Grammar	1.. 7	4.3	1.0	4.8	1.1	.6	1.455	.157
Expression	1.. 7	4.0	.9	4.7	1.1	.7	2.030	.052
Word choice	1.. 7	4.2	1.2	4.8	1.2	.6	1.428	.164
Terminology	1.. 7	4.0	1.2	4.9	1.2	.9	2.178	.038
Accent	1.. 7	3.4	1.5	6.3	.8	2.9	6.693	< .001
Pace	1..10	4.6	1.6	6.7	1.5	2.1	3.817	.001
Voice	1..10	4.4	1.9	6.6	1.7	2.1	3.165	.004

Note: Levene's test for homoscedasticity (equal variance) was insignificant for all ten scales; accordingly, no adjustment of degrees of freedom was made.

3.6.3 Predicting consecutive interpreting performance by multiple regression

In this final results section I will consider the question to what extent the students' performance in consecutive interpreting can be modeled, i.e., statistically predicted, from component scores obtained by the individual subject on the TOEFL pre-test in combination with the individual's group membership (i.e., whether the student took the prosody awareness training program or the traditional curriculum).

Earlier correlation analyses showed that the student's post-test score can be predicted quite well from his/her overall TOEFL-score and that the correlation increases further when computed separately for the experimental and control groups. We will now see to what extent the five predictors identified afford an even better prediction of the student's interpreting performance. The correlation matrix of the five predictors and the criterion is given in Table 3.5.

The best single predictor of the post-test score is the student's score on the Structure & Written Expression component of the TOEFL test. Table 3.5 also shows that the components of the TOEFL test are very strongly intercorrelated so that little improvement remains when additional components are added. The student's group membership correlates moderately but significantly with the post-test score, indicating that belonging to the experimental group leads to a higher score on the post-test. Moreover, the intercorrelations between group membership and the components on the TOEFL-test are small and insignificant – as they should be. This makes group membership a good second predictor of the student's final score on the post-test.

Table 3.5. Correlation matrix of five predictors and post-test as the criterion variable. Only the non-redundant part of the 6 × 6 matrix is given. Cells contain the r-value and (in parentheses) the p-value of the coefficient (evaluated at N = 30).

	Post-test	Group	LC	SWE	RC
Group	.419 (.011)				
Listening comprehension	.853 (< .001)	.078 (.341)			
Structure and written expression	.936 (< .001)	.201 (.143)	.901 (< .001)		
Reading comprehension	.889 (< .001)	.259 (.083)	.868 (< .001)	.896 (< .001)	
Test Written English	.887 (< .001)	.102 (.296)	.938 (< .001)	.927 (< .001)	.830 (< .001)

When all predictors are entered together, the model explains 95% of the variance in the post-test scores (R = .974). Using stepwise multiple linear regression yields an optimal model with three predictors. The predictors are, in descending order of importance, SWE, Group and the Test of Written English. The remaining predictors no longer make a significant contribution. The optimal model accounts for 94% of the variance in the post-test scores. Table 3.6 summarizes the optimal stepwise multiple regression model.

Table 3.6. Summary of stepwise multiple regression predicting the student's post-test score from group membership (experimental, control) and components of TOEFL pre-test.

Predictors	Beta	t	p	R^2	ΔR^2
Structure and written expression	.612	4.731	< .001	.877	
Group	.266	5.446	< .001	.932	.054
Test Written English	.293	2.298	.030	.944	.012

The conclusion from this subsection is that the student's performance as a consecutive interpreter can largely be predicted (i.e., with some 95 percent accuracy) from a combination of components of the TOEFL pre-test. Whether the individual student was a member of the experimental group or the control group is the second-most powerful predictor of the post-test score.

3.7 Conclusion

In this study the effect of prosodic awareness training at the word and at the sentence level on the performance of interpreter trainees was examined. Our results showed that

interpreter trainees perform better they have acquired conscious knowledge word and sentence prosody and of the differences in prosody between their working languages. A more detailed statistical analysis of our data showed that our prosody awareness training yielded better interpreting performance on all quality criteria evaluated in this study – with the exception of one, i.e., textual coherence. Most of the effects of the awareness training were small and statistically insignificant (the negative effect of the training program on textual coherence was especially insignificant). Crucially, the effects of the prosody training on prosody-related evaluation criteria (accentedness, pace and voice) were strong (and significantly stronger than the effects on the other seven criteria. This clearly indicates that the training is specific and that the students' improved performance are not due to some halo-effect caused by the novelty of this part of the curriculum. Rather, we would argue that the gain in performance is obtained because of what Whalley and Hansen (2006) claimed, viz. that increased awareness of prosodic cues in the (non-native) input speech facilitate the listener's task of breaking up the incoming stream of sound into syllables, words and phrases, inform syntactic structure, and emphasize salient content words.

It has been shown before that a closer approximation of the prosody of native English yields better intelligibility and comprehensibility of non-native speech (e.g., Derwing et al. 1998, Field 2005; also see § 3.1). In a recent study by the present authors it was shown that our prosody training program was successful in boosting the quality of the speech output in so-called inverse consecutive interpreting, i.e., from native Farsi into non-native English (Yenkimaleki & Van Heuven 2016c). In inverse interpreting, of course, the increased awareness of the prosodic requirements of English is directly observable in the output of the interpreting process. In the present experiment, which targeted straight interpreting from foreign into native language, the effects of prosody are indirect, since they primarily affect the processing of the non-native input speech. Interestingly, the effects of the prosody training program we found are statistically stronger for the present study, i.e., the effect sizes are larger for interpreting into the native language than into the foreign language. Although we do not precisely know why this should be so, additional experiments with independent but similar groups of Iranian participants have shown that the same prosody training also yielded significantly better performance on English speech comprehension tests (Yenkimaleki & Van Heuven 2016a, see also Chapter 5) and on English word recognition tests (Yenkimaleki & Van Heuven 2016b, see also Chapter 4). We interpret these findings as unequivocal support for our claim that increased prosody awareness facilitates the processing of non-native input speech.

There used to a popular belief that knowing two languages very well is enough for a language user to produce a high-quality translation (e.g., Harris 1977, Harris & Sherwood 1978, Lambert 1978). For instance, it has been shown that perfect (early) bilinguals are not necessarily able translators or proficient interpreters (Grosjean 2001). The upshot of this reasoning, then, is that an excellent command of two working languages (one native, one non-native) is a necessary but not a sufficient condition for high-quality translating and interpreting. That knowing how to process and understand the foreign input language is a pre-condition to interpreting is shown convincingly by our finding that the general level of proficiency in English (as measured by the TOEFL test) is of overriding importance when it comes to predicting the quality of the student's

interpreting performance. The quality assessment of our student interpreters ranged between 33 and 94 points on a scale from 0 to 100. The exact location of the individual score within this range could be predicted with 88% accuracy from one single component score the student obtained half a year earlier on the TOEFL test. Given this overwhelming effect of the TOEFL score it is all the more surprising that the prosody awareness training still added 5 percent accuracy (on average) to the prediction of the students' performance as an interpreter. One might wonder, at this juncture, why the Structure and Written Expression test in the TOEFL battery should be the component that supplies the best prediction of the student's interpreting performance rather than, for instance, the student's listening comprehension score. The latter component would relate more directly to language skills that play a role in processing the input speech as part of the interpreting process. The point is that the four component scores of the TOEFL test we administered are very strongly intercorrelated, with coefficients ranging between $r = 0.830$ and $r = 0.857$. Differences in the magnitude of r with this narrow range are statistically insignificant and therefore not meaningful. All one can say at this point is that the components of the TOEFL test are equally influential. That the Structure and Written Expression component is singled out as the first predictor in the optimal model (see Table 3.7) depends on the accidental circumstance that this component has a slightly (but insignificantly) better correlation with the criterion than the other components, which in turn cannot add substantially to the prediction; this is a consequence of the 'winner takes all' principle underlying the stepwise regression model.

The four language skills tend to be strongly correlated in foreign-language proficiency tests (e.g., Poelmans 2003, Liu & Costanzo 2013). Given the more or less equal amount of time and attention that the foreign-language curricula spend on developing production and reception skills in both the visual and spoken language modalities, it is unusual for a foreign-language learner to become highly proficient in just one skill rather than in all four. Moreover, there is substantial cross-talk between the skills: new words and structures that the student meets while reading, will transfer to listening, and at least part of what is learnt through reading and speech perception the student will use later in his own writing and speech production. As a consequence of this we found it impossible, for instance, to find a-typical Dutch students of English with good listening comprehension skills but with poorly developed basic vocabulary and grammar (Poelmans 2003: Chapter 4 'Predicting the listening skill'). The Structure and Written Expression module of the TOEFL test does not really target the student's writing skill per se (this is done more directly by the writing module of the test). Rather, it tests the student's knowledge of English grammatical structure by asking the participant to detect ungrammaticalities and to complete unfinished structures. By doing so, the module tests the student's use of grammatical and lexical knowledge to predict how an English sentence develops over time. Being able to predict how a sentence will go on is known to be a powerful subskill in word recognition and sentence comprehension (e.g., Rost 2002).

Our results clearly show that prosody awareness training contributes substantially and significantly to the quality of interpreting from foreign into native language by native speakers of Farsi. The effects of prosody training will differ for other native-foreign language pairs, depending on the linguistic and phonetic similarity of the prosodic

systems involved. The word and sentence prosody of English and Farsi would diverge more from one another than, for instance, German and English or Dutch and English but not as much as English and French. The pedagogical implication of this study would be to incorporate effective prosodic activities in the interpreter training curriculum, at least in Iran. This can be done by exposing the students to authentic materials spoken in English with an abundance of word and sentence stresses that occur in unusual positions from the Farsi point of view. Whether the exposure should be supplemented with explicit explanations of the prosodic differences is an open question that should be addressed in future research. Future research should also test the added value of computer-aided instruction in the area of prosody awareness training.

Gut, Trouvain and Barry (2007) claim that based on the native and the target languages of the learners, instructors should employ different methodologies in practice. Depending on which languages are dealt with, instructors should choose different methodologies. One way to improve pronunciation and prosody would be for second-language learners to record their own speech, listen to it, compare their imitation with the native model, and repeat the exercise until they can no longer detect a difference between model and imitation (e.g., Sundström 1998, Bissiri & Pfitzinger 2009). There is, however, a limit to what discrepancies foreign-language learners are able to detect between a native model and their own imitation of it. The imitation process can be enhanced by providing auditory and/or visual feedback on the learner's attempts. For instance, prosodic errors can be auditorily detected by the learner by applying 'prosody conversion', i.e., replacing the native speech melody by the learner's imitation or vice versa (e.g., Nagano & Ozawa 1990, Sundström 1998, Hirose 2004). Providing visual feedback would be another powerful tool. Here a (stylized) representation of the learner's imitation of the speech melody is superimposed onto the native model, so that the learner sees where the discrepancies and what can be done to approximate the native model contour more closely (e.g., De Bot & Mailfert 1982, De Bot 1983, Hardison 2004, Su & Tseng 2015).

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Appendices to Chapter three

Appendix 3.1: Side-by-side comparison of training program for experimental (left page) and control (right page) groups.

Appendix 3.2: Information about the TOEFL test which has been applied.

Appendix 3.3: Sample questions of summative test for control group and experimental group.

Appendix 3.4: The three audio extracts which were evaluated by raters.

Appendix 3.5: An ideal model for interpretation for three extracts which have been evaluated.

Appendix 3.1. Side-by-side comparison of training program for experimental (left page) and control (right page) groups.

Experimental group, week 1

Time	**Opening**	**Monitor/Feedback**
30 mins.	I explained interpreting and defined it and communicated its potential value and professional reasons and explained how it can be used or adapted.	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** A self-training exercise to improve or achieve full attention and concentration and to make both hemispheres work synchronically. 1. I showed a movie (Iranian movie, *The fired*) and asked students to try to write all the digits and letters of all the car number plates they saw in the movies. 2. I showed a movie (English movie, *Competition*) and asked students to try to write all the digits and letters of all the car number plates they saw in the movies and convert them from language 1 into language 2.	I moved around the class and helped some students when needed.
20 mins.	**Prosody awareness training** Marking syllables: I played a list of words/sentences and had learners count syllables and mark which syllables were stressed. Examples: **Words**: *deport, demarcation, campsite, cardiologist, carnival, catastrophe, cavalry, champion, charger, cheery, chowder.* **Sentences**: *The increased pressure within the muscle compresses nerves and blood vessels. The players had swelling in their triceps. I was just kind of shocked this was happening to us. The students said they did not take any body building supplements. We believe it was a strenuous workout, but we don't believe it was excessive. That's used so commonly by athletes of all ages.*	I asked students to mark the syllables on work sheet and hand in to me to assess their work. I asked some students to come in front of class to read the words/sentences aloud again to see how much in practice they were able to produce the correct stress patterns of words and sentences.
10 mins.	**Homework** 1. Translate the expressions below by expressing the underlying idea without using the word *tooth*: t*o be long in the tooth; to cut one's teeth on; to sow dragon's teeth; to get one's teeth into; by the skin of one's teeth; in the teeth of; armed to the teeth.* 2. Translate the following by expressing the underlying idea without using the word *cat*: *There's more than one way to skin a cat. He has more lives than a cat. He was as nervous as a cat on a hot tin roof; When the cat's away the mice will play. She had a Cheshire-cat smile; Curiosity killed the cat. Like a cat, he always lands on his feet. You're the cat's pajamas. He came in looking like the cat who got the cream. Has the cat got your tongue? Don't let the cat out of the bag.*	I instructed the students to do these exercises outside the classroom and hand in their answers on paper.

Control group, week 1

Time	**Opening**	**Monitor/Feedback**
30 mins.	Same as experimental group.	Same as E group.
30 mins.	**Activities** Same as experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing:** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of an English engineer who has come to set up a machine in a factory in Iran. The other students were instructed to interpret him by turn in each group; group members could consult with each other. This session it was voluntary for each student to be representative of the groups but for the next session group representatives were determined this week to be ready about their role for the next week.	Instructor moved around the class, monitored students' performance and helped out when asked.
10 mins.	**Homework** Same as experimental group. .	Same as E group. . .

Experimental group, week 2

Time	**Opening**	**Monitor/Feedback**
30 mins.	1. Different types of interpreting explained, simultaneous and consecutive. 2. Memory skills and acquisition of a personalized note-taking technique was explained. 3. Terminology management and mediated face-to-face communication was explained.	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** 1. I tried to increase the self-confidence of my students particularly where their memory is concerned. This is definitely necessary because almost all of them complain about not being able to memorize new information or retain certain pieces of important data in their short- and long-term memory. **Example**: an exercise with interesting or funny data to demonstrate to my students that they can easily remember quite complicated data so long as it is *important* or *interesting* to them. Here I explain how our memory works and how it deals with important and non-important information which we intend to memorize. The exercise is called *Very Interesting* and it is a dictation of short texts containing interesting figures, dates, etc. For example: *The American fast-food chain Macdonald's appeared for the first time in 1955, but it had no tables or chairs until 1966*. The dictation may be in either language or may swap between the two languages once self-confidence is gained and the exercise is being used purely to train STM and LTM.	I moved around the class and helped students when needed.
20 mins.	**Prosody training** Marking syllables: I played a list of words/sentences and had learners count syllables and mark which syllables are stressed. Examples: **Words:** *commands, concern, compassion, hidden agenda, diplomatic, persuasive, manipulative, commander, military aid recipient, civilian.* **Sentences:** *This year we have been seeing a slow-growth economy. Investors shy away from an oscillating market. I am confident this is a secular bull market. It's a case of dollars chasing stocks. Retailers are euphoric about general-merchandise sales. There's been some pick-up in the wholesale sector. The cautious will stand by during the market catch-up. This stock is an attractive turnaround situation. The overall economy shows strong secular growth prospects.*	I asked students to mark the syllables on work sheet and hand in their answers to assess their work. I asked some of the students to come in front of class to read the words/sentences aloud, again to see how much in practice they are able to produce the correct stress patterns of words and sentences.
10 mins.	**Homework** Explain, illustrate and translate the following: *once in a blue moon; a blue dog democrat; till you're blue in the face; black humor; purple passion; a greenhorn; to have a green thumb; not one red cent; to be yellow; a gray eminence; to wear black robes; black box; lily-white; blue-eyed boy; a blue-ribbon commission; cordon-bleu; green party; to make it into the black numbers; to be in the red.*	I instructed the students to do these exercises outside the classroom and hand in their answers on paper.

Control group, week 2

Time	**Opening**	**Monitor/Feedback**
30 mins.	Same as Experimental group.	Same as E group.
30 mins.	**Activities:** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of a lawyer who has come to settle a diplomatic problem of refugees in Iran. The other students were instructed to interpret him by turn in each group and group members could consult with each other.	I moved around the class and helped students when needed.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Experimental group, week 3

Time	**Opening**	**Monitor/Feedback**
30 mins.	Aspects of interpreting were explained. 1. Socio-cultural: situation: setting, status of participants, purpose of encounter, societal norms and rules regarding interpreter behavior, professional ethics, norms of interpreting. 2. Linguistic: language skills- knowledge of genres, text/ discourse types. 3. Cognitive: knowledge of topic, situation, participants, interpreting technique, meta-communicative competence: knowing what to do and why.	I asked questions based on the discussions to get feedback to see how much students followed the points.
30 mins.	**Activities** I tried to work hard on the students' concentration and level of attention from the very beginning. **Example:** An exercise with distractions, like extra sounds, excessive gesticulation, etc. This kind of "distractive modelled environment" I call "training in obstacled conditions". Any instructor can create his or her own list of distractions, depending on the level of the group or the specific aim. It was an English movie, *In the airport,* which students watched.	I moved around the class and helped some students when needed.
20 mins.	**Prosody training** Marking syllables: I played a list of words/sentences and have learners count syllables and mark which syllables are stressed. Some examples of these words and sentences were: **Words**: *cautious, market catch-up, attractive turnaround situation, overall economy, secular growth prospects, internal growth characteristics, interactive software, durable goods, hiring top-performing mutual fund managers.* **Sentences:** *Hardware stores are losing their market niche to superstores. Financial markets are only just recovering from the tequila effect. This month we've had a stealth bull market. Every now and then we get a horrendous correction. Innovations have thinned the ranks of the competition. There is overcrowding of supply in this sector, producing some margin pressures. Retail is having soft sales.*	I asked students to mark the syllables on work sheet and hand in their asnwers to assess their work. I asked some of the students to come in front of class to read the words/sentences aloud, again to see how much in practice they are able to produce the correct stress patterns of words and sentences.
10 mins.	**Homework** Translate the following passage into Farsi. Translate the proverb first literally, and then, if possible, by an equivalent proverb or other figure of speech: *Voices can be heard today expressing pessimism about the future of our organization. We prefer the opinion that this organization is proving its continuing viability through its actions. Let me refer to a Slovak proverb, "If you do nothing you cannot make a mis take." In this respect the willingness … of the United Nations to take and further accept the burden of great responsibility deserves our highest appreciation.* (Statement by the President of the Slovak Republic)	I instructed the students to do these exercises outside the classroom and hand in their answers on paper.

Control group, week 3

Time	**Opening**	**Monitor/Feedback**
30 mins.	Same as Experimental group.	Same as E group.
30 mins.	**Activities** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of a professor who has come to teach at Arak University in Iran. The other students were instructed to interpret him by turn in each group and group members could consult with each other.	I moved around the class and helped students when needed.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Experimental group, week 4

Time	**Opening**	**Monitor/Feedback**
30 mins.	Transfer skills: Necessary transfer skills explained, including (i) short consecutive and whispered simultaneous interpreting skills, which can be mainly taught in the classroom, firmly rooted in realia and (ii) including carefully planned professional challenges.	I asked questions based on the discussions to get feedback to see how much students followed the points.
30 mins.	**Activities** I tried to work hard on the students' concentration and level of attention from the very beginning. This time the training exercise was difficult (authentic CNN news broadcast for students with one-minute intervals between each 30 seconds).	I moved around the class and helped students when needed.
20 mins.	**Prosody training** Marking syllables: I played a list of words/sentences and have learners count syllables and mark which syllables are stressed. Some examples of these words and sentences were: **Words:** *A milquetoast bear, stupendous margin, call propelling, unwinding of a lot of leverage, stock market cycle, redundant, unnecessary, parasitic, incomprehensible.* **Sentences:** *Supply is expanding to meet demand and then some. These stocks have solid, tappable earnings. If the fundamentals deteriorate, we'll get out. This is an interest-sensitive sector. It's been a sterling performance for technology stocks. He is one of the year's standout stock pickers. The holiday season was less than a sales bonanza.*	I asked students to mark the syllables on work sheet and hand in their answers to assess their work. I asked some of the students to come in front of class to read the words/sentences aloud, again to see how much in practice they were able to produce the correct stress patterns of words and sentences.
10 mins.	**Homework** Translate the following passage into Farsi preserving parallelism to the extent possible: *The ozone layer, a fragile shield which protects the Earth from the harmful portion of the rays of the sun (namely, excess solar UV-B radiations) is being damaged by man-made chemicals released on Earth. The main danger from the weakening of this shield is that it could lead to a rising intensity of the ground level UV-B radiation. This in turn could lead to increased rates of skin cancer and eye cataracts, to stunted agricultural production, and to the possible disappearance of phytoplankton – organisms which form the base of the marine food chain.*	I instructed the students to do these exercises outside the classroom and hand in their answers on paper.

Control group, week 4

Time	**Opening**	**Monitor/Feedback**
30 mins	Same as Experimental group.	Same as E group.
30 mins.	**Activities** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of a businessman who has come to buy carpets in Iran. The other students were instructed to interpret him by turn in each group and group members could consult with each other.	I moved around the class and helped students when needed.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Experimental group, week 5

Time	**Opening**	**Monitor/Feedback**
30 mins.	It was explained that the interpreting field agrees on the undoubted need for: 1. Profound knowledge of active languages (SL/TL) and cultures. 2. Ability to grasp rapidly and convey the essential meaning of what is being said. 3. Ability to project information with confidence and a pleasant voice. 4. Wide general knowledge and interests, and a willingness to acquire new information. 5. Ability to work as a team member.	I asked questions based on the discussions to get feedback to see how much they followed the points.
	Activities	
30 mins.	Students were divided into five groups (each group 3 students). They were asked to listen to audio extracts from CNN. Each extract lasted 30 seconds and the groups were given one minute intervals to interpret it. Each time one member of the group could speak and sometimes they could consult with each other before interpreting.	I moved around the class and helped students when needed.
	Prosody training	
20 mins.	Marking syllables: I played a list of words/sentences and have learners count syllables and mark which syllables are stressed. Some examples of these words and sentences were: **Words:** *unbridgeable difference, contention, sophisticated rendition, metaphor, proverb, political development, incapable of proper control, contrivance.* **Sentences:** *There's been some liquidation in industrial commodities. In some sectors, there is chronic overcapacity. Some stock areas are oversold. Inflation would be a problem if we saw some broad-based signs of inflation, not just a commodity blip in selected markets. People are taking giant bets on hedge funds. Existing bond earnings might be grandfathered if a flat tax law is passed. Nobody bats 1000 in financial predictions.*	I asked students to mark the syllables on work sheet and hand in to me to assess their work. I asked some of the students to come in front of class to read the words/sentences aloud, again to see how much in practice they were able to produce the correct stress patterns of words and sentences.
	Homework	
10 mins.	Translate the following passage into Farsi. *The activities of the state imply making efforts on several fronts in order to consolidate the new social image of women, rolling back the remaining prejudices; involving women in decision making and promoting their participation in positions of power; supporting equality; offering greater opportunities for improved educational training designed for an appropriate and just entry to the labor market; eliminating all forms of violence and discrimination against women; and encompassing topics affecting the status of women under public policies with a view to overcoming their disadvantaged position.*	I instructed the students to do these exercises outside the classroom and hand in their answers on paper.

Control group, week 5

Time	**Opening**	**Monitor/Feedback**
30 mins.	Same as Experimental group.	Same as E group.
30 mins.	**Activities** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of tourist who has come to have a visit from Iran. The other students were supposed to interpret him by turn in each group and group members could consult with each other.	I moved around the class and helped some students when they needed help.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Experimental group, week 6

Time	**Opening**	**Monitor/Feedback**
30 mins	Some of the previous home works were discussed and of course the topics which covered last session. Codes of conduct and good practice guides were explained to the students. 1. Code of ethics. 2. Guides to good practice for the range of working contexts. 3. Quality assurance. 4. Disciplinary procedures.	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** Students were divided into five groups (each group 3 students). They were asked to listen to Audio extracts which were from CNN. Each extract was for 30 seconds and the groups were given one minute interval to interpret it. Each time one member of the group could speak and sometimes they could consult with each other before interpreting.	I moved around the class and helped some students when they needed help.
20 mins.	**Prosody training** Identification of content and function words: I asked Learners to underline content words in sentences when audio extracts were played for the students**.** **Example:** *Snow and ice dominated the headlines for more than a week at the start of the year, as Britain shivered in the longest cold spell for almost 30 years. Thousands of schools closed, buses, trains and planes were delayed, and power supplies failed as winter chaos reigned. On 12 January, a devastating earthquake struck Haiti, claiming 230,000 lives and leaving more than one million people homeless. In the UK, Jonathan Ross announced he was leaving the BBC after 13 years. The corporation's highest paid star insisted his decision was not financially motivated.*	I asked students to mark the content words and function ones and hand in to me to assess their work.
10 mins.	**Homework** Students were asked to listen to three minutes BBC news and write the transcription of it and deliver it next week. Some of the previous homework assignments were discussed by the students and instructor explained his idea about them	Instructor received feedback from previous homework assignments of the students.

Control group, week 6

Time 30 mins	**Opening** Same as Experimental group.	**Monitor/Feedback** Same as E group.
30 mins.	**Activities** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of a physician who has come to visit hospitals in Iran. The other students were instructed to interpret him by turn in each group and group members could consult with each other.	I moved around the class and helped some students when they needed help.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Experimental group, week 7

Time	**Opening**	**Monitor/Feedback**
30 mins.	Some of the previous home works were discussed and of course the topics which covered last session. Discourse Genre: One of the most important things the students have to know is how to identify the discourse genre of the talk to be interpreted which was explained to the students.	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** Students were divided into five groups (each group 3 students). They were asked to listen to audio extracts which were from CNN. Each extract lasted 30 seconds and the groups were given one minute interval to interpret it. Each time one member of the group could speak and sometimes they could consult with each other before interpreting.	I moved around the class and helped some students when they needed help.
20 mins.	**Prosody training** Identification of content and function words: I asked learners to underline content words in sentences when audio extracts were played to them**.** **Example:** *BBC news journalists have been told to use social media as a primary source of information by Peter Horrocks, the new director of BBC Global News who took over last week. He said it was important for editorial staff to make better use of social media and become more collaborative in producing stories. "This isn't just a kind of fad from someone who's an enthusiast of technology. I'm afraid you're not doing your job if you can't do those things. It's not discretionary", he is quoted as saying in the BBC in-house weekly Ariel. Horrocks said that technology was changing journalism, adding that it was important for the BBC to leave a programme-based mindset behind and adapt to new technologies.*	I asked students to mark the content words and function ones and hand in the answer sheet to me to assess their work.
10 mins.	**Homework** Students were asked to listen to three minutes of BBC news, produce a transcript of it and hand it in the next week. Previous homework assignments were discussed by the students and the instructor explained his idea about them.	Instructor received feedback from previous homework assignments of the students.

Control group, week 7

Time 30 mins.	**Opening** Same as Experimental group.	**Monitor/Feedback** Same as E group.
30 mins.	**Activities** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of interpreter who has come to work as the interpreter of the coach of the national soccer team in Iran. The other students were instructed to interpret him by turn in each group and group members could consult with each other.	I moved around the class and helped students when needed.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Experimental group, week 8

Time	**Opening**	**Monitor/Feedback**
30 mins.	Some previous homework assignments were discussed and the topics of the previous session were reviewed. A framework for determining factors affecting quality was explained. These were: consistency, logic, coherence, completeness, accurateness, unambiguity, clarity.	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** Students were divided into five groups (each group 3 students). They were asked to listen to audio extracts from the BBC. Each extract lasted 30 seconds and the groups were given a one minute interval to interpret it. Each time one member of the group could speak; sometimes they could consult with each other before interpreting. **Example:** *Ash from a volcanic eruption in Iceland dominated the most-read list in April as all flights in and out of the UK were suspended. The cloud triggered the UK's worst airspace restriction in living memory and brought much of Europe to a standstill. Thousands of Britons were stranded as the UK remained a virtual no-fly zone for several days. An explosion on the deep water Horizon platform in the Gulf of Mexico killed 11 oil workers and caused one of the worst oil spills in history, and a PR disaster for BP.*	I moved around the class and helped students when needed.
20 mins.	**Prosody training** Identification of content and function words. I asked learners to underline content words in sentences when audio extracts were played to them**.** **Example:** *The species list was put together by scientists at the BBC and Conservation International and they feature in the BBC TV program Decade of Discovery, shown tonight. The stick-insect's common name is Chan's megastick and, at about the length of your arm, it is the longest insect in the world. Chan's megastick is found in Borneo and was only given its scientific name, Phobaeticus chani, in 2008. Scientists think it probably lives high up in the rainforest canopy, something that would have helped it stay hidden from view for so long.*	I asked students to mark the content and function words and hand in their answer sheets to me to assess their work.
10 mins.	**Homework** Students were instructed to listen to three minutes of BBC news, to produce a transcription of it and hand it in the next week. Some previous homework assignments were discussed with the students and the instructor explained his idea about them.	Instructor received feedback from previous homework assignments of the students.

Control group, week 8

Time 30 mins.	**Opening** Same as Experimental group.	**Monitor/Feedback** Same as E group.
30 mins.	**Activities** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of worker who has come to work in petroleum industry in Iran. The other students were supposed to interpret him by turn in each group and group members could consult with each other**.**	I moved around the class and helped students when needed.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Experimental group, week 9

Time	**Opening**	**Monitor/Feedback**
30 mins.	Instructor recapitulated the main points of previous discussion. Some more factors which affect quality in interpreting were explained. They were: grammatical correctness, adherence to TL norms, comprehensibility, stylistic adequacy, terminological adequacy, voice quality.	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** Students were divided into five groups (each group 3 students). They were asked to listen to Audio extracts which were from BBC. Each extract was for 30 seconds and the groups were given one minute interval to interpret it. Each time one member of the group could speak and sometimes they could consult with each other before interpreting. **Example:** *General Election month and readers were captivated by every twist and turn in a genuine political drama. The tension built as millions cast their vote and Britain headed for a hung Parliament - but it was not until four days after polling day that Gordon Brown announced he was stepping down as Labour leader. Defeat closed in on Labour then voters finally awoke to a new Conservative-led coalition government with the Liberal Democrats*.	I moved around the class and helped students when needed.
20 mins.	**Prosody training** Identification of content and function words: I asked Learners to underline content words in sentences when audio extracts were played for the students. **Example:** *Most read this month was the shooting rampage by taxi driver Derrick Bird which left a dozen people dead and 25 injured in Cumbria. The first fatality was his twin brother, David, in Lamplugh. He then shot two others he knew before driving south, apparently shooting people at random. His body was found in the Boot area. Chancellor George Osborne's Budget came next as he increased VAT and cut welfare spending to tackle Britain's record debts*.	I asked students to mark the content and function words and hand in their answer sheets to me to assess their work.
10 mins.	**Homework** Students were asked to listen to three minutes BBC news and write the transcription of it and deliver it next week. Some of the previous homework assignments were discussed by the students and instructor explained his idea about them.	Instructor received feedback from previous homework assignments of the students.

Control group, week 9

Time	**Opening**	**Monitor/Feedback**
30 mins.	Same as Experimental group.	Same as E group.
30 mins.	**Activities** Same as Experimental group. .	Same as E group.
20 mins.	**Practice in interpreting: Role playing** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of pilot who has come to work in Iran. The other students were supposed to interpret him by turn in each group and group members could consult with each other.	I moved around the class and helped students when needed.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Experimental group, week 10

Time	**Opening**	**Monitor/Feedback**
30 mins.	Instructor recapitulated the main points of previous discussion. Pre-process prerequisites of interpreting were explained. Some of them were: skills and competences, contract specifications, task definition, preparation.	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** Students were divided into five groups (each group 3 students). They were asked to listen to Audio extracts which were from BBC. Each extract was for 30 seconds and the groups were given one minute interval to interpret it. Each time one member of the group could speak and sometimes they could consult with each other before interpreting. **Example:** *Another month, another shooting rampage. This time, all eyes were on the town of* Rothbury *in Northumberland after gunman Raoul Moat shot three people and went on the run. After shooting his ex-girlfriend and killing her new partner, the former bouncer shot policeman David Rathband in his patrol car, before eventually killing himself after a six-hour stand-off with armed officers. A mishmash of other stories made it on to the most-read list. A five-year-old Irish boy wrongly accused of stealing a bag of crisps won his damages case against supermarket chain Lidl.*	I moved around the class and helped students when needed.
20 mins.	**Prosody training** Identification of content and function words: I asked Learners to underline content words in sentences when audio extracts were played for the students**.** **Example**: *August threw up a mixed bag of news in keeping with its traditional "silly season" tag. Sky watchers enjoyed "fantastic views" of the annual Perseid meteor shower and a US man taken to hospital for a collapsed lung was told he had a pea plant growing in his lung. Comedian Tim Vine won a prize for the funniest joke of the Edinburgh Fringe. His gag: "I've just been on a once-in-a-lifetime holiday. I'll tell you what, never again."*	I asked students to mark the content and function words and hand in their answer sheets to me to assess their work.
10 mins.	**Homework** Students were asked to listen to three minutes BBC news and write the transcription of it and deliver it next week. Some of the previous homework assignments were discussed by the students and instructor explained his idea about them.	Instructor received feedback from previous homework assignments of the students.

Control group, week 10

Time 30 mins.	**Opening** Same as Experimental group.	**Monitor/Feedback** Same as E group.
30 mins.	**Activities** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of high school teacher who has come to attend in a workshop in Iran. The other students were supposed to interpret him by turn in each group and group members could consult with each other.	I moved around the class and helped students when needed.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Experimental group, week 11

Time	**Opening**	**Monitor/Feedback**
30 mins.	Instructor recapitulated the main points of previous discussion. Some of the conditions of interpreting performance were explained. Some of them were: Number of participants, working languages, technical equipment, booth position, team strength, composition working hours, event duration, language combinations, availability of documents, information on proceedings.	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** Students were divided into five groups (each group 3 students). They were asked to listen to Audio extracts which were from BBC. Each extract was for 30 seconds and the groups were given one minute interval to interpret it. Each time one member of the group could speak and sometimes they could consult with each other before interpreting. **Example:** *Sibling rivalry topped the most-read list in September as Ed Miliband was narrowly elected Labour leader over his brother David. Their political rival David Cameron's father Ian died, then it was revealed his daughter Florence, who was born last month, slept in a box rather than a cot. Despite some arrests by counter-terrorism officers, Pope Benedict XVI's four-day state visit went without a major hitch, although there were protests. It was the first official trip by a serving pontiff since 1982.*	I moved around the class and helped students when needed.
20 mins.	**Prosody training** I asked students exaggerate stress production: I encouraged students to exaggerate their production of stress and rhythm of words to identify the meaning. **Example:** *inter~enter, live~leave, bear~beer, hair~here, blue~blew, fair~fare, loud~load, blouse~blows, full~fool, would~wound, pull~pool, carve~curve, card~curd, fair~fear, stirvsteer, bird~beard, sit~seat, slip~sleep, fit~feet, hit~heat, rid~read, ship~sheep.*	I asked students to pronounce words in an exaggerated manner to identify their meaning.
10 mins.	**Homework** Students were asked to listen to three minutes BBC news and write the transcription of it and deliver it next week. Some of the previous homework assignments were discussed by the students and instructor explained his idea about them.	Instructor received feedback from previous homework assignments of the students.

Control group, week 11

Time	**Opening**	**Monitor/Feedback**
30 mins.	Same as Experimental group.	Same as E group.
30 mins.	**Activities** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of economist who has come to propose some practical ways in selling oil in Iran. The other students were supposed to interpret him by turn in each group and group members could consult with each other.	I moved around the class and helped students when needed.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Experimental group, week 12

Time	**Opening**	**Monitor/Feedback**
30 mins.	Instructor recapitulated the main points of previous discussion. Some in-process requirements of interpreting were explained. They were: Skills and competences, contract specifications, task definition, preparation, knowledge and presuppositions, conditions of ST presentation, target language requirements, interactional competence.	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** Students were divided into five groups (each group 3 students). They were asked to listen to audio extracts from the BBC. Each extract lasted 30 seconds and the groups were given one minute intervals to interpret it. Each time one member of the group could speak and sometimes they could consult with each other before interpreting. **Example:** *There was huge interest in the conclusion of a drama in Chile as 33 miners were successfully rescued after two months trapped deep underground. That only just beat George Osborne's Spending Review to the top slot, as the chancellor unveiled the biggest UK cuts for decades and axed child benefit for higher-rate taxpayers. The scrapping of 192 quangos - public bodies like the Film Council - was also well read. As were plans to ditch Harrier jump jets, the Navy's flagship HMS Ark Royal and cut thousands of jobs in the strategic defence review.*	I moved around the class and helped students when needed.
20 mins.	**Prosody training** I asked students exaggerate stress production: I encouraged students to exaggerate their production of stress and rhythm of words to identify their meaning. **Examples:** *abate~abbot, abort~about, absolve~absorb, admiral~admire, adapt~adopt, affect~effect, billow~bellow, heed~hide, come~calm, come~comb, deer~dear, reed~read, scene~sin, feel~fill, curious~curiosity, hit~heat, bit~beat, cat~cut, heard~hurt, code~coat, mate~made, lope~lobe, cart~card, broke~brogue, back~bag, laid~led, paste~pest, fade~fed, barn~burn, lark~lurk, life~laugh, tight~tart, spike~spark, fear~fee, steered~steed, beard~bead, moor~more, dour~door, tour~tore, sure~shore, air~ear, steel~still, been~bin, half~huff, mast~must, heart~hat, part~pat, wooed~wood, balm~bomb, dark~dock, bead~bid, fill~fell, built~belt, lift~left, tin~ten.*	I asked students to pronounce words in an exaggerated manner to identify their meaning.
10 mins.	**Homework** Students were asked to listen to three minutes of BBC news, produce a transcript of it and hand it in the next week. Some of the previous homework assignments were discussed by the students and instructor explained his idea about them.	Instructor received feedback from previous homework assignments of the students.

Control group, week 12

Time	**Opening**	**Monitor/Feedback**
30 mins.	Same as Experimental group.	Same as E group.
30 mins.	**Activities** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing** **S**tudents were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of an English teacher who has come to teach in high school for six months in Iran. The other students were instructed to interpret him by turn in each group and group members could consult with each other.	I moved around the class and helped students when needed.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Experimental group, week 13

Time	**Opening**	**Monitor/Feedback**
30 mins.	Instructor recapitulated the main points of previous discussion. Some more features of interpreting were explained. Some of them were: terminological follow-up, documentation, quality, control, further training, specialization, adaptation to technical progress.	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** Students were divided into five groups (each group 3 students). They were asked to listen to audio extracts e from the BBC. Each extract lasted 30 seconds and the groups were given one minute intervals to interpret it. Each time one member of the group could speak and sometimes they could consult with each other before interpreting. **Example:** *Freezing weather returned to the UK, as forecasters warned of the earliest significant snowfalls since 1993. Hundreds of schools closed and motorists and air passengers faced long delays. In Cornwall, meanwhile, floods and gales caused travel chaos across the county. There were heated scenes in Westminster as protests against plans to treble tuition fees turned violent. Demonstrators stormed buildings and smashed windows, overshadowing the planned day of action News that Prince William was to marry long-term girlfriend Kate Middleton in 2011 also drew strong interest. Clarence House announced the date and venue a week later.*	I moved around the class and helped students when needed.
20 mins.	**Prosody training** Changing the meaning: I played words and phrases to the students using contrastive stress and then discussed the meanings. **Example:** *ˈgreen house~green ˈhouse, ˈblackbird (a special bird)~black ˈbird (any bird with black feathers), ˈwhite house~white ˈhouse, absent* (ˈæbsənt~æbˈsɛnt)*, accent* (ˈæksənt~əkˈsɛnt)*, addict* (ˈædɪkt~əˈdɪkt)*, address* (ˈædrɛs~əˈdrɛs)*, attribute* (ˈætrɪbjuːt~əˈtrɪbjuːt)*, compact* (ˈkɒmpækt~kəmˈpækt)*, console* (ˈkɒnsəʊl~kənˈsəʊl)*, construct* (ˈkɒnstrʌkt~kənˈstrʌkt)*, impact* (ˈɪmpækt~ɪmˈpækt), *object* (ˈɒbdʒɪkt~əbˈdʒɛkt), *record* (ˈrɛkɔːd~rɪˈkɔːd), *present* (ˈprɛzənt~prɪˈzɛnt).	I asked students to put the stress on different syllables and then discussed the meaning differences with them.
10 mins.	**Homework** Students were asked to listen to three minutes of BBC news, produce a transcript of it and hand it in the next week. Some of the previous homework assignments were discussed by the students and the instructor explained his idea about them.	Instructor received feedback from previous homework assignments of the students.

Control group, week 13

Time	**Opening**	**Monitor/Feedback**
30 mins.	Same as Experimental group.	Same as E group.
30 mins.	**Activities** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing:** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of a tourist who has come to have a visit from Isfehan in Iran. The other students were instructed to interpret him by turn in each group and group members could consult with each other.	I moved around the class and helped students when needed.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Experimental group, week 14

Time	**Opening**	**Monitor/Feedback**
30 mins.	Instructor recapitulated the main points of previous discussion. The point of *sense* in interpreting was explained. Sense is: 1. something to be grasped, comprehended, known, 2. as an interpretation that may be given to a group of words forming a passage, 3. the meaning of such a group as a functional unit, 4. general or essential meaning of an utterance, 5. meaning that is rational or intelligible.	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** Students were divided into five groups (each group 3 students). They were asked to listen to audio extracts which were from the BBC. Each extract was for 30 seconds and the groups were given one minute interval to interpret it. Each time one member of the group could speak and sometimes they could consult with each other before interpreting. **Example**: *So how did it come to write such an old story, having covered it once before? The Media Blog readers think they know they answer. John Self wrote: "I think I know why this happened. This story was in the 'most read' list on the BBC News site last week (it happens occasionally with 'quirky' stories from years ago, as email links spread in their unpredictable way, and then people see it on the Most Read list and click it, thus enhancing the effect). I guess a lazy Mail hack clicked the story, and decided to cover it without looking at the date at the top."*	I moved around the class and helped students when needed.
20 mins.	**Prosody training** Marking syllables: I played a list of words/sentences and have learners count syllables and mark which syllables are stressed. Examples: **Words:** *exports, fastest annual, Prime Minister, revive, shipments, significantly, exporters, expensive overseas, increasingly, profitability, resilient.* **Sentences:** *The misery index is at a three-year low. A wave of downsizing has eliminated thousands of jobs. The market will have a soft landing. The senator said that only in some supply-side fantasy-land could the budget be balanced at the expense of health and education. This is a one-time opportunity for big players. Mutual funds are spawning new shareholders. The stock exchange provides auction agency market representation, transparency, and price discovery. Equities trade locally but gold follows the sun.*	I asked students to mark the syllables on work sheet and hand these in to me to assess their work. I asked some of the students to come in front of class to read the words/sentences aloud, again to see how much in practice they were able to produce the correct stress patterns of words and sentences.
10 mins.	**Homework** Students were asked to listen to three minutes of BBC news, produce a transcript of it and hand it in the next week. Some of the previous homework assignments were discussed by the students and instructor explained his idea about them.	Instructor received feedback from previous homework assignments of the students.

Control group, week 14

Time	**Opening**	**Monitor/Feedback**
30 mins.	Same as Experimental group.	Same as E group.
	Activities	
30 mins.	Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of president of IRIB who has come to tell his reasons of censorship in Iran. The other students were supposed to interpret him by turn in each group and group members could consult with each other.	I moved around the class and helped students when needed.
	Homework	
10 mins.	Same as Experimental group.	Same as E group.

Experimental group, week 15

Time	**Opening**	**Monitor/Feedback**
30 mins.	Instructor recapitulated the main points of previous discussion. The following topics were explained and discussed. **Knowledge**: 1. Knowledge base 2. Preparations **Understanding:** 1. Reception 2. Meaning **Transfer:** 1. Plausibility 2. Acceptability of form 3. Acceptability of content 4. Interpreting technique **Product:** 1. Linguistic expression 2. Equivalence 3. Presentation.	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** Students were divided into five groups (each group 3 students). They were asked to listen to Audio extracts which were from BBC. Each extract was for 30 seconds and the groups were given one minute interval to interpret it. Each time one member of the group could speak and sometimes they could consult with each other before interpreting. **Example:** *For BBC news editors, Twitter and RSS readers are to become essential tools, says Horrocks. Aggregating and curating content with attribution should become part of a BBC journalist's assignment; and BBC's journalists have to integrate and listen to feedback for a better understanding of how the audience is relating to the BBC brand. Following the creation of a social media editor post in October, this marks another fundamental change in the Beep's attitude towards social media.*	I moved around the class and helped some students when they needed help.
20 mins.	**Prosody training** Marking syllables: I played a list of words/sentences and have learners count syllables and mark which syllables are stressed. Examples: **Words:** *broadcaster, cautious, social media, impact, social media, wider audience, opposite direction, journalism, multimedia newsroom, internationally, news organizations, professionalized.* **Sentences:** *The aim of counter-cyclical policy is to dampen the business cycle. It's hard to wring inflation out of the economy when you have entrenched inflationary expectations. The rational expectationist school of thought believes people will anticipate and counteract policy moves. The trade deficit is due to an overly strong dollar. The tax cut is producing an economic stimulus but much of it is going overseas. We have a ballooning merchandise deficit.*	I asked students to mark the syllables on work sheets and hand these in for me to assess their work. I asked some of the students to come in front of class to read the words/ sentences aloud, again to see how much in practice they were able to produce the correct stress patterns of words and sentences.
10 mins.	**Homework** Students were asked to listen to three minutes of BBC news, produce a transcript of it and hand it in the next week. Some of the previous homework assignments were discussed by the students and instructor explained his idea about them.	Instructor received feedback from previous homework assignments of the students.

Control group, week 15

Time	**Opening**	**Monitor/Feedback**
30 mins.	Same as Experimental group.	Same as E group.
30 mins.	**Activities** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of the minister of foreign affairs who has come to tell his reasons about diplomacy toward foreigners in Iran. The other students were supposed to interpret him by turn in each group and group members could consult with each other.	I moved around the class and helped students when needed.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Experimental group, week 16

Time	**Opening**	**Monitor/Feedback**
30 mins.	Instructor recapitulated the main points of previous discussion. The semantic structure in interpreting was discussed. It was pointed out that when the speaker is producing a discourse, 1. he communicates *what* he is talking about, 2. he communicates something *about* the subject of the communication in each utterance in the form of the utterance *rheme*, which amplifies the hearer's knowledge of the topic of discourse; 3. he conveys an *attitude* and a *value judgement* about the subject of communication, either explicitly or implicitly, on the scale of evaluation from positive through neutral to negative; 4. he establishes his attitude or *relationship to the hearer*(s) in the way he formulates the propositions (pragmatic factor).	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** Students were divided into five groups (each group 3 students). They were asked to listen to audio extracts which were from the BBC. Each extract lasted 30 seconds and the groups were given one minute intervals to interpret it. Each time one member of the group could speak and sometimes they could consult with each other before interpreting. **Example:** *A new U.N. report says the earthquake in Haiti and heat waves in Russia made 2010 one of the deadliest years in at least two decades. The report issued by the Belgium-based Center for Research on the Epidemiology of Disasters finds nearly 300,000 people lost their lives in more than 370 natural disasters last year. The report notes most of the deaths last year resulted from the devastating earthquake in Haiti, which killed nearly one-quarter of a million people. The second deadliest disaster occurred in Russia where a heat wave in the summer of 2010 caused about 56,000 fatalities in the capital, Moscow.*	I moved around the class and helped students when needed.
20 mins.	**Prosody training** Marking syllables: I played a list of words/sentences and have learners count syllables and mark which syllables are stressed. Examples: **Words:** *a political scientist, outlook, a tumultuous week, precarious, protestors, demanding, entire overhaul, uprooting, excessive influence, corruption, anti-government, escalated, finance ministry, state enterprises, ministry of interior.* **Sentences:** *You can't separate stabilization policy from international trade policy. From fine-tuning of the economy we have moved to a policy of coarse-tuning. A hiccup in interest rates sent a shudder through the market. We are entering an age of mega-competition. Japan needs to make its labor market amenable to entry-level and mid-course movement. The Japanese government's Jusen bailout plan will be costly.*	I asked students to mark the syllables on work sheets and hand these in for me to assess their work. I asked some of the students to come in front of class to read the words/sentences aloud, again to see how much in practice they were able to produce the correct stress patterns of words and sentences.
10 mins.	**Homework** Students were asked to listen to three minutes of BBC news, produce a transcript of it and hand it in the next week. Some of the previous homework assignments were discussed by the students and instructor explained his idea about them.	Instructor received feedback from previous homework assignments of the students.

Control group, week 16

Time	**Opening**	**Monitor/Feedback**
30 mins.	Same as Experimental group.	Same as E group.
30 mins.	**Activities** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting: Role playing:** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of a soccer player who has come to play in one of the teams in Iran. The other students were instructed to interpret them by turn in each group. Group members could consult with each other.	I moved around the class and helped students when needed.
10 mins	**Homework** Samen as experimental group.	Same as E group.

Experimental group, week 17

Time	**Opening**	**Monitor/Feedback**
30 mins.	Instructor recapitulated the main points of previous discussion. The following points were discussed. These were: need for confidentiality, debriefing, terminological follow-up output review (e.g., recording), further training.	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** Students were divided into five groups (each group 3 students). They were asked to listen to audio extracts from the BBC. Each extract lasted 30 seconds and the groups were given a one-minute interval to interpret it. Each time one member of the group could speak and sometimes they could consult with each other before interpreting. **Example:** *What will be the biggest story in 2010? Political convulsions in Iran, with the possibility of President Mahmoud Ahmedinejad being forced out of office and the Supreme Leader, Ayatollah Khamenei, forced to turn to former President Rafsanjani and other "moderates" to save the revolution. Give us one name to watch in the coming year? Internationally, the former first lady of the Philippines, Imelda Marcos, who is trying to make one of the most unlikely comebacks in the country's political history.*	I moved around the class and helped students when needed.
20 mins.	**Prosody training** Identification of content and function words: I asked learners to underline content words in sentences when audio extracts were played for the students. **Example:** *What will be the biggest story in 2010? The biggest focus in defence will be on whether the strategy agreed by the US and its Nato allies in Afghanistan works. The main challenges will be accelerating the training and mentoring of the Afghan National Army and police, and helping the Afghan government to try to ensure that its people have the security they long for. Back at home, all eyes will be on the strategic defence review, and how a new government sees the role of Britain and its Armed Forces on the global stage - and how much of that role the country can afford.*	I asked students to mark the content and function words and hand in their answer sheets to assess their work.
10 mins.	**Homework** Students were asked to listen to three minutes BBC news, produce a transcript of it and hand it in the next week. Some of the previous homework assignments were discussed by the students and the instructor explained his idea about them.	Instructor received feedback from previous homework assignments of the students.

Control group, week 17

Time 30 mins.	**Opening** Same as Experimental group.	**Monitor/Feedback** Same as E group.
30 mins.	**Activities** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting** **Role playing:** Students were divided into five groups (each consisted of 3 students). Then two representatives of two groups were asked to play the role of the president of Arak University who has come to clarify his reasons of raising the tuition for students in Iran. The other students were instructed to interpret him by turn in each group. Group members could consult with each other.	I moved around the class and helped students when needed.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Experimental group, week 18

Time	**Opening**	**Monitor/Feedback**
30 mins.	Instructor recapitulated the main points of the previous discussion. The following points were discussed. They were: environmental factors, inter-personal/social factors, linguistic features, task-related factors, time factors in interpreting.	I asked questions based on the discussions to get feedback to see how much they followed the points.
30 mins.	**Activities** Students were divided into five groups (each group 3 students). They were asked to listen to audio extracts from the BBC. Each extract lasted 30 seconds and the groups were given a one-minute interval to interpret it. Each time one member of the group could speak and sometimes they could consult with each other before interpreting**.** **Example:** *Give us one name to watch in the coming year? General Sir David Richards, who replaced General Sir Richard Dannatt as Chief of the General Staff in August 2009, becoming the professional head of the British Army at one of its most testing times in decades. He has come out fighting for the campaign in Afghanistan, seeking to explain it to an increasingly sceptical public, and helping to put the MOD on a war footing.*	I moved around the class and helped students when needed.
20 mins.	**Prosody training** Identification of content and function words. I asked learners to underline content words in sentences when audio extracts were played to them. **Example:** *Who would you most like to interview next year? General Stanley McChrystal, the overall Nato commander in Afghanistan. He warned in October 2009 that the situation in Afghanistan was serious, that time was running out, and that the campaign had been under-resourced and under-coordinated in the past. He said that protecting the Afghan people was key. Will he - and most crucially, they - feel that has been achieved, one year on?*	I asked students to mark the content and function words and hand in their answer sheets to assess their work.
10 mins.	**Homework** Students were asked to listen to three minutes of BBC news, produce a transcript of it and hand it in the next week. Some of the previous homework assignments were discussed by the students and instructor explained his idea about them.	Instructor received feedback from previous homework assignments of the students.

Control group, week 18

Time	**Opening**	**Monitor/Feedback**
30 mins.	Same as Experimental group.	Same as E group.
30 mins.	**Activities** Same as Experimental group.	Same as E group.
20 mins.	**Practice in interpreting** Students were divided into five groups (each consisted of 3 students). One Australian who was working in Arak Petroleum was invited to talk about his interest in working in Iran. The students were instructed to interpret him.	I moved around the class and helped students when needed.
10 mins.	**Homework** Same as Experimental group.	Same as E group.

Appendix 3.2. Information about the TOEFL test used

The Test of English as a Foreign Language (TOEFL) measures the ability of nonnative speakers of English to use and understand English as it is spoken, written and heard in university settings. The TOEFL test measures the ability to integrate the four English skills (speaking, listening, writing, reading). It is a standard test with 140 multiple choice questions and one topic to write about so that the testees can show their writing skill, as indicated in the table below.

Section	**Time limit**	**No. of questions**
Reading comprehension	55 minutes	50
Listening	40 minutes	50
Structure	25 minutes	40
Writing	30 minutes	1 topic

Appendix 3.3. Sample questions of post-test test for control group and experimental group

Name: _____ Last name: _____

Student number: _____

I. Elaborate on the following points as completely as possible.
   1. Differentiate different types of interpreting.
   2. Explain codes of conduct and practical aspects in interpreting.
   3. Elaborate on determining factors affecting quality in interpreting.
   4. Explain the required conditions of interpreting performance.
   5. Clarify the point of sense in interpreting.

II. Interpret the following ten 30-second extracts. There will be a 2-minute interval between the extracts.

Sample extract

Snow and ice dominated the headlines for more than a week at the start of the year, as Britain shivered in the longest cold spell for almost 30 years. Thousands of schools closed, buses, trains and planes were delayed, and power supplies failed as winter chaos reigned. On 12 January, a devastating earthquake struck Haiti, claiming 230,000 lives and leaving more than one million people homeless. In the UK, Jonathan Ross announced he was leaving the BBC after 13 years. The corporation's highest paid star insisted his decision was not financially motivated.

Appendix 3.4. The three audio extracts which were evaluated by raters

1. The market is an institution in which wealth acquires power. Wealth controls what gets produced and who gets it. So, for example, if a rich person wants a Mercedes Benz to be produced and shipped to him and you want a Mercedes Benz produced and shipped to you, guess what? Your wish has no power because you don't have any wealth.

2. In an all-out attack against a trapped and mostly defenseless civilian population, Israeli air raids have pounded Gaza for eight days. A thousand wounded and the Palestinian death toll at 139, more than half of these deaths civilian, including more than 22 children dead, another 180 wounded as well as three Palestinian journalists who have been killed by Israeli fire while in their vehicle. The Israeli death toll is at five.

3. Are the climate deniers right? Are some scientists colluding with the government to hide the truth about the climate change? Yes, according to top British scientist Kevin Anderson. But not the scandal you have heard about. Top scientists and government reports won't tell you, we are heading towards catastrophic climate change. Emissions are skidding out of control, leading us to a world perhaps six degrees hotter on average, much faster than anyone thought possible. Why doesn't the public know?

Appendix 3.5. Model interpretation for the three extracts evaluated

1. موسسه بازاریابی جایی است که ثروت قدرت ایجاد میکند. ثروت تولید را کنترل میکند وهمچنین کسی که ان را می گیرد. برای مثال اگر ثروتمندی بخواهد که یک مر سدس بنز تولید شود و برای او ارسا ل شود و شما اگر بخواهید که یک مرسدس بنز تولید شود و برای شما ارسال شود. حدس بزن چه می شود؟ درخواست شما قدرت اجرایی ندارد چونکه شما ثروتمند نیستید.

Moaseseh bazaryabi jaei ast ke servat ghodrat eijad mykonad. Servat tolid ra kontorol mykonad va hamchenin kasi ke an ra mygirad. Baraye mesal agar servatmandi bekhahad ke yek mersedes benz tolid shaved va baraye u ersal shaved va shoma agar bekhahid ke yek mersedes benz tolid shaved va baraye shoma ersal shaved. Hads bezan che myshavad? Darkhaste shoma ghodrate ejraei nadarad chonke shoma servatmand nistid.

2.ایا انهایی که تغییر در اب و هوا را رد می کنند درست می گویند؟ بعضی از دانشمندان و دولت این حقیقت که اب و هوا در حال تغییر است مخفی می کنند. بله، بر اساس گفته دانشمند برجسته انگلیس کوین اندرسون است. اما رسوایی که شما در مورد ان چیزی نشنیده اید. دانشمندان برجسته و گزارش دولت چیزی به شما نخواهد گفت. ما به سمت تغییر وحشتناک اب و هوایی می رویم. ماشین ها غیر قابل کنترل میشوند، ما را به ند که شاید شش درجه گرمتر از حد معمول است. خیلی سریعتر از ان چیزی که هر کسی جها نی می بر فکر می کرد. چرا عامه مردم این مسئله را نمی دانند؟

Aya anhaei ke taghiyr dar ab va hava ra rad mykonand dorost mygoyand? Bazi az daneshmandan va dolat ein haghighat kea b va hava dar hale taghiyr ast makhfi mykonand. Bale, bar asase goftye daneshmand bar jastye englis Kevin Anderson ast. Amma rosvaei ke shoma dar morede an chizi nashnideheid. Daneshmandane bar jaste va gozaresh dolat chizi be shoma nakhahad goft. Ma be samte taghiyre vahshatnake ab va havaei myravim. Mashinha ghire ghabele control myshavand, ma ra be jahani mybarand ke shayad shesh daraje garmtar az hadde mamol ast. Khili saritar az an chizi ke har kasi fekr mykard. Chera ammye mardom ein masala ra namydanand?

3.و حالا یک حمله عجیب بر علیه مردم بی دفاع و به دام افتاده. نیروی هوایی اسرائیل به مدت هشت روز به غزه حمله کرده است. هزاران نفر مجروح شدند و امار کشته های فلسطینیان یک صد و سی نه (139) نفر بودند ونصف بیشتر انها شهروندان بی دفاع می باشند که بیست و دو (22) نفر انها بچه ها بودند. یکصد و هشتاد (180) نفر دیگر زخمی شده اند. همچنین سه (3) روز نامه نگار فلسطینی توسط اتش اسرائیلیها در ما شینهایشان کشته شدند. امار کشته های اسرائیلی ها پنج (5) نفر است.

Va hala yek hamlye ajib bar alyhe mardome bidefa va be dam oftadeh. Niroye havaei esraeil be moddate hasht rooz be ghazeh hamle kardeh ast. Hezaran nafar majroh shodand va amare koshtehhaye felstininan yek sad o si o noh nafar boodand va nesfe bishtare anha shahrvandane bidefa mybashand ke bisto do nafare anha bacheh ha boodand. Yek sad o hashtad nafare digar zakgmi shodehand. Hamchenin se rooznameh negare felestini tavasaote atashe esraeiliha dar mashinhayeshan koshte shodand. Amare koshteh haye esraeiliha panj nafar ast.

Chapter four

Effects of prosody teaching on developing word recognition skills for interpreter trainees

Abstract

The present study investigates the effect of the explicit teaching of prosodic features on developing word recognition skills with interpreter trainees. Two groups of student interpreters were composed. All were native speakers of Farsi who studied English translation and interpreting at the BA level at the State University of Arak, Iran. Participants were categorized into two groups at random, but with equal division between genders (9 female and 9 male students in each group). No significant differences in English language skills (TOEFL scores) could be established between the groups. Participants took a word-recognition pre-test before starting the program. The control group received exercises in listening comprehension, while the experimental group spent part of the time on theoretical explanation and practical exercises developing conscious knowledge of prosodic features of English, such as word stress. The total instruction time was the same for both groups, i.e., 8 hours. Students then took a post-test of word recognition skills. The results show that prosodic feature awareness training did yield a statistically significant improvement of word recognition skills. The result has pedagogical implications for researchers in the field of second language teaching, instructors, curriculum designers, conductors of interpreting programs for training future interpreters, material producers and all who are involved in language study and pedagogy.

Keywords: word recognition, prosody, word stress, interpreting, English as a Foreign Language

4.1 Introduction[1]

Phonological awareness is the ability to consciously parse speech into its component sounds and to be able to manipulate these smaller unites. This type of ability would influence the processing of spoken input. Different scholars emphasized the importance of phonological awareness in message perception during listening comprehension (e.g., Cheung 2007, Cheung, Chen, Lai, Wong & Hills 2001, Caravolas & Buck 1993). Through phonological awareness listeners parse the stream of speech sounds into words and are then able to construct a sentence meaning from the meaning of the individual words (e.g., Salwen & Stacks 1996). Li et al. (2012) state that phonological awareness makes listeners sensitive to sound units in speech, which makes it easier to process speech and to retrieve the right words. As a result the listener will find it easier to recognize the words, process sentence meaning and comprehend the stream of speech.

Ahangari et al. (2015), in an experimental study in Iran, suggested that awareness training of pronunciation rules of English would improve the listening comprehension of learners of English as a Foreign Language (EFL). They randomly selected 42 participants out of 200 students. The participants were then randomly assigned to two groups (control and experimental) based on the time they preferred to spend on the training program. Twenty participants were assigned to the experimental group and 22 the control group. Both groups took a pre-test exam and their listening comprehension skill was assessed. No significant difference was observed in the results. During 20 minutes in each treatment session, the instructor provided the experimental group with awareness training about the correct way of pronouncing the English words and then had them practice listening to authentic extracts. At the end of the 30 hours' training program, both groups took the same standard post-test of listening comprehension. The results indicated that awareness training had a positive effect on improving listening comprehension for the experimental group.

Poelmans (2003), among others, stated that in addition to the segmental categories, i.e., the vowels and consonants in the language, the stream of speech is characterized by prosodic features as well. These features are not related to specific, individual speech sounds but they subtend larger units of at least the size of a syllable. Prosodic features break up the continuous stream of speech into smaller chunks through the pauses and boundary marking pitch changes, and also highlight one syllable or word as the focus of the speaker's attention within the larger chunk (accentuation) (e.g., Nooteboom 1997). Generally, the segmental features serve to access words in the mental lexicon while the prosodic features guide the interpretation process (e.g., Cutler & Van Donselaar 2001).

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[1] This chapter is based on Yenkimaleki, M. & Heuven, V. J. van. (2016). The effect of prosody teaching on developing word recognition skills for interpreter trainees: An experimental study. *Journal of Advances in Linguistics*, 7, 1101−1107 and Yenkimaleki, M. & Heuven, V. J. van (2016). The effect of prosody teaching on developing word recognition skills for interpreter trainees: An experimental study. Proceedings of *the WEI International Academic Conference on Education and Humanities at Vienna University*, Vienna, Austria, April 11-13, 2016, 57−63.

Gilbert (2008) pointed out that prosodic phenomena are road signs that help the listener follow the intentions of the speaker in the stream of speech. These road signs impart emphasis to particular units (syllables, words) and signal the relationship between ideas so that listeners can easily identify these relationships and perceive the speaker's intention. Prosodic feature awareness training helps learners perceive words in context and recognize such prosodic road signs in spoken English; it also helps learners to clear up potential misunderstandings in the stream of a conversation. Gilbert (2008) suggested the principle of *helping the listener to follow*. She claimed that students who received training awareness about English prosodic patterns improved on perception of speech on TV, in movies, and in communication. Prosody training teaches students to perceive how to use rhythmic and melodic cues to organize information and guide the listener, and also how prosody, e.g., differences in word and sentence stress, changes the sound shapes of words.

Derwing and Rossiter (2003) also emphasized the importance of prosodic instruction. In an experimental study one group of students received instruction about segmentals while another group received instruction about prosodic features. They, then, concluded that by teaching prosodic features the pronunciation skill of non-native speakers improve significantly and they stated that teaching prosody to the EFL students should be a fundamental issue in the EFL curriculum.

Generally, in different studies, listening comprehension is looked upon as a skill used by listeners to perceive the global message of the utterances. There are not enough studies focusing on recognition of words, which is the first step towards listening comprehension. Word recognition is the process of breaking up the stream of sounds into linguistic units and consequently, retrieving the meaning of words from long- term memory while global listening comprehension is the process of integrating the meaning of words in the stream of speech into an interpretation of the overall utterance so that the message of the speaker can be reconstructed (Poelmans 2003). In this regard, Segalowitz and Segalowitz (1993) stated that automatization of aural word recognition skill is fundamentally necessary in developing listening comprehension.

Therefore, word recognition is a fundamentally necessary subskill in enhancing listening comprehension as a skill needed in the interpreting profession. Since there are no systematic studies on the effect of prosody awareness training on the development of word recognition skills, this experimental study is conducted to investigate this issue systematically.

4.2 Stress

It is often perceived that some syllables are more prominent than others in speech. The point is that for lots of languages, the patterns of prominence represent organization at abstract level and these patterns are not coincidental (Goedemans & Van Zanten 2007). Generally, in words there is one syllable which is the most prominent and the other syllables are weak. Therefore, there is an abstract linguistic phenomenon that covers word-level prominence patterns which is called stress (Goedemans & Van Zanten 2007).

Stress and accent give prominence to a syllable in a word or a word in a phrase (Gut et al. 2007). They have been identified by many linguists as important prosodic concepts (Gut et al. 2007, Van Heuven 1994, Fox 2001). However, the usage of the terms 'stress' and 'accent' is somehow different by linguists. In some cases, stress is represented as the prominence of a word in the speakers' mental lexicon, i.e., as an abstract category, and accent as the phonetic realization in speech. Therefore, the studies in the area of stress and accent have seen terminological controversies and also they have raised debate about the appropriate definition of the terms, their phonetic correlates as well as their role of phonology of the world's languages (Gut et al. 2007).

Gut et al. (2007) stated that different languages in the world can be categorized as those which have obligatory word stress and those which do not have word stress. They pointed out that stress in words may vary between fixed and fully unpredictable. These are extremes of a continuum: the complexity of the stress system can be anywhere between these extremes. Languages with fixed stress stress all the words in the lexicon on the same syllable position, as in Turkish (always stress on the last syllable) or in Welsh (fixed penultimate syllable stress).

4.3 Research question

Concretely, the following research question is asked:

Does awareness training of prosodic features (stress at word level) lead to develop word recognition skill for student interpreter trainees?

Our hypothesis is that explicit teaching of prosody, especially focusing on differences in word stress between English and Farsi, should yield better word recognition skills and ultimately result in developing better listening comprehension in English.

The results of the study may be a reason for modifying the curriculum in interpreting studies and training qualified future interpreters.

4.4 Method

4.4.1 Participants

Thirty-six students of translation and interpreting between Farsi and English were chosen randomly from 68 junior students at Arak University, Iran. They were randomly divided into two classes of 18 students that each incorporated 9 male and 9 female students. The participants were native speakers of Farsi with an age range of 18-25 years. They participated in all sessions of the training.

4.4.2 Procedure

The participants were divided into control and experimental groups through the application of systematic random sampling. The control group received routine exercises (i.e., placebo), asking them to listen to authentic audio tracks in English and doing exercises based on questions about the contents of the audio tracks. The experimental group spent less time on these tasks and instead received prosodic feature awareness training for 15 minutes during each training session.

At the beginning of the program all the participants took a pre-test of general English proficiency. The test battery was the standard Longman's TOEFL English proficiency test, with separate modules testing the learner's (i) Listening comprehension, (ii) Reading comprehension and (iii) Structure and writing skills. The participants took part in the program for eight sessions (one hour per session) in four weeks, i.e., 8 hours in all.

Altogether the control group listened to 320 minutes of authentic audio tracks and did the exercises based on them. Moreover, both the control group and the experimental group listened during 160 minutes to the Iranian instructor who explained how to do exercises in listening comprehension. The experimental group altogether listened for 200 minutes to authentic audio tracks and did the exercises based on them. Additionally, they listened for 60 minutes to the theoretical explanation of English prosody that was provided by the Iranian instructor and spent 60 minutes in all doing practical exercises in English prosody.

As part of the present study, the participants also participated in a pre-test, and later in a post-test, designed to estimate their word recognition skill. These tests were designed by the first author and comprised 50 items each. To ensure equal difficulty of the pre-test and the post-test, one hundred English words were chosen such that their recognition would be sensitive to differences in word stress (e.g., *enter* ~ *inter*, *desert* ~ *dessert*, with initial versus final stress, respectively, in each pair). A random selection of 50 words was then assigned to the pre-test while the other 50 made up the post-test. The stimulus words were recorded as citation forms by a male native speaker of British English and presented to the participants over headphones in a language laboratory with a pause of 7 seconds between words (onset to onset). During the pause, listeners were required to write down the word they thought the speaker had produced.

The written responses given to the pre-test and post-test were checked for correctness by the first author. A response was scored as either correct or wrong. Although spelling errors were accepted, the written response had to satisfy the condition that the identity of the word could be established. No attempt was made to mark responses as partially correct when there was an incomplete overlap between the intended and responded word. As a consequence the subject-individual scores on the word-recognition tests could range between 0 and 50 correct responses in integer steps.

4.4.3 Data analysis

In order to see whether the participants were homogeneously distributed over the two groups a Two-Sample Kolmogorov-Smirnov Test was run. Linear Regression was conducted in order to find out the extent to which components of the TOEFL language proficiency pre-tests predict a student's performance in the post-test. To see whether the difference between the mean scores of the experimental and control groups is statistically meaningful, t-tests were performed. The correlation between pre-test scores and post-test scores was established by the Pearson correlation coefficient.

4.5 Results

Table 4.1 summarizes the raw component scores of the proficiency test of the control group (left-hand part of table) and of the experimental group (right-hand part).

One-sample Kolmogorov-Smirnov (KS) tests were run to ascertain that the overall TOEFL proficiency scores were distributed both normally and uniformly. The results show that the distribution of the scores were both uniform, $z = .674$ ($p = .796$) and normal, $z = .704$ ($p = .705$). Moreover, a two-samples KS test showed that the shape of the distribution of the TOEFL scores did not significantly differ between the experimental and control group, $z = .707$ ($p = .699$). It was decided that standard parametric statistics could be safely used to analyze the data.

A t-test for unrelated samples then shows that none of the small differences on the pre-test and its components between the experimental and control group are significant, $t(34) = .482$ ($p = .633$) for Listening comprehension, $t(34) = .788$ ($p = .437$) for Structure and written expression, $t(34) = 1.421$ ($p = .168$) for Reading comprehension and $t(34) = -.703$ ($p = .487$) for the overall TOEFL proficiency score.

Before starting the awareness training program, a word recognition pre-test was administered. This test was designed by the instructor. It comprised 50 items (see above). In order to make the pre-test and the post-test of word recognition skill have the same level of difficulty, one hundred English words were chosen such that stress would play a potentially important role in differentiation of meaning in these words. A random selection of 50 words was used in the pre-test, the other 50 in the post-test. After having awareness training program for eight sessions, the post-test of word recognition skill was run to investigate the effect of training program on experimental and control groups in developing word recognition skill. The results of pre-test and post-test of word recognition skill are presented in Table 4.2.

Table 4.1. Raw component scores on TOEFL proficiency test obtained by control (upper part) and experimental groups (bottom part). The rightmost column contains the standardized overall TOEFL scores computed from the component scores. Subjects are listed in descending order of TOEFL score.

Nr.	Student	Gender	List. Comp.	Struct. & writing	Reading comp.	TOEFL
Control Group						
1.	ReA	Male	60	58	61	596.7
2.	SaS	Female	59	57	59	583.3
3.	HaD	Male	57	56	57	566.7
4.	MaM	Female	57	55	56	560
5.	SiK	Male	55	53	56	546.7
6.	LeD	Female	55	52	55	540
7.	PaH	Male	55	53	53	536.7
8.	GoR	Female	54	53	52	530
9.	JaB	Male	53	54	51	526.7
10.	TiR	Female	52	54	49	516.7
11.	JaM	Male	51	52	49	506.7
12.	AtR	Female	50	51	49	500
13.	AkJ	Male	50	50	49	496.7
14.	PaF	Female	49	50	49	493.3
15.	HoT	Male	48	50	49	490
16.	ZaK	Female	48	49	49	486.7
17.	HaK	Male	47	49	48	480
18.	PaK	Female	46	48	47	470
	Mean		52.6	52.4	52.1	523.7
	SD		4.2	2.8	4.2	36.7
Experimental group						
1.	JaN	Male	59	63	61	610
2.	FaN	Female	59	56	58	576.7
3.	AmD	Male	58	57	56	570
4.	FaB	Female	57	56	55	560
5.	AlK	Male	56	55	55	553.3
6.	YaM	Female	54	54	55	543.3
7.	SaR	Male	53	54	54	536.7
8.	RaT	Female	52	54	53	530
9.	HaS	Male	52	52	53	523.3
10.	FeN	Female	51	53	52	520
11.	MeR	Male	50	52	52	513.3
12.	HaR	Female	51	51	51	510
13.	AbS	Male	49	50	50	496.7
14.	NaN	Female	48	50	50	493.3
15.	BeR	Male	47	49	49	483.3
16.	PaN	Female	46	48	48	473.3
17.	AmM	Male	45	48	47	466.7
18.	MoM	Female	44	48	46	460
	Mean		51.7	52.8	52.5	523.3
	SD		4.7	3.8	3.8	41.0

Table 4.2. Pre-test scores and post-test word recognition scores for control (left-hand part) and experimental (right-hand part) groups. The last two rows contain the mean and standard deviation of the scores. Participants are ordered as in Table 4.1.

Control Group					Experimental Group				
Nr.	ID	Gender	Pre-test	Post-test	Nr.	ID	Gender	Pre-test	Post-test
1.	ReA	Male	40	42	1.	JaN	Male	39	43
2.	SaS	Female	37	38	2.	FaN	Female	38	44
3.	HaD	Male	36	37	3.	AmD	Male	39	42
4.	MaM	Female	35	34	4.	FaB	Female	37	41
5.	SiK	Male	33	32	5.	AlK	Male	35	40
6.	LeD	Female	33	31	6.	YaM	Female	33	33
7.	PaH	Male	33	34	7.	SaR	Male	34	38
8.	GoR	Female	32	34	8.	RaT	Female	32	31
9.	JaB	Male	31	32	9.	HaS	Male	32	37
10.	TiR	Female	31	32	10.	FeN	Female	31	36
11.	JaM	Male	32	32	11.	MeR	Male	32	37
12.	AtR	Female	33	30	12.	HaR	Female	29	35
13.	AkJ	Male	30	31	13.	AbS	Male	31	36
14.	PaF	Female	28	27	14.	NaN	Female	28	27
15.	HoT	Male	26	25	15.	BeR	Male	29	33
16.	ZaK	Female	25	26	16.	PaN	Female	23	26
17.	HaK	Male	24	25	17.	AmM	Male	22	25
18.	PaK	Female	22	23	18.	MoM	Female	21	24
Mean			31.2	31.4	Mean			31.4	34.9
SD			4.7	4.9	SD			5.4	6.2

An independent-samples t-test was chosen to compare the means of the two groups of participants. Before running the t-test, the test scores were submitted to the two-samples KS test to check the groups' final test results for normalcy, uniformity and homogeneity. It was concluded that the test scores of both groups are sufficiently homogeneous, so that t-tests (and other parametric tests) can be safely used, $z = .707$ ($p = .699$, two tailed).

The results bear out that there is no difference in word recognition between the experimental (31.4) and control (31.2) group in the pre-test, $t(34) = .131$ ($p = .897$, two tailed). An independent-samples t-test on the post-test scores for experimental and control groups shows that the 3.5-point advantage of the experimental group (34.9) over the control group (31.4) is highly significant, $t(34) = 5.427$ ($p = .001$, one-tailed). The effect of the intervention is conveniently expressed as the difference between the score on the post-test and on the pre-test. A t-test for independent samples then shows that the improvement of word recognition in the experimental group is significantly better than in the control group, $t(34) = 5.4$ ($p < .001$, one-tailed). The conclusion follows that the experimental group gained significantly more by the intervention than the control group in terms of developing word recognition skill.

Figure 4.1, finally, plots the relationship between the overall TOEFL scores and post/test scores of the individual students, with separate symbols for participants in the experimental group and in the control group.

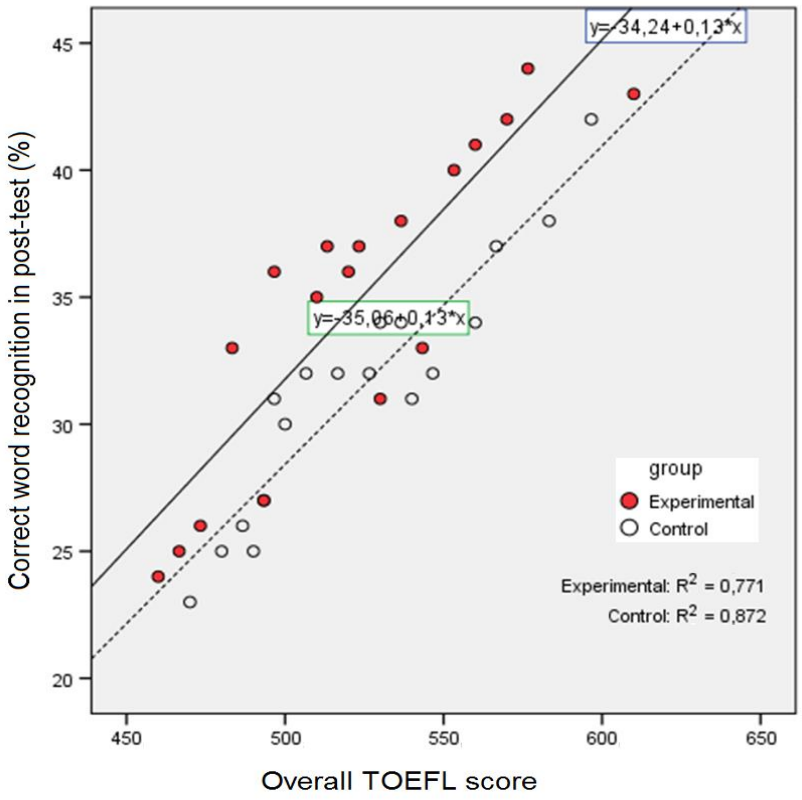

Figure 4.1. Post-test word-recognition score plotted against the overall TOEFL score for each of 36 participants. Members of the experimental group are indicated by closed markers, members of the control group by open markers.

The overall correlation between the pre-test and post-test scores was $r = .884$ ($N = 36$, $p < .001$). Moreover, as is shown in Figure 1, the overall TOEFL score obtained before the start of the intervention, though equally distributed for the experimental and control groups, range widely, i.e., between 450 and 650 on the TOEFL scale. The general result is that students with relatively poor (or good) TOEFL scores also obtain relatively poor (or good, respectively) word recognition scores, both in the pre-test and in the post-test. So, overall proficiency in English is the strongest determinant of the student's success on the word recognition tests. In addition to this, however, a much smaller but still highly significant gain is obtained by those students who took part in the prosodic feature awareness training program.

4.6 Conclusion

In the present study the effect of explicit teaching of prosody on developing word recognition was investigated. The results of the study show that the explicit teaching of prosodic features contributes significantly to the interpreter trainees' developing word recognition skill. Statistical analysis of the data showed that conscious knowledge of prosodic features of stress at the word level has a positive effect on the participant's word recognition skill. This result is in line with Segalowitz & Segalowitz (1993) who pointed out that developing word recognition is prerequisite stage in developing listening comprehension as a more general skill. Cutler (2012) also stated that conscious knowledge of prosodic features may help second-language learners retrieve words from their mental lexicon. Since in interpretation message perception plays an important role in the communication of message, explicit teaching of prosodic features for interpreter trainees can help them doing a better job. For this reason, the interpreter trainees need conscious knowledge of prosodic features of the language that they are interpreting into. If in training programs the issue of explicit teaching of prosody of the target language (and the prosodic differences between the source and the target languages) is practiced in class, then not only will the future interpreters acquire better word recognition skills in the target language but also develop better general listening comprehension skills – as other researchers (e.g., Segalowitz & Segalowitz 1993) have pointed out.

The pedagogical implications of the present study would pertain to interpreting programs all over the world. Moreover, producers of textbooks and other teaching materials for use in the interpreting curriculum should include prosody awareness training, as should all the practitioners and researchers who are involved in the study/teaching of language in general.

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Appendix 4.1. Stimuli for word recognition test

Pre-test. The following words were played to the participants, who were asked to write down the words with their part of speech category.

1.	steam	11.	permit	21.	secreted	31.	resume	41.	separate
2.	esteem	12.	axes	22.	multiply	32.	deliberate	42.	crooked
3.	prayed	13.	buffet	23.	pasty	33.	wound	43.	secreted
4.	parade	14.	august	24.	rebel	34.	convert	44.	refuse
5.	foreign	15.	converse	25.	converse	35.	wound	45.	project
6.	for rain	16.	console	26.	convert	36.	relay	46.	project
7.	attribute	17.	produce	27.	resign	37.	separate	47.	perfect
8.	contract	18.	convict	28.	contest	38.	invalid	48.	polish
9.	laminate	19.	present	29.	digest	39.	secrete	49.	content
10.	object	20.	crooked	30.	contest	40.	invalid	50.	polish

Post-test. The following words were played to the participants, who were asked to write down the words with their part of speech category.

1.	admiral	11.	affect	21.	multiply	31.	axes	41.	resume
2.	admire	12.	august	22.	record	32.	console	42.	refuse
3.	adapt	13.	resign	23.	rebel	33.	perfect	43.	periodic
4.	permit	14.	effect	24.	bellow	34.	subject	44.	rerun
5.	object	15.	billow	25.	record	35.	sewer	45.	excuse
6.	content	16.	reside	26.	digest	36.	subject	46.	refuse
7.	adopt	17.	laminate	27.	attribute	37.	rerun	47.	moderate
8.	contract	18.	produce	28.	buffet	38.	slough	48.	slough
9.	convict	19.	pasty	29.	periodic	39.	relay	49.	moderate
10.	reside	20.	secrete	30.	present	40.	sewer	50.	excuse

Chapter five

Effects of explicit teaching of prosodic features on the development of listening comprehension by Farsi-English interpreter trainees

Abstract

This study investigates the effect of explicit teaching of prosodic features on developing listening comprehension by interpreter trainees. Two groups of student interpreters were formed. All were native speakers of Farsi who studied English translation and interpreting at the BA level at the State University of Arak, Iran. Participants were assigned to groups at random, but with equal division between genders (9 female and 9 male students in each group). No significant differences in English language skills (TOEFL scores) could be established between the groups. Participants took a standard pre-test of listening comprehension before starting the program. The control group had exercises in listening comprehension, while the experimental group spent part of the time on theoretical explanation of, and practical exercises with, prosodic features of English. The total instruction time was the same for both groups, i.e., 8 hours. Students then took a standard listening comprehension test. The results show that the prosodic feature awareness training significantly improved the students' listening comprehension skills. The results have pedagogical implications for curriculum designers, interpreting programs for training future interpreters, material producers and all who are involved in language study and pedagogy.

Keywords: Listening comprehension, prosody, curriculum designers, interpreting studies

5.1 Introduction[1]

The process of decoding the auditory input by anybody who uses language is called listening. It is a complex process through which the auditory stimulus is transformed to a mental reconstruction by the listener (e.g., Poelmans 2003). Listening comprehension is a conscious process by which listeners, through using different types of cues from the context and their previous knowledge, construct meaning from the incoming input (O'Malley & Chamot 1989). Listeners consciously process utterances in particular settings so as to perceive the message (Mendelsohn 1994). Purdy (1997) states that listening is an active process through which listeners attend to, perceive, interpret, remember and provide feedback on. Listeners should be able to decode meaning, apply different strategies, and exploit interactive processes in deciphering the message (Gilakjani 2011). Willis (1981: 134) elaborates on some skills that are necessary for listening comprehension, which she refers to as 'enabling skills'. These are categorized as: (1) predicting the points people want to talk about, (2) guessing at unknown words or phrases, (3) using one's own previous knowledge of the subject to help one understand, (4) identifying all the relevant points; rejecting irrelevant information, (5) keeping relevant points by note-taking, (6) recognizing discourse markers, e.g., *well*; *oh*, *another thing is*; *now*, *finally*, etc., (7) recognizing cohesive devices, e.g., *such as* and *which*, including link words, pronouns, references, etc., (8) understanding different intonation patterns and uses of stress, etc., which give clues to meaning and social setting, and (9) understanding inferred information, e.g., speakers' attitude or intentions. Anderson (2009) states that the listening comprehension process includes three stages: perceiving, parsing and utilizing. Through perceiving, the listener decodes the spoken language. By parsing, the listener transforms the words in the utterance into a mental representation to get the meaning. In the final phase, using the mental representation, the listener reconstructs the sentence meaning. Conscious awareness of the rules and structures plays an important role in processing linguistic input and decoding the incoming information (Schmidt 1990, Tomlin & Villa 1994).

Listening comprehension in English as a foreign language has not been paid enough attention to in the past. Yet, this skill is one of the important skills in second-language teaching and learning (Oxford 1993, Rubin 1994, Berne 1998, Clement 2007). The view was that second-language listening comprehension skills naturally improve in second-language classrooms inductively. According to Clement (2007) second- language listening skill would automatically develop through exposure to second-language speech in the classroom. Also, different scholars have come to believe that second-language listening skills demand awareness training in different aspects (Cohen 1998, Oxford 2002, Carrier 2003, Berne 2004, Chamot 2004, Clement 2007, Liu 2009, Graham,

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Santos & Vanderplank 2011). Conscious perspectives and metacognitive strategies are the higher-order executive skills that permit learners to accomplish a learning goal through planning, monitoring and evaluating (O'Malley & Chamot 1990, Chamot 2004, reported in Guan 2015). Explicit teaching of strategies should be part of the daily activities of instructors in second- language classes (Chamot 2004). Fahim and Fakhri Alamdari (2014) suggest that developing metacognitive awareness in second-language learners of different components in listening comprehension would result in better perception of the message by the students. Metacognitive awareness implies the usage of pedagogical perspectives to make second-language learners increase their awareness of the listening comprehension process by having metacognitive knowledge about themselves as a second-language listeners, the necessities of listening and all the strategies of listening (Vandergrift & Goh 2012).

The second-language learners' speech production deviates from that of native speakers in both segmental and suprasegmental aspects. These deviations cause the foreign accent and often have a negative impact on the non-native speaker's comprehensibility (Trofimovich & Baker 2006, Munro & Derwing 2008, Kang, Rubin & Pickering 2010, Gordon et al. 2013). Research shows that prosodic awareness has a positive effect on the interpretation of ambiguous prepositional phrases for foreign-language learners (Schafer 1997, Warren et al. 2000, Snedeker & Trueswell 2003, Schafer et al. 2005, Kraljic & Brennen 2005, Kang 2007). Buck (2001) stated that listeners take advantage of stress as an important cue in message perception. Explicit teaching of suprasegmentals and raising the learners' awareness of prosodic differences through formal teaching may have a positive effect on perceiving the meaning of sentences (Lord 2005, Pennington & Ellis 2000). Derwing et al. (1998) pointed out that explicit teaching of suprasegmentals may enhance second-language learners' comprehension more strongly than focusing on segmental aspects in formal instruction. Gordon et al. (2013) concluded from experimental studies that explicit teaching of prosodic features and raising the consciousness of the learners of prosodic features improve comprehension skills on the part of the students. Gordon et al. (2013) investigated the effect of explicit instruction of prosodic features on the acquisition of phonological features and also tested the participant's production after providing explicit instruction on how to make their speech (more) comprehensible. Three groups of English-as-second-language learners were selected and explicitly taught pronunciation features during three weeks using a communicative approach (Celce-Murcia, Brinton & Goodwin, 2010, Hinkel, 2006, Gordon et al. 2013). Two groups of participants received explicit instruction on suprasegmental and segmental features of English while the third group received exposure to these features orally without explicit teaching. The results showed that the explicit teaching of suprasegmental features makes learners notice the second-language features and can enhance the second-language learner's development of comprehensible speech.

The explicit teaching of suprasegmental features should be a prerequisite in pronunciation teaching in second-language learning classrooms (Seidlhofer & Dalton-Puffer 1995, Ak 2012). Field (2005) looked at the distribution of sentence stress in the utterance and pointed out that items in the speech which are mis-stressed may prompt the listener to construct a wrong meaning representation and as a result the listener would shape a wrong representation of what follows in the stream of speech as well. Field also

states that incorrect lexical stress would negatively impact on locating words in the stream of connected speech. Ak (2012), in an experimental study, also concluded that pronunciation awareness training improved second-language learners' listening comprehension skills.

Therefore, interpreting studies need to consider the issue of prosody awareness training in the training of future interpreters. Since there is no systematic study of the effect of prosody awareness training on developing listening comprehension skills in the performance of consecutive interpreters, this experimental study is conducted to investigate this issue so that results would pave the way for training qualified future interpreters. Accordingly, I experimentally investigated the effect of prosodic feature awareness training on the development of listening comprehension skills for interpreting performance. The results may lead to modification of the curriculum of interpreting studies in order to enhance the quality of the next generation of interpreters.

5.2 Research question

Listening comprehension skills play an important role in message perception for all interpreters. Without perceiving and decoding the message, there would not be any type of encoding and interpretation of message. In order to see how much conscious prosodic information can contribute to the perception of the message by interpreters, the following research question is investigated.

Does awareness training of prosodic features (stress at word and sentence level) lead to develop the global listening comprehension in message perception for student interpreter trainees?

5.3 Method

5.3.1 Participants

Thirty-six students of translation and interpreting between Farsi and English were chosen randomly from 68 junior students at Arak University, Iran. They were randomly divided into two classes of 18 students that each incorporated 9 male and 9 female students. The participants were native speakers of Farsi with an age range of 18-25 years. They participated in all sessions of the training.

5.3.2 Procedure

The participants were divided into control and experimental groups through the application of systematic random sampling. The control group received routine exercises, asking them to listen to authentic audio tracks in English and doing exercises based on questions about the contents of the audio tracks. The experimental group spent less time on these tasks and instead received prosodic feature awareness training for 15 minutes during each training session.

At the beginning of the program all the participants took a pre-test of general English proficiency. The test battery was the standard Longman's TOEFL English proficiency test, with separate modules testing the learner's (i) Listening comprehension, (ii) Reading comprehension and (iii) Structure and writing skills. The participants took part in the program for eight sessions (one hour per session) in four weeks, i.e., 8 hours in all.

Altogether the control group listened to 320 minutes of authentic audio tracks and did the exercises based on them. Moreover, both the control group and the experimental group listened during 160 minutes to the Iranian instructor who explained how to do exercises in listening comprehension. The experimental group altogether listened for 200 minutes to authentic audio tracks and did the exercises based on them. Additionally, they listened for 60 minutes to the theoretical explanation of English prosody that was provided by the Iranian instructor and spent 60 minutes in all doing practical exercises in English prosody.

In all the sessions, at different times, formative tests were administered to the participants in order to measure their progress and to diagnose problems on the part of the participants. Both at the beginning and at the end of the program, standard Longman's TOEFL listening comprehension test modules were administered as pre-test and as post-test to evaluate the global listening comprehension in message perception for both groups**.** Both pre-test and post-test had 50 multiple-choice items with four alternatives per item. The participants listened to a conversation or description of some phenolmenon and, based on that, chose one option from four choices. These standardized pre-test and post-test have the same level of difficulty as claimed by the documentation that goes with these standard tests.

5.3.3 Data analysis

In order to see whether the participants were homogeneously distributed over the two groups a Two-Sample Kolmogorov-Smirnov Test was run. Linear Regression analysis was performed in order to find out the extent to which components of the TOEFL language proficiency pre-tests predict a student's performance in the post-test. To see whether the difference between the mean scores of the experimental and control groups is statistically meaningful, t-tests were performed. The correlation between pre-test scores and post-test scores was established by the Pearson correlation coefficient.

5.4 Results

Table 5.1 summarizes the raw component scores of the proficiency test of the control group (left-hand part of table) and of the experimental group (right-hand part).

Table 5.1. Raw component scores on TOEFL proficiency test obtained by control (upper part) and experimental groups (bottom part). The rightmost column contains the standardized overall TOEFL scores computed from the component scores. Within each group subjects are listed in descending order of TOEFL score.

Nr.	Student	Gender	List. comp	Struct. & writing	Reading comp	TOEFL
Control Group						
1.	ReA	Male	60	58	61	596.7
2.	SaS	Female	59	57	59	583.3
3.	HaD	Male	57	56	57	566.7
4.	MaM	Female	57	55	56	560
5.	SiK	Male	55	53	56	546.7
6.	LeD	Female	55	52	55	540
7.	PaH	Male	55	53	53	536.7
8.	GoR	Female	54	53	52	530
9.	JaB	Male	53	54	51	526.7
10.	TiR	Female	52	54	49	516.7
11.	JaM	Male	51	52	49	506.7
12.	AtR	Female	50	51	49	500
13.	AkJ	Male	50	50	49	496.7
14.	PaF	Female	49	50	49	493.3
15.	HoT	Male	48	50	49	490
16.	ZaK	Female	48	49	49	486.7
17.	HaK	Male	47	49	48	480
18.	PaK	Female	46	48	47	470
Mean			52.6	52.4	52.1	523.7
SD			4.2	2.8	4.2	36.7
Experimental group						
1.	JaN	Male	59	63	61	610
2.	FaN	Female	59	56	58	576.7
3.	AmD	Male	58	57	56	570
4.	FaB	Female	57	56	55	560
5.	AlK	Male	56	55	55	553.3
6.	YaM	Female	54	54	55	543.3
7.	SaR	Male	53	54	54	536.7
8.	RaT	Female	52	54	53	530
9.	HaS	Male	52	52	53	523.3
10.	FeN	Female	51	53	52	520
11.	MeR	Male	50	52	52	513.3
12.	HaR	Female	51	51	51	510
13.	AbS	Male	49	50	50	496.7
14.	NaN	Female	48	50	50	493.3
15.	BeR	Male	47	49	49	483.3
16.	PaN	Female	46	48	48	473.3
17.	AmM	Male	45	48	47	466.7
18.	MoM	Female	44	48	46	460
Mean			51.7	52.8	52.5	523.3
SD			4.7	3.8	3.8	41.0

One-sample Kolmogorov-Smirnov (KS) tests were run to ascertain that the overall TOEFL proficiency scores were distributed both normally and uniformly. The results show that the distribution of the scores were both uniform, $z = .674$ ($p = .796$) and normal, $z = .704$ ($p = .705$). Moreover, a two-sample KS test showed that the shape of the distribution of the TOEFL scores did not significantly differ between the experimental and control group, $z = .707$ ($p = .699$). It was decided that standard parametric statistics could be safely used to analyze the data.

A t-test for unrelated samples then shows that none of the small differences on the pre-test and its components between the experimental and control group are significant, $t(34) = .482$ ($p = .633$) for Listening comprehension, $t(34) = .788$ ($p = .437$) for Structure and written expression, $t(34) = 1.421$ ($p = .168$) for Reading comprehension and $t(34) = -.703$ ($p = .487$) for the overall TOEFL proficiency score.

Before starting the awareness training program, a pre-test of listening comprehension was run to investigate the participants' global listening comprehension skill. After having followed the awareness training program for eight sessions, a post-test was run to see the effect of training program on experimental and control groups listening comprehension skill. The results of pre-test and post-test of global listening comprehension are presented in Table 5.2 (control group in the left-hand half of table, experimental group in the right-hand half).

Table 5.2. Pre-test scores and post-test scores for control group in listening comprehension (left-hand part) and experimental group (right-hand part). The last two rows contain the mean and standard deviation of the scores. Participants are ordered as in Table 5.1.

Control Group					Experimental Group				
Nr.	ID	Gender	Pre-test	Post-test	Nr.	ID	Gender	Pre-test	Post-test
1.	ReA	Male	61	63	1.	JaN	Male	60	64
2.	SaS	Female	58	59	2.	FaN	Female	60	63
3.	HaD	Male	58	57	3.	AmD	Male	59	62
4.	MaM	Female	57	56	4.	FaB	Female	59	62
5.	SiK	Male	53	54	5.	AlK	Male	57	61
6.	LeD	Female	53	53	6.	YaM	Female	55	59
7.	PaH	Male	53	53	7.	SaR	Male	53	57
8.	GoR	Female	52	53	8.	RaT	Female	53	56
9.	JaB	Male	52	53	9.	HaS	Male	52	52
10.	TiR	Female	52	54	10.	FeN	Female	52	51
11.	JaM	Male	51	53	11.	MeR	Male	51	55
12.	AtR	Female	50	53	12.	HaR	Female	51	54
13.	AkJ	Male	49	52	13.	AbS	Male	51	55
14.	PaF	Female	49	49	14.	NaN	Female	48	50
15.	HoT	Male	49	47	15.	BeR	Male	46	49
16.	ZaK	Female	47	47	16.	PaN	Female	46	48
17.	HaK	Male	46	44	17.	AmM	Male	45	45
18.	PaK	Female	45	46	18.	MoM	Female	45	47
Mean			51.9	52.6	Mean			52.4	55.0
SD			4.3	4.7	SD			5.1	5.9

In order to compare the results of both the control and the experimental groups and to know whether the difference in the means truly stems from the awareness training in stress at the word and at sentence level in global listening comprehension taken by the experimental group (i.e., treatment), an independent-samples t-test was employed. Ideally, for this test, the subjects should be randomly assigned to two groups, so that any difference in response is due to the treatment and not to other factors, which conditions were clearly met in the present case. Before running the t-test, the test scores were submitted to the two-samples KS test to check the groups' final test results for normalcy, uniformity and homogeneity. It is concluded that the test scores of both groups are sufficiently homogeneous, so that t-tests (and other parametric tests) can be safely used, $z = .707$ ($p = .699$).

In the next stage of the analysis I computed the gain in the Listening comprehension score between the pre-test and the post-test. The gain was very small (.6) and only marginally significant by a within-subject t-test (paired t-test) for the control group, $t(17) = 1.7$ ($p = .051$, one-tailed) but larger (2.6) and highly significant for the experimental group, $t(17) = 7.2$ ($p < .001$, one-tailed). Moreover, an independent-samples t-test on the difference scores shows that experimental group gained significantly more than the control group, $t(34) = 3.9$ ($p < .001$, one-tailed).

Finally, Figure 5.1 plots the relationship between the overall TOEFL scores and post-test scores of the individual students, with separate symbols for participants in the experimental and control groups.

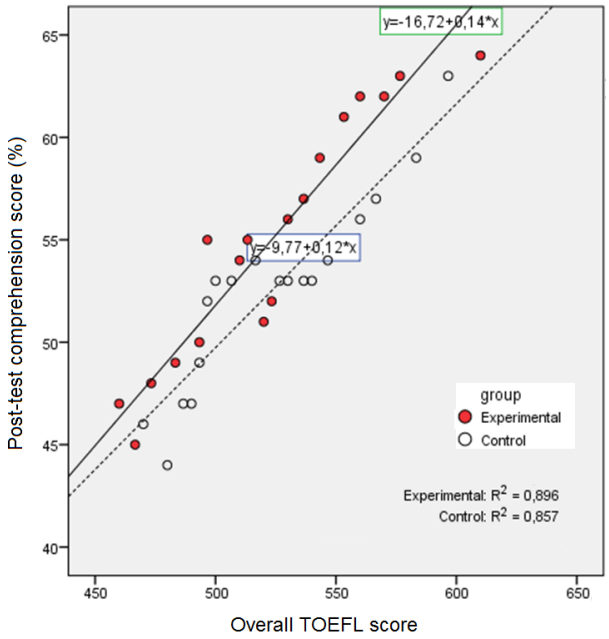

Figure 5.1. Post-test comprehension scores of individual students plotted as a function of their TOEFL scores, with separate markers for participants in the experimental group and in the control group.

The overall correlation between the pre-test and post-test scores was $r = .946$ ($N = 36$, $p < .001$). The figure illustrates quite clearly that the experimental and control groups have the same distribution of overall TOEFL scores at the beginning the experiment but that the experimental group performs better overall than the control group in the listening comprehension post-test. The figure also shows that the overall proficiency level of the individual student prior to the experiment has a much greater effect on the post-test score than the intervention has.

5.5 Conclusion

In this study the effect of prosodic feature awareness training at word and at sentence level on developing global listening comprehension was investigated. The result of the study showed that awareness training of prosodic features would contribute to interpreter trainees significantly in developing listening comprehension skill if they have conscious knowledge of stress at word and at sentence level. Statistical analysis of the data showed that prosodic feature awareness of stress at word and at sentence level enhances the participant's listening comprehension skill in perceiving the message. This perspective is supported by Khaghaninejad & Maleki (2015) who state explicit teaching of phonetic rules for English-as-a-foreign- language students results in developing listening comprehension skills. This finding shows that explicit teaching of prosodic features at word and at sentence level can be pedagogically important for training future interpreters. It also converges with Xiaoyu's (2009) claim that the explicit teaching of suprasegmentals for English-as-foreign-language students would contribute a lot in overcoming phonological obstacles in their listening comprehension.

The pedagogical implications are that in training future interpreters conscious knowledge of prosodic features should be included as a complementary part to various aspects of instruction in interpreting techniques so that interpreters, by having conscious knowledge of prosodic features, perceive the message more accurately. Policy makers in training programs of interpreting should take this perspective into account when designing the curriculum of interpreting. Moreover, by including prosodic feature exercises in their textbooks material producers for interpreting programs can pave the way for the practitioners to implement these discussions in interpreting programs.

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Chapter six

Effects of explicit teaching of segments versus prosody on listening comprehension in English by Iranian learners

Abstract

The present study investigates the effect of explicit teaching of segmentals and suprasegmentals on developing listening comprehension skills for Farsi-English interpreter trainees. Three groups of student interpreters were formed. All were native speakers of Farsi who studied English translation and interpreting at the BA level at the University of Applied Sciences in Tehran, Iran. Participants were assigned to groups at random, but with equal division between genders (6 female and 6 male students in each group). No significant differences in English language skills (TOEFL scores) could be established between the groups prior to the experiment. Participants took a pre-test of listening comprehension before starting the program. The control group listened to authentic audio tracks in English and discussed their contents, watched authentic English movies, discussed issues in the movies in pairs in the classroom. The first experimental group spent part of the time on theoretical explanation of, and practical exercises with, English suprasegmentals. The second experimental group spent part of the time on theoretical explanation of, and practical exercises with, English segmentals. The total instruction time was the same for all three groups, i.e., 12 hours. Students then took a post-test in listening comprehension skills. The results show that the explicit teaching of segmentals significantly improved the students' listening comprehension skills more than that of the other groups. These results have pedagogical implications for curriculum designers, interpreting programs for training future interpreters, material producers and all who are involved in language study and pedagogy.

Keywords: Listening comprehension skills, segmentals, suprasegmentals, interpreter trainees, curriculum design

6.1 Introduction[1]

Listening comprehension skills enable foreign-language learners to perceive language input and facilitates the emergence of other language skills (Vandergrift & Goh 2012). Listening comprehension involves complicated skills which range from perception to comprehension and require the interaction between top-down and bottom up cognitive processes, which, in turn, are mediated by attention and memory mechanisms. Generally, listening comprehension skills are assessed rather than taught in language classrooms. Compared with writing, reading comprehension and even speaking skills, the development of listening comprehension receives the least systematic attention from instructors in different academic settings. Khaghaninejad and Maleki (2015) established that explicit phonetic instruction has positive effect on students' listening comprehension skills. They ran a study with three groups of students, i.e., one control group and two experimental groups. The first experimental group received explicit teaching of segmentals and the second experimental group received explicit instruction of suprasegmentals. The results showed that the experimental group that received explicit teaching of segmentals outperformed other groups in listening comprehension skills after the training program.

The positive effects of explicit instruction of phonological rules have been emphasized by different researchers (e.g., Leather 1990, Champagne-Muzar et al. 1993, Pennington 1998, Ahrens 2004, Derwing & Munro 2005, Venkatagiri & Levis 2007, Foote et al. 2011, Derwing et al. 2012, Robinson et al. 2012, Yenkimaleki & van Heuven 2013, 2016a, b, c, d, Suwartono 2014, Koike 2014). Ahangari et al. (2015) maintained that pronunciation teaching would significantly improve EFL students' listening comprehension skills. Derwing et al. (1998) found that speakers who had received instruction emphasizing suprasegmental features could transfer their learning to spontaneous speech production more effectively than those who received instruction with only segmental content i.e., vowels and consonants. Yenkimaleki and Van Heuven (2016a) showed that the explicit teaching of prosodic (i.e., suprasegmental) features led to a significant improvement of listening comprehension skills for interpreter trainees. They formed two groups of trainees who were native speakers of Farsi and studied English translation and interpreting at the BA level at the State University of Arak, Iran. The control group only received exercises in listening comprehension skills, while the experimental group spent part of the time on theoretical explanation of, and practical exercises with, prosodic features of English. Students then took a standard listening comprehension test. Explicit teaching of prosody led to a modest but significantly better improvement for the experimental group (by 2 points; scores ranged between 44 and 64% across both groups) on a standard listening comprehension test.

Cutler et al. (1997) reviewed the exploitation of prosodic information in the comprehension of spoken language. They looked at the use of prosody in the recognition of spoken words, in which most attention has been paid to the question of whether the prosodic structure of a word plays a role in initial activation of stored lexical

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representations; the use of prosody in the computation of syntactic structure, in which the resolution of global and local ambiguities has formed the central focus; and the role of prosody in the processing of discourse structure, in which there has been a preponderance of work on the contribution of accentuation and deaccentuation to integration of concepts with an existing discourse model.

Cutler et al. (1997) explain that the task of the listener is to reconstruct the speaker's message, and that there are various different aspects to this task: recognizing the individual words, extracting their syntactic relationships, determining the semantic structure of the utterance and its relation to the discourse context. The processing of speech input is facilitated in several ways by coherent prosodic structure appropriate for sentences.

Satio et al. (2016) investigated the effects of prosody-oriented instruction on the global comprehensibility and suprasegmental development (word stress, rhythm, and intonation) of Japanese EFL learners. Students in the experimental group received a total of three hours of instruction over six weeks, while those in the control group were provided with meaning-oriented instruction without any focus on suprasegmentals. Speech samples elicited through reading-aloud tasks were assessed via native-speaking listeners' intuitive judgments and acoustic analyses. Overall, the pre-/post-test data showed significant gains in overall comprehensibility, and use of word stress, rhythm, and intonation of the experimental group in both trained and untrained lexical contexts. In particular, by virtue of explicitly addressing first language/second language linguistic differences, the instruction was able to help learners mark stressed syllables with longer and clearer vowels, reduce vowels in unstressed syllables, and use appropriate intonation patterns for *yes/no* and *wh*-questions.

Van Heuven (2008) argues that prosody is largely redundant in connected speech and that its function only comes to light when the segmental information is faulty or unreliable. Non-native speech is characterized by unreliable segmental information when heard by native listeners, or non-natives who do not have the same native-language background as the speaker, in which case word prosody assumes a role of crucial importance. He maintains that when "communication suffers from noise, prosody fulfills the role of a safety catch" (p. 56). Wang et al. (2011), and earlier Nooteboom and Doodeman (1984), share this view. They showed experimentally that the role of prosody becomes evident when the segmental speech quality is degraded as a result of foreign accent, noise or electronic distortion.

Therefore, considering the contradictory results in recent studies on effectiveness of teaching prosodic features to EFL learners and also the effectiveness of explicit teaching of segmentals by some scholars we need to investigate this domain systematically in wider contexts with different participants. Given that foreign-language curricula (including training programs for interpreters) have to make strict choices as to how much time should be spent on teaching particular skills, it is important to know whether teaching time is better spent on segmentals or on prosody. The results of such studies can be incorporated in interpreter training programs for training the next generation of interpreters. Therefore, we concretely asked the following research question:

Which one of two areas of explicit teaching yields better listening comprehension skills for Farsi-English interpreter trainees: segmental structure or suprasegmental structure?

At this stage we prefer not to derive specific hypotheses as to which of the two areas will be more important. This will depend on the similarities and differences between the phonological systems (and their phonetic implementation) of L1 and L2. In the case of EFL for native speakers of Farsi the segmental inventories (large in English, restricted in Farsi) and syllable structures (complex in English, simple CV in Farsi) differ substantially between the two languages, but so do word stress (complex and weight sensitive in English, fixed final in the vast majority of the vocabulary in Farsi) and rhythmic structure (stress timing in English versus syllable timing in Farsi).

6.2 Methodology

6.2.1 Participants

Thirty-six student interpreter trainees at the BA level who were majoring in interpreting and translation studies at University of Applied Sciences in Tehran, Iran, were chosen randomly to participate in this study. They were randomly divided into three classes of 12 students that each incorporated 6 male and 6 female students. The participants were native speakers of Farsi within an age range of 20-24 years. They participated in all sessions of the training program.

6.2.2 Procedure

Participants were divided into one control group and two experimental groups through the application of systematic random sampling. The control group received routine exercises, asking them to listen to authentic audio tracks in English and speaking about the issues brought up in the audio tracks. They also watched authentic movies and discussed the contents of the movie in class. The first experimental group spent less time on these tasks and instead received awareness training of English prosody in the form of theoretical explanation by the instructor and practical exercises in prosody (word stress, rhythm, intonation) for 20 minutes during each training session. The second experimental group received explicit teaching of segmentals (vowels, consonants, syllable structure) for 20 minutes during each training session. The participants took part in the program for 12 sessions (60 minutes per session) during four weeks, i.e., 12 hours in all.

At the beginning of the program all the participants took a pre-test of general English proficiency. The test battery was the standard Longman's TOEFL English proficiency test, with separate modules testing the learner's (i) Listening comprehension, (ii) Reading comprehension and (iii) Structure and writing skills. Then, the control group and experimental groups took a pre-test of speaking so that their basic level of speaking skill could be assessed before they received any type of training.

Altogether the control group listened to 540 minutes of authentic audio tracks and did the exercises based on them. Moreover, the control group and the two experimental groups listened during 180 minutes to the Iranian instructor who explained how to do exercises in listening comprehension. The experimental groups altogether listened for 300 minutes to authentic audio tracks and did the exercises based on them. The first experimental group listened for 120 minutes to the theoretical explanation of English prosody that was provided by the Iranian instructor and spent 120 minutes in all doing practical exercises in English prosody (see Chapter 3, Appendix 3.2, pp. 50−86 for detailed training program). The second experimental group listened for 120 minutes to the theoretical explanation of English segmentals that was provided by first author and 120 minutes in all doing practical exercises in English segmentals. The activities covered by the three participant groups and the time (minutes) spent on them are summarized in Table 6.1.

Table 6.1. Summary of activities and time spent (minutes) by three groups of participants in experiment.

Activity	Group		
	Control	Prosody	Segments
Audio tracks/ movies & discussion	540	300	300
Listening Comprehension exercises	180	180	180
Prosodic theory		120	
Prosodic practice		120	
Segmental theory			120
Segmental practice			120
Total time spent	720	720	720

In all the sessions, at different times, formative tests were administered to the participants in order to measure their progress and to diagnose problems on the part of the participants. Both at the beginning and at the end of the program, standard Longman's TOEFL listening comprehension test modules were administered as pre-test and as post-test to evaluate global listening comprehension for both groups. Both pre-test and post-test had 50 multiple-choice items with four alternatives per item. The participants listened to a conversation or description of some phenomenon and, based on that, chose one option from four choices. These standardized pre-test and post-test have the same level of difficulty as claimed by the documentation that goes with these standard tests.

6.3 Results

At the beginning of the program all the participants took of the TOEFL test (see above) of general English proficiency so that we can see whether the participants form a homogeneous group or not. Table 6.2 shows the participants' overall mean scores and their SD.

Table 6.2. Overall mean score and SD on TOEFL proficiency test for control group and experimental groups (N = 12 per group).

	Control group	Prosody group	Segmental group
Mean	534.12	541.66	536.08
SD	27.05	33.61	25.10

A oneway Analysis of Variance (ANOVA) for unrelated samples shows that the effect of group is insignificant, $F(2, 33) = 0.221$ ($p = 0.882$). The conclusion follows that the three groups were equivalent in terms of English proficiency at the start of the experiment.

Before starting the awareness training program, a standard pre-test of listening comprehension skills was run to investigate the participants' listening comprehension skills. Table 6.3 lists the mean scores of listening comprehension skills and their SD for pre-test.

Table 6.3. Mean and SD of listening comprehension scores for different groups in pre-test (on a scale between 0 and 50).

	Control group	Prosody group	Segmental group
Mean	35.91	36.41	35.16
SD	6.63	7.31	6.83

The score differences between the three groups are within one point on the scale from 0 to 50. None reach statistical significance as determined by a oneway Repeated Measures Analysis of Variance (RM ANOVA, with Huyhn-Feldt correction for violation of sphericity requirement) with participants matched across groups on the basis of their TOEFL scores, $F(1.5, 16.3) = 3.3$ ($p = 0.075$, $p\eta^2 = 0.230$). This confirms that the three groups were not statistically different in terms of listening comprehension skills at the start of the intervention.

At the end of the training program, a standard post-test of listening comprehension skills (a different version of Longman's Listening comprehension test) was run to assess the effect of the treatments. The pre-test and post-test had the same level of difficulty as stated by Longman TOEFL Company. The mean scores and the SDs are presented in Table 6.4, for control group and experimental groups separately.

Table 6.4. Mean and SD of listening comprehension scores for different groups in post-test (ratings are between 0 and 50).

	Control group	Prosody group	Segmental group
Mean	36.41	39.91	42.25
SD	6.85	7.40	6.41

This time the RM ANOVA shows that the effect of group is highly significant, $F(2, 22) = 44.5$ ($p < .001$, $p\eta^2 = 0.802$). Each of the three groups differed significantly from the other two (Bonferroni post hoc tests with $\alpha = 0.05$).

In order to compare the results of the control group and the two experimental groups and to know whether the difference in the means truly stems from the type of the treatment for developing listening comprehension skills in different groups, a oneway ANOVA was performed on the individual participants' gain between pre-test and post-test. Ideally, for this test, the subjects should be randomly assigned to three groups, so that any difference in response is due to the treatment and not to other factors, which conditions were clearly met in the present case. Table 6.5 illustrates the gain, i.e., the difference between the post-test and the pre-test scores.

Table 6.5. Pre-test and post-test mean scores and the gain for training program in listening comprehension skills calculated for different groups separately.

Control group			Prosody group			Segmental group		
Pre-test	Post-test	Gain	Pre-test	Post-test	Gain	Pre-test	Post-test	Gain
35.91	36.41	0.50	36.41	39.91	3.50	35.16	42.25	7.09

Table 6.5 shows that explicit teaching of segmentals was more effective in improving the listening compression skills of interpreter trainees compared with the explicit teaching of suprasegmentals. An RM ANOVA run an the gain obtained by the three groups shown that the overall effect is significant, $F(1.8, 19.6) = 63.3$ ($p < 0.001$, $p\eta^2 = .852$). Moreover, the gain for the segmental group was significantly larger than that obtained by the prosody group (Bonferroni post hoc tests).

6.4 Conclusion

The present study investigated the effect of explicit teaching of segmentals versus suprasegmentals on developing listening comprehension for Farsi-English interpreter trainees. The results show, first of all, that both the explicit teaching of prosody and of segmentals significantly improved the students' listening comprehension skill. Secondly, explicit teaching of segmental properties of English yields significantly better listening comprehension than devoting the same amount of time to the teaching of prosodic characteristics of English.

The results of the study converge with Khaghaninejad and Maleki (2015) who stated that explicit teaching of segmentals significantly improves the listening comprehension skills of EFL learners. The results of the study also confirm our earlier experience that explicit teaching suprasegmentals enhances interpreter trainees' listening comprehension. This perspective is in line with Yenkimaleki and Van Heuven (2016a, b, c, d), who maintained that explicit teaching of prosodic features would have statistically significant effect on interpreter trainees perception and production quality of speech in interpretation performance. This finding also supports Cutler et al. (1997) and Epstein (1961), who suggest that the prosodic structure of an utterance plays an organizing role in speech recognition.

What is new in the present study is that, in the given circumstances where only limited curricular time is available for instruction (whether implicit or explicit) and practice, a well motivated choice can be made to lend priority to the explicit teaching and practice of segmental properties of the target language, rather than to the teaching of suprasegmental (prosodic) properties. As explained in the introduction, words are recognized primarily on the basis of segmental information, i.e., the defining phonetic properties of vowels and consonants in the early-to-late arrangement in which they are sequenced by the speaker. In the present experiment, the stimulus materials were produced by native speakers of (British) English so that the both the segmental and the suprasegmental properties of the utterances were perfect by definition. In such conditions, prosody is largely redundant vis-à-vis the segmental information (this is also why segmental rather than prosodic information is primarily reflected in written English, see Van Heuven 2008, 2017). It makes eminent sense, therefore, that better knowledge of (or familiarity with) the segmental properties of the input language makes a larger contribution to listening comprehension than similar knowledge of only the redundant prosodic properties of the language. It has amply been shown that no words can be recognized from prosody alone: only the properties of larger prosodic domains (such as phrase boundaries cueing syntactic structure) were found to be preserved in low-pass filtered or spectrally rotated/scrambled English speech (e.g., Blesser 1969, Lindblom & Svensson 1973, Svensson 1974).

This, of course, does not automatically mean that no attention should be paid at all to prosody. Our results do show a significant contribution of prosody teaching to the development of listening skills. So future studies should be done in finding the optimal division of labour to be spent on the teaching of segmental versus suprasegmental phonetics in the (English-into-Iranian) interpreter training curriculum: how much time and effort should be allocated to each of these aspect and how should the activities be ordered?

The pedagogical implications of this study would pertain to interpreting programs all over the world. Educational policy makers, curriculum developers, practitioners, and administrators need to make a number of changes in their overall approach to the teaching phonetics as part of interpreter training programs. Producers of teaching materials for such programs should be in contact with researchers in the field of phonetics, take publications of phonetics into consideration and include methodological issues of segmental and suprasegmental teaching in the textbooks for interpreting programs.

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Chapter seven

Objective correlates of the quality of interpreting

Abstract

This study attempts to relate the intersubjective expert judgments to objective measures that can be expected to correlate with the judgments. If such correlates can be found, the expert judgment can be predicted by some combination of objective correlates. If the prediction is sufficiently accurate, expert judgments could be dispensed with in the future and be replaced by objective measurements. I have investigated the relationships between the expert judgments of the quality of the participants' interpreting performance on the one hand and objective correlates of their performance on the other. Somewhat surprisingly, the results show that the intersubjective ratings of the students' interpreting performance can be quite adequately predicted from objective measures for members of the control group through multiple linear regression analysis but that such predictions are less successful in the case of the experimental group. Crucially, the members of the control group were given more favorable ratings by the expert judges as their speed of delivery was faster. Such a linear relationship was absent in the case of the experimental group. For the latter group it seemed as though the relationship between speed of delivery of the interpretation was most favorably rated if it was in the middle of the range. Less favorable ratings were obtained not only for slow delivery (as in the case of the control group) but also for excessively fast delivery by some members of the experimental group.

Keywords: expert judgments, objective correlates, interpretation, pace, prosodic features

7.1 Introduction

In Chapter 3 the quality of consecutive interpreting by control and experimental groups was determined by an intersubjective evaluation procedure. Three experts rated the participants' performance as interpreters on a number of subjective scales, which together aimed to capture all relevant quality aspects of interpreting. The three experts, moreover, agreed strongly in their ratings. In fact, they were so much in agreement that it was decided to simply average the three scores given by the three raters. The analysis showed that the experimental group did better on each rating scale than the control group, and that the gain of the experimental group over the control group was specifically greater on those quality aspects that relate to prosody.

In the present chapter I will make an attempt to relate the intersubjective expert judgments to objective measures that can be expected to correlate with the judgments. If such correlations can be found, the expert judgment can be predicted by some combination of objective correlates. If the prediction is sufficiently accurate, expert judgments could be dispensed with in the future and be replaced by objective measurements.

Ten rating scales were used. For the sake of convenience, they are repeated here in Table 7.1, which is a copy of Table 3.1.

Table 7.1. Ten evaluation criteria subdivided into three domains used in the quality judgment of interpreting performance. Weights add up to 100. After Sawyer (2004).

Meaning		**Language use**		**Presentation**	
Accuracy	20	Grammar	7	Pace	10
Omissions	15	Expression	7	Voice	10
Overall coherence	10	Word choice	7		
		Terminology	7		
		Accent	7		

Unfortunately, in the set of evaluation criteria not all scales can be grounded in experimental measures. I will not try, for instance, to come up with objective measures that might predict overall coherence of the interpretation into Farsi relative to the original English text, nor will I attempt to define an objective measure for 'Expression'. However, omissions – i.e., failure to translate an important word or concept – can be counted, and the number of grammatical anomalies can be determined by analyzing transcripts of the interpretations. I will also try to establish correlates of at least some of the prosodic evaluation criteria such as accent and pace. Especially 'Pace' (or fluency) would seem to be amenable to objective testing. At least two correlates of pace will be considered, viz. speaking rate and articulation rate. Speaking rate is traditionally defined as the number of linguistic units, i.e., words or syllables, produced per unit time (per minute or per second). Here the total speaking time includes all pauses, whether silent or filled (*eh*, *ehm*). Articulation rate is computed the same way as is speaking rate but the

total time does not include pauses and hesitations. Defined this way, obviously, speaking rate and articulation rate are strongly correlated. When trying to predict judgments on a rating scale from objective measures it is better to work with independent predictors, i.e., predictors that do not or only weakly correlate with each other. It seemed to us that a feasible way to disentangle speaking rate and articulation rate would be to use articulation rate only and supplement this parameter with a more direct measure of the incidence of pauses and hesitations. This latter aspect can be adequately captured by computing the percentage of the total speaking time that is taken up by pauses. I will call this latter parameter '%-pause'.

I note, in passing, that it will not necessarily be the case that pace (fluency) is monotonically related to either %-pause or to articulation rate. It would seem more likely that the relationship between the judgment and the acoustic measure will be U-shaped, i.e., judgments may well be most favorable for values in the middle of the range, when the speaker does not insert a great many pauses (indicative of difficulties in producing the interpretation) nor speaks with very few pauses (which would create a burden on the listener). Similarly, articulation rates in the middle of the range are expected to receive the most favorable judgments.

7.2 Objective measures used

In the next few sections I will outline the procedures followed to quantify the objective correlates I used. Here I will distinguish between counts of phenomena that can be established by analyzing written transcripts of the interpreter's performance (and comparing it to the original text), and measurement of acoustic properties, which, of course, cannot be done from a written transcript.

7.2.1 Count measures

Generally, the norm is that interpreters should have a complete transfer of the source text to their audience without any omission of ideas or changes of meaning. This issue has received a lot of attention in typology and error analysis of translation and interpreting performance. But we know that in some cases omission of some aspects in interpretation enhances the quality of interpreting and as a result communication of message is done properly ('less is more'). Jones (2014: 139) pointed out that interpreters in some situations are not in position to render the exact and complete message. So, in these situations the interpreters omit part of the source text in order to have a coherent message for the audience. Therefore in some cases, the interpreters intentionally omit part of the source language because they want to transfer the gist of the message so that the audience may perceive the message more easily. So, when it happens, the communication of the message between the audience and interpreters can be achieved comprehensively. We should know that in interpreting the important aspects and essentials are preferred over the completeness of the message.

It is an open question, in the present study, whether the judgment of accuracy and omissions is monotonically related to the number of words (or concepts) incorrectly

translated or left out altogether. One hypothesis would be that the more accurate and complete the interpreting is, the better the accuracy and omission judgments. I leave room, however, for a more sophisticated possibility; viz., the relationship between the objective counts and the global judgments is U-shaped. In the latter case, keeping in all details would detract from the judged adequacy or optimality of the interpreting job.

The number of omissions was established by comparing an optimal translation of the original English texts into Farsi with transcripts of the student's interpretation. The unit of measurement was the content word. I checked for every content word in the model translation whether it occurred in some adequate or at least acceptable form (identical, synonym or paraphrase) in the student's transcript. When the word or concept was not an acceptable stand-in for the original, it was counted as an inaccuracy or meaning error. When the word or concept was absent from the student's interpretation altogether it was scored as an omission. The total number of errors was then equal to the number of inaccuracies and the number of omissions added together.

7.2.2 Acoustic measures of pace

The sound recordings of each of the 30 speakers were segmented into interpausal units. An interpausal unit, or IPU, is defined as a stretch of speech not interrupted by a silent or filled pause (Koiso et al. 1998, Buhmann et al. 2002).[1] In order to qualify as a pause, a silence in the spoken utterance must be longer than 100 ms. If shorter silences would also be considered, the occlusion phases of voiceless plosives would be counted as pauses, which would be undesirable.

The recordings were recoded from mp3 format to .wav-format. Normally, lossy coding such as mp3 would be ill-advised for the analysis of speech but in the present case, where only duration, fundamental frequency and intensity will be measured, measurements will be quite faithful. The segmentation of the recordings was done semi-automatically with PRAAT speech processing software (Boersma & Weenink 1996, 2017). As a first approximation, the recordings for a given speaker were automatically split up into stretches of uninterrupted speech and pauses using the annotation module with automatic speech/silence detection. For male speakers the bottom pitch was set at 70 Hz, for females at 120 Hz. For all other parameters the default setting was used (both speech and silences should exceed 100 ms, silence threshold at −25 dB). The resulting annotation grids plus waveforms were inspected by ear and eye. The procedures laid down by Buhmann et al. (2002) were followed. Filled pauses, which are not detected as such by the algorithm, were set by hand, and misplaced segmentation boundaries were corrected when necessary. Each speaker produced three fragments. Time intervals preceding and following fragments were discarded. Only pauses within each of the three fragments were included in the computations. Filled pauses were separately labelled. A filled pause, by definition, is not coarticulated with whatever precedes it. As a result, a filled pause is always preceded by a short stretch of silence. It occurred regularly that a speaker fell silent for several hundreds of milliseconds, then produced an *eh* or *ehm*

[1] IPUs are sometimes also referred to as 'fluent runs' (e.g., De Jong & Perfetti 2011).

filled pause, which could or could not be followed fluently by the onset of the next fragment. In such cases two or even three pauses were distinguished, one of which was filled and the others were silent. As a result of this procedure the number of pauses found could be greater than the number of IPUs. In a number of cases the speaker lengthened a word-final vowel, which was clearly indicative of a hesitation. In such cases we did not mark a pause; lengthened vowels lead to slower speaking rates. The occurrences of such lengthened vowels were also marked and counted.

The transcripts of the students' interpretations were automatically converted from the Arabic script to a Western transliteration. This transliteration is close enough to a broad phonemic transcription of what was said to enable correct syllabification. Word boundaries were checked and corrected by hand. A list of word types was extracted from the transcripts. In each word in the list, syllable boundaries were inserted by hand. Syllable boundaries were then inserted automatically in the materials by applying a series of find-and-replace commands using the words and their hyphenation in the list of types. The number of syllables as well as the number of words was then counted automatically for each IPU and stored in the database.

For each speaker the following speech rate-related measures were computed from the duration data and the syllable and word counts:

- Total articulation time: i.e., the duration of all the IPUs added together
- Total pause time: the duration of all the intervals, whether silent or filled, added together
- Total filled pause time: the duration of all filled pauses (*eh*, *ehm*, *mm*, *mmm*) added together
- Number of IPUs
- Number of silent pauses
- Number of filled pauses
- Standard deviation of IPU duration
- Standard deviation of pause duration
- Speaking rate in words/s: (total articulation time + total pause time) / number of words
- Speaking rate in syll/s: (total articulation time + total pause time) / number of syllables
- Articulation rate in words/s: total articulation time / number of words
- Articulation rate in syll/s: total articulation time / number of syllables
- %pause: total pause duration / (total articulation time + total pause duration).

7.3 Results

7.3.1 Count measures

The number of inaccuracies and omissions were counted by comparing each individual student's written transcript with the ideal, model interpretation. Note that the model interpretation (see appendix 5 in chapter 3) contained a rendition of all words and concepts that occurred in the English source text.

Table 7.2 presents the number of inaccurately translated words as well as the number of omissions, for the members of the control group and the experimental group separately. Moreover, the individuals in the two groups were matched pairwise on the basis of their performance on the overall TOEFL score obtained in the pre-test (the same matching criterion I used in chapter 3).

Table 7.2. Number of incorrectly translated words, omitted words and total number of errors for individual subjects in control and experimental groups. Subjects are matched on TOEFL score in pre-test, and listed from best to poorest.

	Control group				Experimental group		
Subject	Wrong words	Omissions	Total	Subject	Wrong words	Omissions	Total
1	15	15	30	1	5	13	18
2	12	18	30	2	6	30	36
3	20	10	30	3	22	8	30
4	24	10	34	4	15	8	23
5	20	12	32	5	19	8	27
6	34	6	40	6	22	8	30
7	13	19	32	7	10	17	27
8	21	29	50	8	26	7	33
9	32	15	47	9	22	10	32
10	22	30	52	10	25	15	40
11	23	56	79	11	19	12	31
12	26	41	67	12	18	22	40
13	37	43	80	13	32	32	64
14	31	50	81	14	23	27	50
15	24	110	134	15	39	40	79
Mean	23.6	30.9	54.5		20.2	17.1	37.3

Interestingly, although the two groups did not differ from one another on the pre-test, there is a substantial difference in the number of word errors counted in the transcripts of the subjects' interpreting performance in the post-test. The number of word errors is significantly smaller for the experimental group for both wrong words 24 versus 20) and for omissions (31 versus 17), $t(14) = 1.8$ ($p = .045$, one-tailed) and $t(14) = 2.6$ ($p =$

.016, one-tailed), respectively. The effect is most clearly seen in the total number of errors (55 versus 37 errors), $t(14) = 4.0$ ($p < .001$).

The crucial question is if the experts' global judgment of the accuracy of the interpretations can be understood from the objective post-hoc error counts. To answer this question, I computed the correlation coefficients between the objective counts and the expert judgments. The correlations are shown in Table 6.3.

Table 7.3. Correlation matrix for objective error counts and global expert judgments. The lower triangle contains Pearson's r, the upper triangle shows the non-parametric Spearman's rho.

	Objective error counts			Judgments	
	wrong words	word omissions	total errors	accuracy	omissions
wrong words		.218	.732	−.696	−.718
omissions	.255		.755	−.712	−.698
total errors	.555	.946		−.921	−.904
Accuracy	−.691	−.704	−.838		.973
omissions	−.694	−.718	−.851	.976	

Note: $r > .555$: $p < .001$

It can be observed, first of all, that the global accuracy and omission judgments are extremely strongly correlated ($r = .976$). This means that the judges did not differentiate between these two aspects of the interpreting performance. This seems understandable, given that leaving out words or concepts that occurred in the English source text from the interpretation is to all intents and purposes a form of inaccuracy. In the objective post-hoc error counts the numbers of incorrectly translated words and omitted words are not significantly correlated, so that these two types of error might have contributed to the global judgments separately and independently. Note that the number of omission errors was much larger than the number of inaccurately translated words, which explains the much higher correlation between the former ($r = .946$) and the total error score than the latter ($r = .555$). Observe, finally, that the non-parametric *rho* coefficients tend to be somewhat better than their parametric counterparts *r*. This suggests that the relationships between the objective error counts and the global judgments are non-linear. I will come back to this issue presently.

The most important conclusion to be drawn from Table 7.3 is that the global accuracy and omission judgments (which are virtually identical anyway) can be predicted with great precision by the objective error counts, especially when the total number of errors is used as the predictor, with *rho*-values in excess of .9. Clearly, then, the experts' global judgments have a high concurrent validity in that they lead to the same ranking of students as can be achieved on the basis of laborious error counts.

To conclude this part of the analysis, Figure 7.1 plots the mean of the global accuracy and omission judgments as a function of the total error number for each of the 30 students. The x-axis of the plot, however, is not linear but logarithmic. A preliminary

check revealed that the percentage of the judgment scores accounted for by a logarithmic model was appreciably better than by a linear model, with R^2 = .828 and .720, respectively.

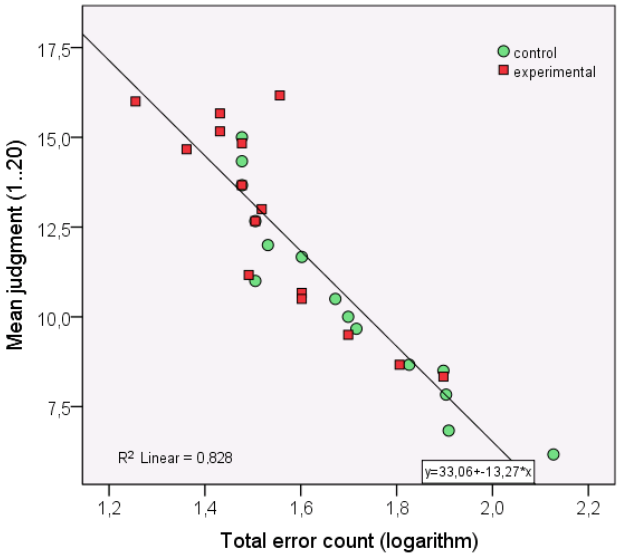

Figure 7.1. Mean of global word accuracy and word omission judgments as a function of the logarithm of the total count of errors.

It can be seen in Figure 7.1 that accuracy judgments for the experimental group are better than those for the control group, which reiterates what was observed in chapter 5. We now understand that the difference between the two groups is related in a perfectly straightforward manner to the difference in numbers of incorrectly translated words and words omitted during interpretation from English into Farsi. Moreover, the relationship works the same way for both groups of student interpreters. What we do not know is how this difference in performance can be explained. The experimental group received ample explanation of prosodic differences between English and Farsi, and did practical exercises emphasizing these prosodic differences, but this in and by itself does not explain why the accuracy of the translation of the contents should improve.

7.3.2 Acoustic measures

A total of 15 speech rate related parameters were computed (see above). Some of these were measured from the acoustic signal, other were counted in written transcripts of the interpreting performance by the participants. Compound measures were derived by computing ratios or percentages based on raw measurements. For instance, Articulation rate was defined as the Total articulation time divided by the Total number of syllables

counted. Table 7.4 presents the summary statistics for these 15 parameters, for the experimental and control groups separately. Independent t-tests indicate that the small differences between the two groups never reach statistical significance for any of the 15 parameters, with p-values ranging between .187 and .950.

Table 7.4. Mean and standard deviation of 15 fluency-related acoustical correlates for control group and experimental group. The difference between the two means (⊿) and the t and p-values are given (df = 28 for each parameter).

Parameters	Control group		Exper. Group		All		Δ	*t*	*P*
	Mean	SD	Mean	SD	Mean	SD			
Total articulation time (s)	71.2	14.2	73.6	10.7	72.4	12.4	−2.4	−.5	.606
Total pause time (silent + filled)	21.9	10.5	21.7	9.0	21.8	9.6	.2	.1	.950
Total N words	220.3	33.8	231.5	17.3	225.9	27.0	−11.1	−1.1	.266
Total N syllables	444.5	72.9	470.9	36.6	457.7	58.3	−26.4	−1.3	.221
Percent pause (silent + filled)	22.9	6.0	22.2	5.9	22.6	5.9	.7	.3	.742
Speech rate (words/s)	2.4	.5	2.5	.4	2.5	.4	−.1	−.3	.756
Speech rate (syllables/s)	4.9	1.0	5.1	.8	5.0	.9	−.2	−.4	.657
Articulation rate (words/s)	3.1	.5	3.2	.4	3.2	.4	.0	−.3	.781
Articulation rate (syllables/s)	6.3	1.0	6.5	.8	6.4	.9	−.2	−.5	.640
SD IPU duration (s)	1.2	.3	1.6	1.3	1.4	1.0	−.5	−1.4	.187
SD pause duration (s)	.9	.4	1.0	.7	.9	.5	−.1	−.5	.644
SD N words in IPU	4.0	1.1	5.0	3.6	4.5	2.7	−1.0	−1.0	.311
SD N syllables in IPU	8.0	2.5	10.3	7.7	9.1	5.8	−2.4	−1.1	.270
N IPUs	33.9	11.4	33.1	11.4	33.5	11.2	.7	.2	.862
N pauses (silent + filled)	34.1	15.9	31.7	15.8	32.9	15.6	2.3	.4	.690

Figure 7.2 presents the relationship between percentage of pause and the judged pace of delivery, shown separately for the experimental and control groups.

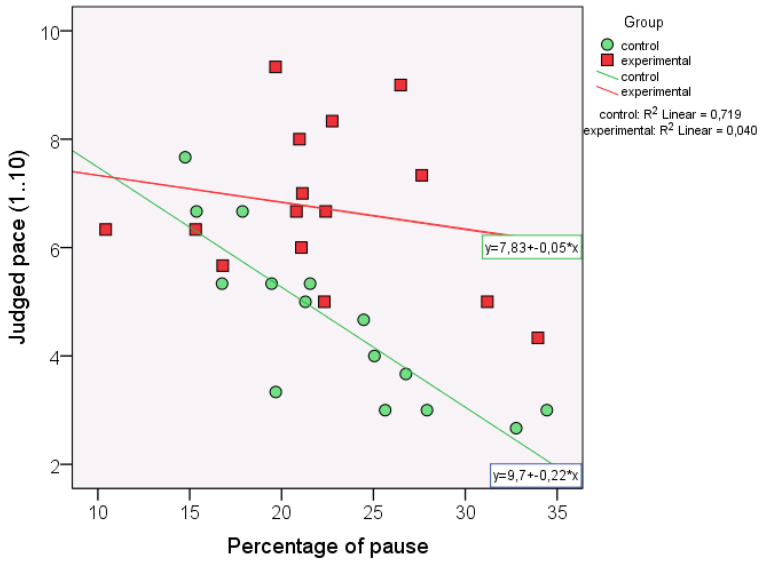

Figure 7.2. Judged pace as a function of percentage of pause (silent and filled) in spoken text, shown separately for members of experimental and control groups.

The figure reiterates that the judged pace is better for the experimental group than for the control group, as was seen earlier in Chapter 3. However, the figure also shows, quite clearly, that the relationship between percentage of pause and the judged pace of delivery is strong and linear, as far as the control group is concerned. The greater the percentage of pausing, the poorer the judged pace, where the objective measure accounts for 72% of the variance the judged pace score, R^2 = .719. The relationship is much weaker, in fact almost absent, for the experimental group. It is not the case that the experimental group has no variability in percentage of pause: the distribution of this objective parameter is roughly the same for experimental and control group alike, with a spread between 10 and 35%. In order to shed light on this curious asymmetry, let us now examine the relationship between articulation rate (words/s) and judged pace. The expectation, of course, is that a faster articulation rate should correlate with better pace judgments. The results are in Figure 7.3.

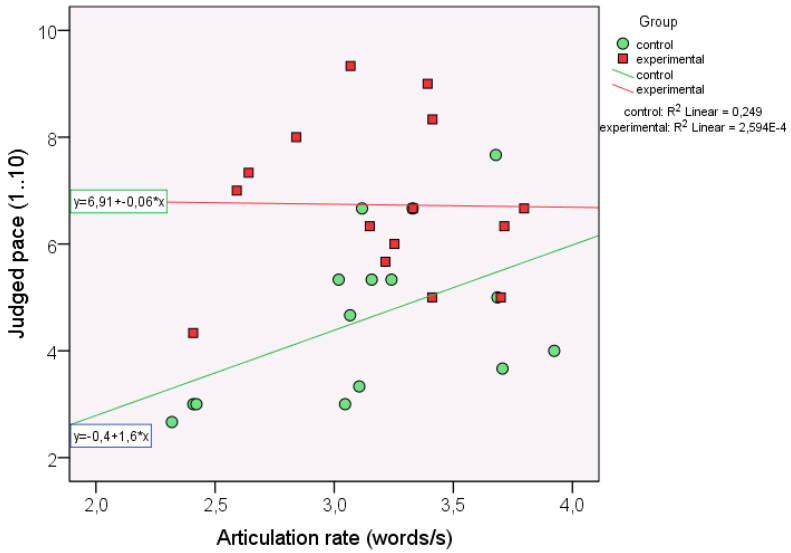

Figure 7.3. Judged pace as a function of percentage of articulation rate (words/s) in spoken text, shown separately for members of experimental and control groups.

Again, it can be observed that the relationship between the objective measure and judged pace is fairly strong for the control group, R^2 = .249, and explains a quarter of the variance in the judgments. It can also be noticed that there was no correlation at all for the experimental group.

In order to understand the asymmetry in the results of the experimental and control groups, at first it is needed to examine the relationship between the predictor variables used here, viz. percentage pause and articulation rate (in words/s and in syllables/s). It turns out that it is rather immaterial whether articulation rate is expressed in words/s or in syllables/s. The intercorrelation between these two measures is almost perfect at r = .991 for the control group and r = .994 for the experimental group (N = 15, p < .001 in both cases). The intercorrelation between articulation rate and %-pause shows the same remarkable discrepancy between the two groups we met before, such that the correlation is relatively strong and significant for the control group, r = −.564 (p = .014) and −.618 (p = .007) for words/s and sylls/s, respectively, but weaker and insignificant for the experimental group, r = −.340 (p = .107, one-tailed) and −.367 (p = .089, one-tailed) for words and syllables per second, respectively (see also Figure 7.3).

These results suggest that articulation rate and %-pause in the control group are both indices of cognitive difficulty in task performance: when these participants find it difficult to interpret the incoming message, they tend to speak more slowly, leading at the same time to fewer syllables (or words) per second and to more and/or longer pauses. These would be pauses for the sake of the speaker rather than for the sake of the listener. The speaker needs more time to find appropriate words and formulations to

get the message across. The speaker does not insert pauses to help the listener by clearly marking off processing units (be they clauses or constituents). A reasonable prediction here would be that these speakers also produce relatively many filled pauses, which are the hallmark of problems with finding words or formulations. In contradistinction to this we would expect pauses in the experimental group to be used as structure markers for the sake of the listener. These would be relatively short pauses, which are planned by the speaker to guide the listener. Additionally, fewer filled pauses and other over markers of planning difficulty should be observed for the experimental group.

These hypotheses can be tested by examining the number of disfluency markers, which is what it is done in the following section.

7.3.3 Disfluencies

In order to understand the discrepancy between the experimental and control group, let us now consider the number of disfluencies marked for each. I distinguish the following four categories:

1. Long silent pause, indicative of extra planning time needed. Assuming that pauses between IPUs in fluent speech normally do not exceed a duration of 1000 ms, any silent pause longer than 1000 ms was considered a (potential) disfluency.
2. Filled pause, indicative of hesitation, i.e., any instance of *eh*, *ehm* or *mm* that is not fluently coarticulated with whatever precedes it.
3. Lengthened vowel, i.e., a word-final vowel that is lengthened and is indicative of hesitation
4. Repetition, i.e., the repetition of something that was said in the immediately preceding IPU, then broken off, and repeated in a second attempt. In a number of cases there was no break (no silent or filled pause after the false start); the repetition followed seamlessly after the false start. I decided to count the repetitions only (and only if the repetition was not an instance of stuttering – which happened on two occasions).

Table 7.5 lists the disfluencies found, for the experimental and control groups, together with the number of regular IPUs and short silent pauses. The latter two categories are indices of fluent speech, whereas the other four categories point to planning difficulties on the part of the speaker.

Table 7.5. Mean duration (in seconds) and number of IPUs, regular silent pauses, long pauses and filled pauses produced by experimental and control groups.

Disfluency	Control group		Experimental group		Δ (exp − cont)	
	Duration	N	duration	N	duration	N
regular IPU	2.14886	456	2.22998	485	0.08112	29
silent pause short	.41173	394	.43771	392	0.02598	−2
silent pause long	3.22033	43	3.21933	43	−0.00100	0
filled pause	.36330	73	.38007	42	0.01677	−31
lengthened vowel	1.44213	30		0		−30
Repetition	2.01930	23	1.97880	11	−0.04050	−12

Table 7.5 shows no systematic differences in the behavior of the experimental and control participants in terms of the duration and number of disfluencies, with three notable exceptions. The number and mean duration of regular IPUs, as well as those of both short and long silent pauses (the latter would be indicative of planning problems on the part of the speaker) are virtually identical between the two groups. This also goes for the duration of the remaining categories of disfluencies but, remarkably, the number of disfluencies in the latter three categories differs between the groups such that the control group shows many more disfluencies in the categories filled pause, excessive prepausal vowel length and repetitions after a false start. These three categories, obviously, are indicative of planning problems. Before drawing any conclusions from these observations let us first see how the numbers are distributed over the 15 participants in each group.

Table 7.6 presents the numbers of disfluencies in the categories filled pause, excessive prepausal vowel lengthening and IPUs that repeat materials after a false start, broken down by the two groups of participants. In order to make the comparison maximally sensitive, the participants in the two groups have been matched for their TOEFL test scores.

Inspection of Table 7.6 reveals, first of all, that the TOEFL pre-test predicts the number of disfluencies observed in the interpretation tasks rather well. The correlations are negative, of course, since high TOEFL scores (indicating good proficiency in English) should lead to better performance, with fewer hesitations in the interpreting task. The best fit was obtained when the TOEFL scores were used to predict the logarithm of the number of disfluencies. Quite a few participants fulfilled their interpreting task without any disfluency. Since the logarithm of 0 is undefined, I remedied this by incrementing the overall disfluency count for each of the 30 participants by 1. I then find the same asymmetry in the predictability that we met before. The interpreting performance of the control can be predicted from objective measures much better than the scores of the experimental group. The correlation coefficients are $r = -0.742$ ($N = 15$, $p = .001$, one-tailed) for the control group and $r = -0.440$ ($N = 15$, $p = 0.050$, one-tailed). Across all participants $r = -0.612$ ($N = 30$, $p < .001$, one-tailed).

Table 7.6. Number of over disfluencies in three categories (excessive pre-pausal vowel lengthening, filled pause, repetition of words after a false start) for participants in control and experimental groups. Participants are rank ordered within their group on the basis of their pre-test overall TOEFL score.

Nr.	Student	Gender	Lengthen	Filled pause	Repeat	Total	TOEFL
Control Group							
1.	SaM	Female	0	1	0	1	610.0
2.	PoP	Female	0	0	0	0	586.7
3.	DaD	Male	0	0	1	1	563.3
4.	EiM	Male	0	0	2	2	553.3
5.	KhR	Female	0	0	2	2	540.0
6.	ZaN	Female	0	0	0	0	530.0
7.	ElM	Female	0	0	0	0	513.3
8.	AtH	Female	0	0	0	0	510.0
9.	ReR	Male	0	1	9	10	506.7
10.	AlA	Male	0	0	1	1	503.3
11.	MaN	Male	0	4	0	4	500.0
12.	LeK	Female	0	10	2	12	490.0
13.	JaR	Male	0	0	5	5	473.3
14.	AsH	Male	20	35	1	56	446.7
15.	NeF	Female	10	22	0	32	446.7
Total			30	73	23	126	
Experimental group							
1.	AlR	Male	0	0	1	1	613.3
2.	MaH	Female	0	1	1	2	603.3
3.	RaM	Male	0	0	0	0	566.7
4.	MoH	Male	0	0	0	0	563.3
5.	NaN	Female	0	0	1	1	553.3
6.	SaK	Female	0	4	1	5	553.3
7.	ArA	Male	0	3	0	3	550.0
8.	ZoM	Female	0	0	0	0	550.0
9.	PaN	Female	0	2	0	2	546.7
10.	BaN	Male	0	1	0	1	523.3
11.	KiK	Female	0	0	0	0	516.7
12.	MaR	Female	0	0	0	0	493.3
13.	NaH	Male	0	0	4	4	480.0
14.	HaM	Male	0	0	2	2	476.7
15.	TaB	Female	0	31	1	32	446.7
Total			0	42	11	53	

Although the total number of overt disfluencies in the performance of the control group (126) is more than twice as large as for the experimental group (53), the difference falls short of significance. A sign test on the counts (11 pairs matched on within-group TOEFL rank, excluding 4 tied scores) yields $p = .114$ (one-tailed), which is a (weak) trend at best.

I may also normalize the number of overt disfluencies by speech time. After all, when a speaker produces more speech materials (words, syllables) during a longer stretch of time, there is more opportunity to produce errors and disfluencies. I therefore divided the total number of disfluencies per speaker by the duration of all his/her IPUs added together.

To conclude this part of the analysis, I will now try to establish a possible relationship between the incidence of overt disfluency markers and the pace of the interpreting performance as judged by the expert raters. The correlation between the raw number of disfluencies and judged pace is slightly poorer than when the logarithm of the number of disfluencies used, but even then r is rather weak at −.526 (N = 30, p < .001). Moreover, similar correlation coefficients are obtained between the disfluency counts and all other judged aspects of the interpreting performance (which tend to be strongly correlated, see Table 3.5). When I compute the correlations separately for experimental and control groups, we observe the same asymmetry as before: correlations are appreciably better for the control group than for the experimental group, not just for pace but for all judged aspects.

7.3.4 Predicting pace from multiple correlates of fluency

In the preceding sections we have seen that the prosodic parameter with the most tangible measureable correlates, i.e., pace of delivery, correlates with a large number of variables. These variables can be located in the acoustical domain, e.g., articulation rate (syllables per second) and percent pause. However, pace also correlated with the number of disfluencies per unit time as counted in the transcripts of the interpreting performances obtained from the participants. Interestingly, the intercorrelations between the disfluency counts and the acoustic correlates of pace were relatively modest, so that there is reason to try to predict judged pace from acoustic and count parameters together. Table 7.7 presents the correlation matrix for judged pace (dependent) and the acoustic and count parameters of (dis)fluency. Only the non-redundant lower triangle of the matrix is shown.

Table 7.7. Correlation matrix of judged pace (dependent) and five predictors: Percent pause, Articulation rate (syllables/second), Standard deviation of interpausal units (ms), Standard deviation of (filled and silent) pauses (ms) and the Relative number of disfluencies per unit time. N = 30 for each cell.

	Pace	Perc pause	Art rate	SD speech	SD pause
Percent pause	−.469**				
Artic. rate (syll/s)	.314*	−.504**			
SD speech	.503**	−.181	.121		
SD pause	.075	.503**	.112	.561**	
Rel. disfluencies	-.543**	.646**	−.623**	−.267	−.035

* r > .300: p < .05, ** r > .460: p < .01 (one-tailed).

This table summarizes the information presented earlier in § 7.3.2 with one exception: we now see that the variability in the duration of the inter-pausal units (or fluent runs) is, in fact, fairly good predictor of judged pace, better, for instance, than articulation rate or percent pause, though still weaker than the relatibe number of disfluencies. This is somewhat unexpected, especially since the correlation is positive. One would expect competent speakers to divide their delivery into chunks of roughly equal size, which should yield a negative correlation with judged pace: the smaller the variability in the chunk size, the better the fluency. Variability in the pause duration, however, does not correlate with judged pace.

Table 7.8 A-B contains the same correlation matrix as in Table 7.7 but now the data are presented separately for the experimental and control groups.

Table 7.8 A-B. Correlation matrix of judged pace (dependent) and five predictors. Further see Table 6.7, N = 15 per cell.

		Pace	Perc pause	Art rate	SD speech	SD pause
A. Control	Percent pause	−.848**				
	Artic. rate (syll/s)	.592**	−.618**			
	SD speech	.741**	−.773**	.337		
	SD pause	−.454*	.593**	.073	−.397	
	Rel. disfluencies	−.583*	.727**	−.727**	−.615**	−.007
B. Experimental	Percent pause	−.200				
	Artic. rate (syll/s)	−.009	−.367			
	SD speech	.487*	−.056	.064		
	SD pause	.338	.487*	.137	.732**	
	Rel. disfluencies	−.470*	.601**	−.434	-.210	−.034

* $r > .450$: $p < .05$, ** $r > .590$: $p < .01$ (one-tailed).

Breaking the correlations down separately for the experimental and control groups shows the by now familiar result that the correlations are clearly stronger for the control group than for the experimental group. There is, however, one parameter that behaves differently between the two groups. The variability in duration of the (filled and silent) pauses correlates negatively with judged pace in the control group ($r = -.454$, $p = .045$, one-tailed) but positively in the experimental group ($r = -.338$, $p = .109$, ins.). Variability in pause duration in the control group is typically caused by long silences and hesitations when the student interpreter is stuck for words. The better participants in this group have fewer of these long pauses, so that the variability in their pause durations is reduced. The experimental group, however, has fewer long pauses and disfluencies as a general characteristic; their pause variability is probably conditioned by the grammatical structure of their utterances such that light prosodic boundaries (at the phrase and clause level) have relatively short pauses and deeper boundaries (at the sentence level) are marked by longer pauses – as is typically found in other languages such as English (e.g., Grosjean, Grosjean & Lane 1979, Selkirk 1984)

and Dutch (e.g., Swerts 1997). In that case, the more variable the pause duration, the more competently does the speaker use prosodic markers. Note also that for the experimental group longer pauses tend to go together with longer IPUs, whereas the correlation is reversed for the control group.

Multiple regression analyses were then conducted for the two groups combined (N =30) and for the experimental and control groups separately. All five predictors mentioned in the correlation matrix were entered simultaneously in one analysis and in step-wise mode in another. The results are shown in Table 7.9 A-B-C.

Table 7.9. Summary of multiple regression analysis with judged pace as the dependent from five predictors: Percent pause, Articulation rate (syllables/second), Standard deviation of interpausal units (ms), Standard deviation of (filled and silent) pauses (ms) and the Relative number of disfluencies per unit time. Analysis were run with simultaneous entry (left part of table) and in stepwise mode (right part of table) for all participants combined (panel A, N = 30)) as well as for the control (panel B, N = 15)) and experimental groups (panel C, N = 15) separately.

Simultaneous entry							Stepwise mode					
Predictors	Beta	R^2	F	df	P	Predictors	Beta	R^2	ΔR^2	F	df	P
A. Combined groups												
Rel.disfl.	−.443					Rel. disfl.	−.440	.295	.295	11.7	1, 28	
SD speech	.617					SD speech	.385	.433	.138	6. 6	1, 27	.016
SD pause	−.380											
% Pause	.166											
Artic. rate	.089	.473	4.3	5, 24	.006							
B. Experimental group												
SD pause	,642											
% Pause	−,444											
Artic. rate	−,419											
Rel.disfl.	−,376											
SD speech	−059	.457	1.5	5, 9	.227							
C. Control group												
% Pause	−.751					% Pause	−.221	.719	.719	33.3	1, 13	<.001
Rel.disfl.	.376											
SD speech	.342											
Artic. rate	.277											
SD pause	.110	.785	6.6	5, 9	.008							

For the total group of participants combined we find an R^2 of .473 when all five predictors are entered simultaneously. In the stepwise mode it turns out that only two predictors make a sufficient contribution to be included in an optimal model, which then accounts for 43.3 percent of the variance.

When the analysis is performed for the experimental group separately, no model is produced that is better than chance. As can be seen in Table 7.8 B two predictors correlate significantly (but only just) with the criterion when studied as single predictors, viz. SD

speech and Relative number of disfluencies but they lose significance in the simultaneous entry of five predictors because of the increased degrees of freedom.
Judged pace can be best predicted for the control group. Entering all five predictors simultaneously yields an R^2 of .785, i.e., the model accounts for 79 percent of the variance. However, as was shown earlier, one single predictor, i.e., percent pause duration, accounts for 72 percent of the variance; none of the remaining four predictors makes a further contribution that reached significance.

7.4 Conclusions and discussion

In this chapter I have examined the relationships between the expert judgments of the quality of the participants' interpreting performance on the one hand and objective correlates of their performance on the other. In the quality judgments a rating instrument was used that was comprised of ten scales. Seven of these pertain to aspects of quality that can be (and actually were) established by examining written transcripts of the interpreting tasks. These aspects relate to abstract linguistic properties of the interpretations, such as the accuracy with which the ideas in the source text were expressed, number of words omitted, appropriateness of choice of words and terminology, number of grammatical errors, and overall coherence of the interpretation. The remaining three scales were meant to capture the phonetic aspects of the delivery of the interpretation, i.e., the degree of accentedness, the pace (or fluency) of the delivery and the pleasantness of the voice. These three phonetic aspects all relate to relatively long-term aspects of speech, i.e., are not properties of specific vowels or consonants (see the definition of prosody in § 3.1), and are therefore prosodic features.

It was shown in Chapter 3 that the seven textual/linguistic scales intercorrelate very strongly, as do the three prosodic scales, but the correlations between scales in different categories are relatively low. The possibility to divide the ten scales into one group of seven non-prosodic and three prosodic scales was borne out by a factor analysis, which showed opposite factor loadings by the two groups of scales on the two principal components extracted in the analysis.

The results presented in this chapter bear out, quite clearly, that the expert judgments of the non-phonetic aspects can be related in a rather straightforward manner to a number of structural properties that could be quantified or counted in written transcripts of the interpreters' deliveries. Since the seven rating scales are very strongly intercorrelated there is little point in trying to predict each of these scales separately from objective counts. It would be sufficient, therefore, to summarize the most striking correlations found.

It turned out, then, the total number of errors in the interpreted passages (i.e., wrong words and number of omitted words added together) afford excellent prediction of the accuracy (and omissions) rating, with correlation coefficients in excess of .900. The actual numbers of wrong words and omissions were quite disparate, however. The conclusion follows, therefore, that the expert judges were not able to differentiate between these two aspects of accuracy even though they were clearly different in the interpreters' productions. This conclusion does not reflect negatively on the quality of

the raters – it just shows that these two closely related aspects are extremely difficult to distinguish when asked to give an on-the-spot evaluation of an interpreter's performance. Proper differentiation between the two types of inaccuracy in interpreting can only be achieved when a written transcript is available for a detailed and more time-consuming analysis.

These lexical accuracy parameters (words incorrectly translated or omitted altogether) are the two most important aspects of the overall rating of the students' interpreting performance. Incorrect words were weighted by 20, omissions by 15, so that together they represent 35 percent of the overall score. The other eight aspects together, with weights of either 7 or 10, represent the remaining 65 percent.

It should be noted in this context that the objective measures that predict the judged accuracy of the interpretation performance so well, are also the quantitative measures that optimally differentiate between the participants in the experimental and the control groups. The experimental group produced a very significantly smaller number of (lexical) inaccuracies than the control group (with a mean of 55 versus 37 lexical inaccuracies per speaker). It remains unclear at this stage why the experimental group would produce fewer inaccuracies than the control group. Why would a 36-hour training module emphasizing prosody and prosodic differences between English and Farsi, which is what differentiates the experimental groups from the control group, lead to a reduction in number of lexical errors?

The total number of disfluencies counted in a participant's delivery proved to be a reasonable predictor for the rated adequacy of the speaker's expression and coherence, explaining between a quarter and a third of the variance in the ratings. Interestingly, the ratings could be better predicted by a relative than an absolute count of the number of disfluencies. In the relative measure the number of disfluencies were related to the duration of the interpretation. So the expert judges did not just keep track of the number of disfluencies they heard in the interpreter's delivery but normalized for the length of the delivery.

There is no point in trying to predict the ratings of grammatical correctness of the interpretations. Since the interpretation was from English into Farsi, all participants spoke the target language as their native language. Although numerous disfluencies were found in the Farsi utterances produced, no ungrammatical structures were observed.

Turning now to the prosodic rating scales, it appeared that the pace of the delivery is clearly related to a number of objective parameters. The three phonetic-prosodic evaluation scales are very highly intercorrelated, even if the correlation coefficients are computed for the experimental and control groups combined ($.888 < r < .976$). I decided to concentrate on the prediction of pace (fluency) as this parameter has rather straightforward acoustical correlates. The results show that the pace rating for the control group can be predicted most successfully by a single parameter, i.e., percent pause duration, which by itself explains 72 percent of the variance in the pace rating. Curiously enough, no predictive model is possible for the experimental group and only

two single predictors yield marginally significant correlations with pace, i.e., the variability in the duration of the interpausal units and the relative number of disfluencies.

In the overall prediction of pace for the group of 30 participants combined a regression model was found that explains 43 percent of the variance. The best predictor here was the number of disfluencies (normalized for the total duration of the interpretation), followed by the variability in the duration of (filled and silent pauses).

It remains unclear at this time why the pace (or fluency) judgments can be predicted in a rather straightforward fashion from a number of objective properties of the speech produced by the student interpreters in the control group, whereas no convincing relationships could be found between the acoustic measurements and counts of errors and disfluencies for the experimental group. Part of the solution of this problem may be that the assumption underlying the analysis I applied is that the relationships between the predictors and the criterion should be linear. In § 7.1, however, I briefly speculated that it might be more reasonable to assume a U-shaped (i.e., quadratic or parabolic) relationship between such parameters as speech rate and percent pause on the one hand and judged pace on the other. Obviously, when there is excessive pausing or an exceedingly slow speaking rate, which would cause poor judgments of pace (or fluency). However, a speaker may also speak so fast and with so few pauses that the listener suffers from information overload – which would yield unfavorable ratings of pace. I argued that speech rates and speech pause ratio (i.e., percent pause duration) should ideally be somewhere in the middle of the range, neither too slow nor too fast.

No signs of non-linearity can be observed in the results obtained for the control group. For this group the overall tendency is: the faster the better. However, when we examine the results of the experimental group more closely, we may observe a tendency in the scatterplots (Figures 7.2-3) to reveal non-linear, in fact, parabolic relationships between the acoustic predictors and judged pace. Table 7.10 lists side-by-side the correlation coefficients between the acoustic predictors and judged pace obtained for linear and quadratic (U-shaped) regression functions for the experimental and the control group separately.

Table 7.10. Correlation coefficients (Pearson's r) between acoustic predictors and judged pace for experimental and control groups, assuming linear versus quadratic relationships.

Acoustic predictor	Experimental group			Control group		
	Linear	Quadratic	Δ	Linear	Quadratic	Δ
% Pause	.200	.531	.331	.848	.887	.039
Articulation rate	.001	.430	.429	.592	.642	.050

Table 7.10 shows that the U-shaped function fits the data much better (by 33 to 43 points) than a linear function. For the control group, however, the difference between linear and quadratic functions is almost negligible (5 points or less). I am inclined to interpret this difference as an indication that some speakers in the experimental group

speak so fast and pause so little that the raters judge this speed of delivery (or pace) uncomfortable.

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Chapter eight

Effects of prosodic feature awareness training on consecutive interpreting from Farsi into English

Abstract

This study investigates the effect of explicit teaching of prosody on the performance of Farsi-English interpreter trainees. Two groups of student interpreters were formed. All were native speakers of Farsi who studied English translation and interpreting at the BA level at the State University of Arak, Iran. Participants were assigned to groups at random, but with equal division between genders (8 female and 8 male students in each group). At the beginning of the program all the participants took a pre-test of general English proficiency. No significant differences in English language skills (TOEFL scores) could be established between the groups. Three expert raters assessed quality measures of interpreting performance in both a pre-test and a post-test. All rating scales that pertain to prosodic aspects in the trainees' interpreting performance, proved susceptible to the explicit teaching of prosody. The results of the study showed that explicit teaching of prosody statistically did have a positive effect on the overall interpreting performance by Farsi-English interpreter trainees. The pedagogical implications of the present study would pertain to interpreting programs all over the world. Course developers should take these results into considerations and include contrastive prosody in the textbooks for interpreting programs.

Keywords: prosody teaching; awareness training; curriculum; TOEFL proficiency; interpreting programs

8.1 Introduction[1]

Although pronunciation teaching has received a lot of attention in the field of applied linguistics, there are still remarkably few studies paying attention to the effects of explicit instruction of prosody in the teaching of English as a Foreign Language (EFL) (Derwing & Munro 2005, Koike 2014). Several methodological perspectives are available for the explicit teaching of pronunciation (Derwing & Munro 2005, Foote, Holtby & Derwing 2011) but instructors often do not feel comfortable explicitly teaching pronunciation (Burns 2006, Baker, 2011, Foote et al. 2011, Koike 2014), either because they find it difficult to listen analytically to the students' pronunciation, identify errors and suggest remedies, or because they give priority to other aspects of communicative competence such as the acquisition of vocabulary and morphosyntax. Prosody awareness training is the most marginalized activity in the training of interpreters though prosody plays a key role in communicating the message. The neglect of prosody awareness training for interpreters may be due to the (apparent) complexity of this issue and the misconception about what content should be taught and how this could be done (Suwartono 2014). By prosody we understand the ensemble of properties of speech that cannot be derived from the mere sequence of phonemes that make up a spoken sentence. Prosody then includes such phenomena as lexical tone, stress at the word and at the sentence level, boundary marking and intonation. All these suprasegmental phenomena are characteristics of linguistic units larger than a single vowel of consonant, i.e., larger than a segment (Lehiste 1970, Nooteboom 1997, Van Heuven & Sluijter 1996). Although words are recognized mainly from the sequence of segments, word-level prosody assumes a crucial role in the recognition process when the segmental quality is poor (as is typically the case in foreign-accented speech (e.g., van Heuven 2008, Cutler 2012). Moreover, sentence prosody is often indispensable in the signaling of the speaker's intention (e.g., O'Neal 2010). Although quite probably overstating their case some authors (e.g., Suwartono 2014) claim that teaching suprasegmental features should take priority over segmental properties in teaching English as a foreign language. In the Iranian educational system, segmental features are taught and practiced in training interpreters more intensely than suprasegmentals.

Intelligibility and comprehensibility are fundamental aspects of second language pronunciation (Derwing et al. 2012). In this regard, prosodic features are very important in making the speech intelligible. Research shows that prosodic feature errors are barriers to the intelligibility of speech (Munro & Derwing 1995). Studies show that awareness training is an important factor contributing to second-language acquisition (Venkatagiri & Levis 2007, Robinson et al. 2012). Schmidt (2001, 2010) points out that awareness raising is fundamentally necessary in learning second-language linguistic

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features. Also supporting this perspective, Pennington (1998) claims that explicit instruction of phonological rules makes learners aware of the problems in their own pronunciation of the foreign language. This view is supported by other scholars who all agree that explicit instruction and awareness training are effective components in the teaching of English as foreign language (Norris & Ortega 2000, Spada & Tomita 2010, Koike 2014). Derwing & Munro (2005) also state that phonological forms should be taught and explained explicitly so that foreign-language learners perceive the differences between their own pronunciation and that of native speaker models.

Research shows the positive effects of explicit instruction of phonological rules (e.g., Neufeld 1977, Murakawa 1981, De Bot & Mailfert 1982, De Bot 1983, Leather 1990, Champagne-Muzar, Schneiderman & Bourdages 1993, Pennington 1998, Ahrens 2004, Derwing & Munro 2005, Venkatagiri & Levis 2007, Foote et al. 2011, Derwing et al. 2012, Robinson et al. 2012, Yenkimaleki & van Heuven 2013, 2016a, b, Suwartono 2014, Koike 2014). According to Ahrens (2004) the importance of prosody for an interpreter in the bilingual communication between two parties would be the same as in monolingual communication of message. She also states that since the prosodic features which exist in the source language carry an important part of the message that should be delivered in target language, the prosodic features in the target language would be of the utmost importance in rendering the message to the audience. Gut et al. (2007) argue that the goal of instructors in different academic settings should be to make second-language learners perceive and produce the prosodic features of the target language adequately. Considering the needs of the second-language learners, it can be targeted to comprehensible communicative abilities or near-native like language competence. Instructors take advantage of different methodologies such as teaching theoretical aspects of prosody, consciousness raising of language structure, production exercises and perceptual training. Gut et al. (2007) claim that researchers produce theories while teachers practice them in class so that their experiences tend to be different. An exchange of ideas between the two parties, i.e., the theory makers and the practitioners, is dearly needed. Unfortunately formal settings in which the various professional groups who are concerned with second language prosody exchange perspectives are largely lacking at this time. Jackson & O'Brien (2011) point out that studies on the relationship between prosody, second-language speech production and second-language comprehension were not enough and this area demands more investigation. The results of these studies which have been done so far should be considered as introductory points. Therefore, this area demands much more attention by having comprehensive experimental studies because of the importance of message communication. The systematic studies can provide us with enough information on how interpreters can take advantage of prosodic features in message perception and communication since there is a relationship between prosody and meaning. Also, the result of such studies in this area would help second-language learners in following different issues in the foreign language classrooms by perceiving the instructions and outside of the classrooms as well when using language communicatively. Derwing et al. (1998) argue that their experiment indicates that awareness training resulted in better understanding of utterances by second-language learners who had instruction emphasizing prosodic feature of stress; moreover, these second-language learners could transfer their perceptual learning to the spontaneous production as well (Field 2003).

A significant perspective in current cognitive psychology would be that awareness is a fundamental aspect of learning. It has even been stated that it is impossible to have learning without conscious awareness (Brewer 1974, Dawson & Schell 1987, Lewis & Anderson 1985). Rutherford and Sharwood Smith (1985) assert that drawing the learner's attention to the formal properties of language raises consciousness and may therefore be advantageous in second-language learning.

Therefore, interpreting studies as a growing field, in order to apply efficient didactic methods in training qualified future interpreters, needs to consider awareness training of prosodic features of the source and target languages and include appropriate procedures of prosody teaching in the curriculum of training programs. This perspective demands systematic investigation of this issue within the specific context of interpreter training programs. Accordingly, the present study is done to elaborate this issue so that the results may be a stepping stone towards improving the curriculum for training the next generation of interpreters.

8.2 Research question

The effect of prosodic feature awareness training and the conscious knowledge of prosodic features (of both native and foreign language) on the performance of interpreters from Farsi into English has not been investigated systematically. The present experiment was set up to shed light on the potential importance of prosody in the training of future interpreters. The result of such study can lead to modification of the curriculum for interpreter training through including exercises and materials about this issue in interpreting programs. The following research question was asked.

Does awareness training of prosodic features (stress at word and sentence level) from Farsi into English enhance the quality of consecutive interpretation performance for interpreter trainees?

8.3 Method

8.3.1 Participants

Thirty-two students of translation and interpreting studies at BA level at Arak University were chosen randomly. They were 16 male and 16 female students. They were divided into two classes that each incorporating 8 male and 8 female participants. Their age range was between 18 and 26 years old and they took part in all sessions of the program.

8.3.2 Procedures

The interpreter trainees who participated in the study were divided into two groups at random. One group was designated as the experimental group while the other was considered the control group. At the beginning of the program all participants took a TOEFL test in order to establish that they were homogeneous. The test battery was the standard Longman's TOEFL English proficiency test, with separate modules testing the learner's (i) Listening comprehension, (ii) Reading comprehension and (iii) Structure and writing skills.

Then, the control group and experimental group took a pre-test on interpreting so that their level of expertise in interpreting was assessed prior to receiving any type of training. In the next stage, the control group received instruction and practice about the techniques of interpreting, different aspects of interpreting, and types of interpreting. The experimental group received not only the same instruction as provided to the control group (in less time, however) but also awareness training on prosodic features (stress at word and at sentence level) of English and their effect on their performance. The prosody awareness training targeted the differences between the stress systems of English and Farsi, at the word and sentence level, in a cognitive way. Theoretical explanation was given and immediately put into practice in exercises (a detailed account of contents of the awareness training program can be found in Chapter 3, Appendix 3.2, pp. 50−86). Both experimental and control groups received exercises in interpreting by presenting authentic audio extracts. The experimental group received awareness training of prosodic features of English for 20 minutes each session and the control group received additional practice in consecutive interpreting through practical exercises. To receive feedback regarding the progress of teaching and to detect weaknesses in methodology, different types of formative test were administered in all the sessions. At the end of the program, a post-test with the same structure but with different items compared with the pre-test was administered to both groups in order to establish whether the treatment (explicit teaching of English prosody) of the experimental group had been effective or not.

Six authentic audio extracts of IRIB (Islamic Republic of Iran Broadcasting) news cast in Standard Farsi were chosen as test materials for the interpretation task. Through random sampling four of these were selected for the pre-test. Each fragment lasted 30 seconds. The other two fragments were used as the post-test. The procedure used in the pre-test and the post-test was the same. Students were seated in sound-proofed half-open cubicles which attenuated ambient noise well enough to yield clean recordings. They listened to the source texts being played to them over a loudspeaker at a comfortable listening level. After every 30-second fragment they were allowed one minute to record an interpretation of the source text in English. Recordings were made directly onto a digital computer through individual, table-mounted microphones. As part of the one-minute intervals, and also earlier while listening to the stimulus text, participants were allowed to make written notes (as is not uncommon in consecutive interpreting).

The participants' performance, both in the pre-test and in the post-test, was scored applying the criteria adapted from Sawyer (2004). These are:

1. *Accuracy*: Interpreters should be faithful all the time to the meaning of source language. It means than an optimal and complete message should be transferred to the target language such that the content and intent of the source language should be preserved without omission or distortion. Accuracy of interpretation should be a primary concern for interpreters. Discrepancies in meaning and intention between source and target text are not acceptable.
2. *Omission*: Jones (2014) pointed out that interpreters in some situations have insufficient time to render exact and complete messages. In such situations interpreters may omit part of the source text and yet deliver a coherent message to the audience. To do so, interpreters may intentionally omit part of the source language and concentrate on transferring the gist of the message. As a consequence, some omissions are considered errors but in certain complicated situations they are unavoidable, e.g., when the interpreter suffers from cognitive overload. In this study omissions were not counted against the interpreter as long as the interpretation preserved the content and intent of the source language; if not, they were scored as errors.
3. *Overall coherence*: Coherence is the extent to which the interpreter's output is meaningful and purposeful. Message coherence is a key aspect in interpretation, which includes conceptual connectedness, evaluative and dialogical consistency and textual relatedness.
4. *Grammar*: In this study the attempt was made to evaluate the speech production of the participants observing the standard structural rules of English.
5. *Expression*: Utterances should be appropriate regarding formality and informality with the target audience. Moreover, the utterances should be a manifestation of appropriate use of target language.
6. *Word choice*: The choice of words in the target language should be done according to the genre of source language. Moreover, in interpreting the expectations of the audience (in relation to the social class they belong to) should be taken into account as well.
7. *Terminology*: Interpreters should be familiar with technical terms of the subject matter that they are interpreting. In this study, the attempt was made to see to what extent the participants were choosing the technical terms when transferring the message.
8. *Foreign accent*: Since the interpreter's intelligibility will depend on the quality of his/her pronunciation of the target language, the strength of the interpreter's foreign accent in English was judged.
9. *Pace*: It is widely recognized that a rate of delivery of speech between 100 and 120 words per minute (wpm) is optimal for English speech (Gerver 1969, Seleskovitch 1978, Lederer 1981, Chang 2005). In the present study, an intuitive judgment was made of how optimal the interpreter's rate of delivery was, i.e., neither very slow nor so fast that intelligibility would be compromised.
10. *Voice*: Generally an interpreter with pleasant and relaxed voice is more appreciated than one with a strained or nervous voice. An attempt was therefore made to judge globally to what extent the voice of the participants is appropriate for transferring the message.
11. *Accentuation* is used to signal the information state of discourse constituents. English uses accentuation to indicate information structure. It also plays a crucial role in spoken discourse processing in communication. As a first approximation,

listeners consider a sentence appropriate when new information is accented and old information is unaccented (Birch & Garnsey, 1995, Li et al. 2008). Appropriate accentuation speeds up sentence processing by listeners when processing discourse (Van Donselaar & Lentz 1994; Terken & Nooteboom 1987; Bock & Mazzella 1983; Cutler 1976, Li et al. 2008). In the present study, the raters judged the appropriateness of the placement of sentence stresses (accentuation).

Table 8.1. Eleven evaluation criteria subdivided into three domains used in the quality judgment of interpreting performance. Weights add up to 110. After Sawyer (2004).

Meaning		**Language use**		**Presentation**	
Accuracy	20	Grammar	7	Pace	10
Omissions	15	Expression	7	Voice	10
Overall coherence	10	Word choice	7	Accentuation	10
		Terminology	7		
		Foreign accent	7		

8.3.3 Data analysis

To see whether the difference between the mean scores of the experimental and control groups is statistically meaningful and to see whether prosodic feature awareness training did have higher impact on test components specifically addressing prosody, t-tests were performed. The correlation between pre-test proficiency test scores and post-test scores was established by the Pearson correlation coefficient.

8.4 Results

At the beginning of the program all the participants took a pre-test of general English proficiency so that we can see whether the participants form a homogeneous group not. Table 8.2 shows the participants' TOEFL scores.

A set of t-tests for independent samples bears out that there is no significant difference between the experimental and control groups on any of the TOEFL components, $t(30) = .17$ ($p = .869$) for Listening comprehension, $t(30) = .29$ ($p = .774$) for Structure & writing, $t(30) = -.29$ ($p = .851$) for Reading comprehension, nor in the overall TOEFL score, $t(30) = .06$ ($p = .951$). The conclusion follows that the two groups of participants had the same level of proficiency in English at the beginning of the intervention. We may also observe, however, that students range widely with overall TOEFL scores between 531 and 633.

Table 8.2. Raw component and overall scores on TOEFL proficiency test obtained by control (left-hand part) and experimental groups (right-hand part). Within each group subjects are listed in descending order of the overall TOEFL score.

Control Group							Experimental group						
Nr.	ID	Gend.	List. Comp	Struct. & Writing	Read. Comp	Overall TOEFL	Nr.	ID	Gend.	List. Comp	Struct. & Writing	Reading Comp	Overall TOEFL
1.	AlB	M	62	65	60	623.3	1.	SaR	M	67	65	58	633.3
2.	FaP	F	57	65	58	600	2.	FaF	F	62	58	55	583.3
3.	VaH	M	60	61	58	596.7	3.	AmS	M	54	60	57	570
4.	NeJ	F	57	63	58	593.3	4.	MoS	F	57	58	55	566.7
5.	AmR	M	54	58	65	590	5.	HoY	M	52	60	57	563.3
6.	AtR	F	57	58	56	570	6.	FrN	F	51	56	59	553.3
7.	ReR	M	54	61	54	563.3	7.	AmN	M	54	56	53	543.3
8.	MeR	F	54	57	58	563.3	8.	SaS	F	52	56	53	536.7
9.	HaM	M	53	58	53	546.7	9.	FaM	M	45	56	54	516.7
10.	AzD	F	51	52	50	510	10.	AzS	F	50	54	49	510
11.	HoK	M	49	53	48	500	11.	MaM	M	45	54	53	506.7
12.	MaL	F	48	47	43	460	12.	NeN	F	48	52	49	496.7
13.	SiS	M	42	46	48	453.3	13.	HaM	M	49	50	48	490
14.	ZoA	F	41	49	46	453.3	14.	SiM	F	47	44	51	487.3
15.	SaG	M	45	47	43	450	15.	AkR	M	45	49	51	483.3
16.	ShS	F	44	46	43	443.3	16.	ZaS	F	44	48	45	456.6
Mean			51.75	55.37	52.56	532.26	Mean			51.38	54.75	52.94	531.04
SD			6.38	6.85	6.87	64.05	SD			6.42	5.25	3.92	45.90

In the next stage, two interpreted texts were selected for analysis in the pre-test. The same texts were used for all 32 participants. These were the second and third fragments presented out of the series of four (see § 8.3.2).

The selected test fragments were presented to three expert raters, who rated the participants' performance on the pre-test and on the post-test. The raters were experienced English interpreting instructors employed by universities in Iran, with Farsi as their native language. Raters judged the students' interpreting performance independently of one another, at different times and locations, using audio recordings of the target fragments collected during the pre-test and post-test sessions. With the exception of one (the author of the present dissertation), the raters were not familiar with the students they listened to, nor did they know which fragments were recorded in the pre-test and which ones in the post-test. Again with the exception of the present author, the raters did not know which students were members of the control group and who were in the experimental group. Rater's noted their judgments on each of the eleven rating scales (see § 8.3.2) during or immediately after listening to the student's fragments.

There were slight (but significant) differences in the mean judgments given by the three raters over pre-test and post-test combined, with Armand as the strictest judge (55 points), Rasti as the most lenient one (59 points) and Maleki in between (57 points) – see also Tables 8.4-5. The effect of judge is significant by a repeated measures analysis of variance, $F(2, 126) = 17.6$ ($p < .001$, $p\eta^2 = .218$). All judges differed from one another (post-hoc analysis with Bonferroni correction for multiple comparisons, $\alpha = .05$).

In spite of these small differences, the agreement between the judges was excellent, with Cronbach's alpha at .984, while alpha never dropped below .974 when one of the judges was left out in turn. This implies that there are no systematic differences between the ratings given by the present author (who was familiar with the students he rated) and those given by the other two raters (who did not know the students). On the basis of these findings it was decided carry out further statistical analyses on the ratings after averaging over the three scores given given by the individual raters.

The results of the rating of the pre-test are presented in Table 8.3. The table lists the overall judgment given by each rater separately as well as the mean of the three overall judgments. Component scores (for each of the 11 criteria) have been omitted from Table 8.3. We will present these later in the analysis. As is shown in Table 8.1, the overall ratings range between zero and 110, with different weights depending on the criterion at hand.

An independent-samples t-test was run on the difference between the experimental and control groups.[2] The means of the pre-test scores do not differ significantly between the control group (56.6) and the experimental group (56.1), $t(30) = 0.083$ ($p = .943$, two-tailed).

[2] For all t-test reported in this paper adjusted degrees of freedom were used to compensate for whatever differences exist in the sample variances. Nevertheless, we will report the nominal degrees of freedom in the text.

Table 8.3. Overall quality rating of interpreting performance in the pre-test (on a scale between 0 and 110). Ratings are listed for each judge separately as well as averaged over judges, for participants in the control (left-hand part) and experimental groups (right-hand part). Within each group subjects are listed in descending order of the overall TOEFL score (see Table 2).

Control Group							Experimental group						
Nr.	ID	Gender	Armand	Rasti	Maleki	Pre-test	Nr.	ID	Gender	Armand	Rasti	Maleki	Pre-test
1.	AlB	M	82	97	88	89	1.	SaR	M	94	87	92	91
2.	FaP	F	84	89	76	83	2.	FaF	F	80	91	84	85
3.	VaH	M	75	79	77	77	3.	AmS	M	75	80	73	76
4.	NeJ	F	68	69	76	71	4.	MoS	F	75	70	71	72
5.	AmR	M	65	74	68	69	5.	HoY	M	65	70	63	66
6.	AtR	F	60	68	64	64	6.	FrN	F	60	64	65	63
7.	ReR	M	57	50	52	53	7.	AmN	M	54	62	55	57
8.	MeR	F	50	55	48	51	8.	SaS	F	45	55	47	49
9.	HaM	M	52	46	46	48	9.	FaM	M	43	53	51	49
10.	AzD	F	46	51	47	48	10.	AzS	F	43	51	47	47
11.	HoK	M	44	49	45	46	11.	MaM	M	40	50	48	46
12.	MaL	F	42	47	46	45	12.	NeN	F	44	50	44	46
13.	SiS	M	42	46	44	44	13.	HaM	M	37	39	44	40
14.	ZoA	F	41	45	46	44	14.	SiM	F	35	41	41	39
15.	SaG	M	33	42	36	37	15.	AkR	M	33	40	35	36
16.	ShS	F	31	42	38	37	16.	ZaS	F	31	39	38	36
Mean			54.50	59.31	56.06	56.62	Mean			55.25	55.75	56.31	56.12
SD			16.52	17.63	16.17	16.54	SD			18.70	17.37	17.38	17.50

At the end of the training program, a post-test of interpreting was run to assess the effect of the treatment. The results of the post-test ratings are presented in Table 8.4.

The same independent-samples t-test on the post-test scores (mean interpreting performance rating) for the experimental and control groups shows that the advantage of the experimental group (58.1) over the control group (56.4) is not significant, $t(30) = .271$ ($p = .788$, two-tailed).

Table 8.5 lists the mean judgments (averaged over the three raters) and the standard deviation of the ratings for each of the 11 criteria separately as well as the total evaluation, i.e., the sum of the 11 judgments. This information is presented for the ratings of the pre-test and of the post-test side by side. The difference between post-test and pre-test is specified in the columns headed 'Gain'. Here a positive gain value represents a positive effect of the treatment. Finally, the table specifies the magnitude of the difference in gain obtained by the experimental group and by the control group. A positive gain difference (Δ) indicates that the experimental group benefited more form the training program than the control group.

The students' interpreting performance, whether in the pre-test or in the post-test, is far from ideal. Given that the maximum value on the overall rating scale is at 110, the means of the tests are only a little above the midpoint of the scale. Moreover, it would appear from Table 8.5 that the post-test posed more of a challenge than the pre-test, in spite of our attempts to keep the level of difficulty of the tests equal. It seems highly implausible that the control group would not benefit at all from the 22.5-hours training program. Be this as may, the experimental group gained a significant 2.0 points due to the intervention, whereas the control group lost an insignificant .2 of a point. The difference in gain obtained by the experimental and control groups, i.e., 2.2 points in favor of the experimental group, is significant, $t(30) = 2.2$ ($p = .018$, one-tailed).

So far we have examined the effects of the intervention in terms of the overall interpreting performance. It may be worthwhile looking at effects on the eleven quality criteria separately. Table 8.5 shows that there are significant differences in gain between the experimental and control groups in only three of the eleven rating criteria. For reasons we fail to understand, the control group made a significantly greater improvement than the experimental group in reducing the number of (true) omissions. In terms the other two criteria, it is the experimental group that benefits more by the intervention. The experimental group improves more in terms of voice and, especially, in correctness of accentuation. On the latter scale an impressive difference in gain was obtained by the experimental group, in the amount of 3.8 points on a 10-point rating scale.

Table 8.4. Post-test results (for further information see Table 8.3).

Control Group							Experimental group						
Nr.	ID	Gender	Armand	Rasti	Maleki	Post-test	Nr.	ID	Gender	Armand	Rasti	Maleki	Post-test
1.	AlB	M	88	96	89	91	1.	SaR	M	97	95	90	94
2.	FaP	F	88	86	78	84	2.	FaF	F	88	86	87	87
3.	VaH	M	76	71	75	74	3.	AmS	M	73	80	75	76
4.	NeJ	F	71	70	66	69	4.	MoS	F	68	70	75	71
5.	AmR	M	68	70	75	71	5.	HoY	M	70	69	80	73
6.	AtR	F	65	65	71	67	6.	FrN	F	61	70	64	65
7.	ReR	M	59	60	52	57	7.	AmN	M	59	64	54	59
8.	MeR	F	52	53	57	54	8.	SaS	F	43	50	48	47
9.	HaM	M	44	43	54	47	9.	FaM	M	49	58	52	53
10.	AzD	F	41	50	44	45	10.	AzS	F	53	51	43	49
11.	HoK	M	42	49	50	47	11.	MaM	M	48	52	56	52
12.	MaL	F	42	36	39	39	12.	NeN	F	47	40	42	43
13.	SiS	M	41	49	42	44	13.	HaM	M	41	45	49	45
14.	ZoA	F	44	48	43	45	14.	SiM	F	43	40	46	43
15.	SaG	M	33	37	32	34	15.	AkR	M	32	36	40	36
16.	ShS	F	30	41	34	35	16.	ZaS	F	33	40	38	37
Mean			53.37	58.88	56.13	56.43	Mean			56.56	59.13	58.69	58.12
SD			19.23	16.90	16.84	17.53	SD			18.68	17.95	17.40	17.72

Table 8.5. Statistics for eleven quality criteria judged for experimental and control groups in the pre-test of interpreting performance. Means, standard deviations are presented. The three rightmost columns specify the significance (two-tailed) of the difference in gain obtained by the experimental and control groups.

Rating scale		Control group					Experimental group					Gain difference		
		Pre-test		Post-test		Gain	Pre-test		Post-test		Gain	Δ	*t*(30)	*p*
		Mean	SD	Mean	SD		Mean	SD	Mean	SD				
1.	Accuracy	9.8	3.8	11.1	3.3	1.3	10.3	2.9	12.1	3.2	1.8	0.5	1.8	.082
2.	Omissions	8.5	2.6	9.8	2.8	1.3	9.3	3.3	8.2	3.0	−1.1	−2.3	−5.6	< .001
3.	Coherence	5.4	1.8	5.2	1.7	−0.2	4.8	1.6	4.8	1.6	0.0	0.2	0.6	.544
4.	Grammar	4.5	1.4	4.4	1.3	−0.1	4.4	1.2	3.9	1.2	−0.5	−0.4	−1.1	.279
5.	Expression	4.3	1.2	3.9	1.0	−0.4	4.3	1.0	3.8	1.1	−0.5	−0.1	−.5	.649
6.	Word choice	4.4	0.8	4.1	1.0	−0.3	4.5	1.2	3.8	1.2	−0.7	−0.4	−1.5	.145
7.	Terminology	4.1	1.2	4.1	0.9	0.0	4.0	1.2	3.8	1.0	−0.2	−0.2	−0.6	.540
8.	Foreign accent	4.0	0.8	3.8	1.0	−0.2	3.8	0.9	3.4	1.0	−0.4	−0.1	−0.2	.823
9.	Pace	4.0	1.2	3.6	2.0	−0.4	4.6	2.0	4.0	1.9	−0.6	−0.2	−0.5	.621
10.	Voice	4.0	1.5	3.6	2.2	−0.4	3.7	2.2	4.5	2.2	0.8	1.2	2.9	.007
11.	Accentuation	3.6	1.7	3.0	1.6	−0.6	2.6	1.5	5.8	1.4	3.2	3.8	23.1	< .001
Overall rating		56.6	16.5	56.4	17.5	−0.2	56.1	17.5	58.1	17.7	2.0	2.2	0.2	.035

Figure 8.1A (left) plots the relationship between the TOEFL test and pre-test scores of the individual participants, with separate symbols for participants in the experimental group (filled symbols) and in the control group (open symbols). Similarly, Figure 8.1B plots the relationship between the TOEFL test and post-test scores.

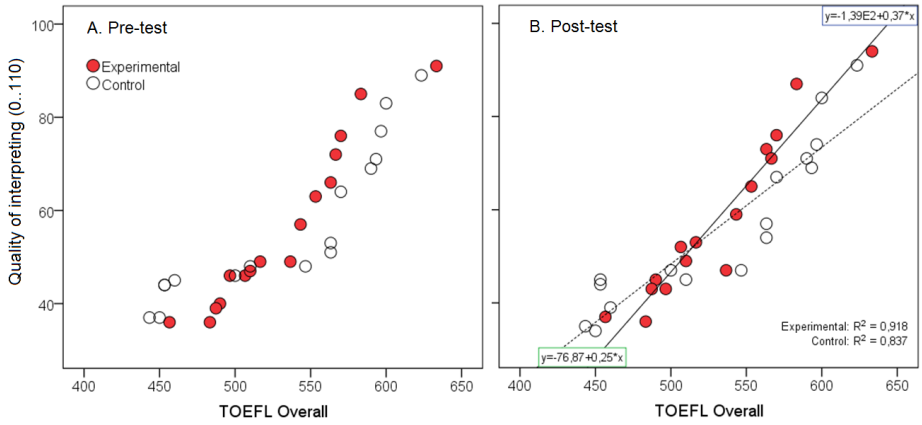

Figure 8.1. Pre-test (left) and post-test (right) interpreting scores of individual students plotted as a function of their TOEFL scores, with separate markers for participants in the experimental group and in the control group.

Figure 8.1 shows quite clearly that the overall TOEFL scores are distributed very much the same way for the experimental and control groups. It is also obvious that the overall TOEFL score makes an excellent prediction of the individual participant's interpreting quality, both in the pre-test and in the post-test, with correlation coefficients better than .9. In spite of this large effect of TOEFL score, there is a smaller but still significant effect of the intervention, i.e., the prosody awareness training raises the post-test score by 2 points, which gain is absent in the control group.

Figure 8.2 illustrates part of the results presented above in Table 8.5. It plots the gain from pre-test to post-test for each quality judgment according to the mean ratings on each of the eleven evaluation criteria judged in the pre-test and post-test separately for the control group (left part of figure) and for the experimental group (right part of figure). The possible ranges for the evaluation criteria differ as indicated in Table 8.1. For instance, Accuracy ratings may range between 0 and 20 points, whereas scores for Grammar and Choice of words may range between 0 and 7 points. The overall rating may range between 0 and 110 points. Visual comparisons should therefore be made only on the basis of the difference in scores between experimental and control groups.

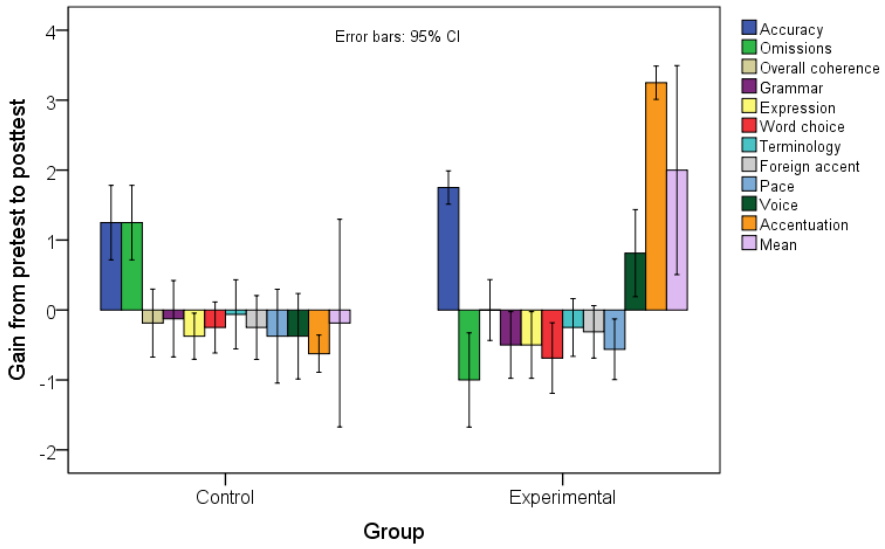

Figure 8.3. Scores obtained on each of eleven rating scales plotted separately for control (left) and experimental (right) group.

8.6 Conclusion

The present study investigated the effect of explicit teaching of prosody on the quality of consecutive interpretation by Farsi-English interpreter trainees. Our results showed that explicit teaching of prosody did have a small but significant positive effect on the overall quality of interpretation for Farsi-English interpreter trainees. Moreover, the results show that the effect of the prosody awareness training was very strong as far as the interpreter's use of accentuation is concerned, i.e., on the scale that should be most sensitive to the intervention. We conclude that the training program influenced the student's actual interpreting performance.

Different studies have shown that instructors do not teach pronunciation explicitly, because they lack the necessary skills or because they give higher priority to other aspects of the foreign language curriculum (e.g., Burgess & Spencer 2000, MacDonald 2003, Murphy 1997). This problem exists in interpreter training programs as well. These programs do not explicitly teach segmental pronunciation rules and prosody of the target language to interpreter trainees. This demands that policy makers reconsider the curriculum of interpreter training. The findings of this study are in line with Pourhosein Gilakjani (2012), who stated that careful preparation and integration of pronunciation teaching is a fundamental issue in developing the communicative skill of EFL learners and an important factor in the comprehensibility of EFL speakers. The results of the study also confirm Schmidt's hypothesis (Schmidt & Frota 1986) that EFL speakers with superior explicit knowledge of phonological structures and patterns of English are generally better intelligible speakers.

In this context we should distinguish between segmental pronunciation and prosody (or: suprasegmental pronunciation). In languages such as English and Farsi segmental information is typically sufficient to resolve any ambiguity as to which lexical item is intended by the speaker, while word prosody is generally not needed to recognize words: the number of minimal stress pairs, i.e., identical sequences of vowels and consonants that are distinct only in the stress pattern, hardly occur in these languages (e.g., Cutler 2005). However, word prosody becomes more important as the segmental information is unreliable, as happens in speech spoken with a foreign accent. Moreover, if the segmental pronunciation is poor, errors in word prosody, such as incorrect word stress placement, may cause a complete breakdown of the word recognition process (Van Heuven 1985, 2008). Sentence prosody (sentence stress, intonation) plays no direct role in the recognition of lexical items but helps the listener process the continuous stream of speech sounds. Prosodic breaks indicate which words should be parsed together to form meaningful chunks of information, while sentence stresses tell the listener which words contain important information. As such, sentence prosody is indispensable in communicating the speaker's intentions (Nooteboom 1997).

In the specific case of teaching English to Iranian interpreter trainees we would advocate teaching the differences between the word stress systems of the two languages, and proving the students with lots of practice to learn the correct stress pattern of the English words. Also, teaching the communicative importance of sentence prosody and practicing the correct phrasing and accentuation of important words in sentences, using appropriate timing and speech melodies, should be given high priority.

The pedagogical implications of the present study would pertain to interpreting programs all over the world. The learners' first language should be taken into account when teaching prosody to interpreter trainees and this perspective demands that instructors be highly proficient enough in the target language to serve as a substitute native speaker. In the EFL teaching situation learners tend to imitate their instructor's pronunciation. Moreover, suprasegmentals cannot be taught just through appropriate exercises in the textbooks; the instructor's production of suprasegmentals plays a major role in this regard. General proficiency in the target language is a necessary condition for perceiving and producing suprasegmentals. Therefore, before applying any methodology to increase awareness of suprasegmentals, there should be pedagogical procedures to improve the general proficiency of the interpreter trainees. In the EFL situation, learners traditionally consider phonology classes boring and they do not show any interest in them. Since phonetics is the foundation for speaking and listening comprehension (these are two very important skills for interpreters), this current tradition should change. Producers of teaching materials should be in contact with researchers in the field of phonetics, take publications of phonetics into consideration and include contrastive phonetics in the textbooks for interpreting programs.

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Chapter nine

Effects of directionality on consecutive interpreting between English and Farsi

Abstract

The present study investigates the effect of directionality on the quality of consecutive interpretation between English and Farsi by interpreter trainees. Two sets of experiments were run. In the first experiment, participants interpreted from English into Farsi., i.e., from foreign into native language, also called *recto* ('straight') interpreting. Two groups of student interpreters were formed. All were native speakers of Farsi who studied English translation and interpreting. At the beginning of the program all the participants took a pre-test of general English proficiency. No significant differences in English language skills (TOEFL scores) could be established between the groups. Both groups participated in the program for 18 sessions with each session 90 minutes. The control group received instruction and practice about the techniques of interpreting, different aspects of interpreting, and types of interpreting. The experimental group received not only the same type of instruction as provided to the control group, be it in less time, but also awareness training on prosodic features (stress at word and at sentence level) of English for 20 minutes in each session. Both experimental and control groups received exercises in interpreting by presenting authentic audio extracts. Three expert raters assessed quality measures of interpreting performance in the post-test. In the second experiment, 32 participants interpreted from Farsi into English, i.e., from native into foreign language, also called *verso* (or: inverse) interpreting. The same procedures were followed but an additional pre-test of interpreting performance was added to the experiment and one extra scale (accentuation) also was added to the rating instrument. In each of the two experiments the group that had received prosody training outperformed the control group, especially on prosody-related rating scales such as pace (fluency). Moreover, the results showed better scores overall when interpreting was done into the mother tongue of trainees. Finally, the gain in performance by the experimental groups was larger when interpreting into the target language (i.e., from Farsi into English) than when interpreting into the interpreters' native language. The pedagogical implications of the present study would pertain to interpreting programs in general. Policy makers in training programs of interpreting should take this perspective into account when designing the curriculum of interpreting. More effective and efficient training programs can be developed by highlighting prosodic differences between native and target languages, with emphasis on correct realization of prosody in the interpreter's non-native language.

Keywords: directionality, consecutive interpretation, foreign language, mother tongue

9.1 Introduction

Research shows that interpreter trainees make errors of presentation (e.g., wrong words, incorrect pronunciation, prosody, morphology and syntax) when interpreting from their native language into a foreign language (e.g., Hyang 2003, Gile 2005), which direction is often referred to as inverse (or *verso*) interpreting. This is in line with Lederer (1978) and Dejean Le Feal (2003), who claim that, in interpreting, production of the target speech requires more attention on the part of the interpreter than perception of the source speech, so that the interpreter will suffer more from linguistic interference from the source language both in retrieving the lexical units and in constructing syntactically acceptable sentences (Gile 2005). This is in contrast to what is often called recto ('straight') interpreting, i.e., from a foreign language into the interpreters' native language. Generally, interpreting into the first language of the interpreter is supposed to yield natural speech while interpretation into second is imbued with unnaturalness and untrustworthiness. In similar vein, Samuelsson-Brown (2010) claims that translators (rather than interpreters) will be able to translate correctly into the second language but it will still be evident that the produced text is not written by a native speaker (Zahedi 2013).

Duff (1989) is in line with Newmark about the directionality in translation and says that unnaturalness may result from translation into the second or foreign language. He claims that translation into a second language typically suffers from interference by the native-language source text. Crystal (1987) also mentions that translation into a second language will yield unnatural output text. Marmaridou (1996) takes the same perspective as Duff (1989) and Crystal (1987). Marmaridou states that the result of translation into mother tongue would be better than that of a foreign language. She argues that the asymmetry follows from general linguistic processing mechanisms – as explained in the opening of this section. Dollerup (2000) not only claims that translation into a foreign language will be non-authentic and unnatural to the audience but additionally states that this is due to the fact that the translator cannot adequately express the nuances of meaning in the second language. Therefore, he too insists that translation should be done into the translator's mother tongue. Grosman (2000) goes even further when he argues that all translation should be done by native speakers of the target language; translation into a second language is unacceptable. Moreover, Grosman states that *recto* translation will be axiomatically highly proficient (reported in Pavlovic 2013). Durban (2011) agrees that inverse translating generally yields work of inferior quality. Nevertheless, a survey of translation practice in different countries by Hunziker Heeb (2016) shows that *verso* translation is done in some countries, such as Croatia (Pavlović 2007), Slovenia (Pokorn 2008) and Poland (Whyatt & Kosciuczuk 2013).

The directionality issue has not been investigated systematically in interpreting studies, either. Bors-Brann (1976) points out that there are some interpreters who work into the second language but instructors and practitioners in the field of interpreting believe that true interpretation is only possible if it is done into the interpreter's mother tongue. As a case in point, Seleskovitch (1978) states that speech production is natural and idiomatic only in *recto* interpreting. So, in spoken interpretation the same view exists as in written translation studies, viz., that output of straight interpreting is superior to that of inverse interpreting (Gile 2005).

Gile (2005) estimates that in interpretation both production and comprehension demand 40% less processing capacity when the interpreting is done into the interpreter's mother tongue that when the interpreting is into the second language. Independently of the directionality, comprehension requires 30% processing capacity and production 70%. Based on these estimated parameter values, the attention required by the various interpreting tasks can be predicted by a straightforward computation, where PC unit stands for Processing Capacity Unit.

1. Straight interpreting (i.e., from foreign language into mother tongue):
   Comprehension + production requirements: $30 \times 1.0 + 70 \times 0.6 = 72$ PCUs
2. Inverse interpreting (i.e., from mother tongue into foreign language):
   Comprehension + production requirements: $30 \times 0.6 + 70 \times 1.0 = 88$ PCUs

Accordingly, Gile states that it is better for the interpreters to work from the foreign language into their mother tongue rather than the other way around in order to reduce cognitive load. At the same time, if follows from Gile's model that the effect of directionality will be relatively small: inverse interpreting would require 88/72 = 22 percent more processing capacity than straight interpreting

In interpreting studies, it is necessary to have valid theories based on systematic studies about directionality so that curriculum developers may design a reliable pedagogical model in training the next generation of interpreters. In this regard, Pavlović (2007) states that, in order to construct valid theories and pedagogical models of directionality, experimental studies should be performed to investigate this aspect systematically. The present study responds to this challenge and investigates the issue of directionality experimentally.

To conclude this introduction we explicitly state the research question under investigation:

Do interpreter trainees perform better when they interpret into their mother tongue in consecutive interpreting?

Our expectation is that interpreter trainees' output will have better quality when the interpretation is into their mother tongue (*recto*) than when the interpretation is into the foreign language (*verso*). The difference, however, will be modest – but significant.

9.2 Methodological considerations

The experiments we are about to compare were part of a larger study on the effect of prosody awareness training on the quality of consecutive interpreting into English by native speakers of Farsi. In the first experiment (Yenkimaleki & Van Heuven 2013, 2017, this dissertation Chapter 3), we tested an experimental group that had received specific explanation of, and training in, differences between Farsi and English in the area of prosody, with emphasis on differences in word and sentence stress and the proper use of these phenomena in English. The results were compared with those obtained for a control group of similar participants who had been taught consecutive

interpreting by the traditional curriculum, which can basically be described as 'learning by doing'. The experimental and control groups largely underwent the same training; the difference was restricted to only 20 minutes of explicit prosody awareness training in each of 18 sessions of 90 minutes of teaching. The participants were randomly selected from a larger group of interpreter trainees, and distributed over two groups (one experimental, one control) such that they were matched for gender and general proficiency in English (based on TOEFL scores) at the beginning of the experiment. The students' interpreting performance was tested at the end of the training program by having them interpret (the same) passages of spoken English newscasts into Farsi. The trainees' interpreting performance was then rated by three expert judges, i.e., native speakers of Farsi who were employed as English-Farsi interpreting instructors. The students' performance was rated along eleven scales, which aimed to cover all relevant aspects of interpreting quality. A mean rating was finally computed from differentially weighted component rating scores as an index of overall interpreting quality. The results indicated that the experimental group received better ratings than the control group overall and that they specifically outperformed the control group in scales related to prosody, in particular accentuation and pace of delivery. Separate counts of hesitations and pauses, as well as acoustic measurements revealed that the experimental group produced fewer filled and unfilled pauses, a larger speech-pause ratio and faster speech rate. To some extent this result was surprising, since the participants in both groups produced output speech in their native language, i.e., Farsi. We assumed that part of the advantage of the experimental group was caused by the interpreter's heightened awareness of the importance of prosody. A second explanation was that the experimental group was better prepared to meet the challenges of unexpected (from a Farsi point of view) locations of word and sentence stressed in the English source fragments. This, in turn, would yield better word recognition and better comprehension of the source text. Later experiments (with new groups of students) showed that these effects indeed obtain as a result of the prosody awareness training (Yenkimaleki & Van Heuven 2016a, b, this dissertation Chapters 4 and 6, respectively).

We reasoned that the effect of the prosody awareness training program should be more readily noticeable when the students interpreted from Farsi into English – so that the learned prosodic skills could be used to directly improve the quality of the output speech (in English) rather than serve to improve the recognition and interpretation of the input speech (in Farsi). So a new series of experiments was carried out, with a fresh group of interpreter trainees (Yenkimaleki & Van Heuven 2016c, this dissertation Chapter 8). Again an experimental and a control group were formed by matching students in terms of gender and TOEFL scores. This time we did not only administer a post-test (similar to the first series of experiments) but also a pre-test – using the same method of testing as before but with fragments excerpted from news bulletins in Farsi rather than in English as input speech. The students' interpreting performance in the English output in both the pre-test and the post-test was judged by three raters, using the same rating instrument as before. The raters were native speakers of Farsi and experienced Farsi-English interpreters and instructors. One rater (the author of the present dissertation) had participated earlier as a judge in the first series of experiments. The results of this experiment reveal a strong effect of the prosody awareness training. The experimental group improved more in terms of voice and, especially, in correctness of accentuation. On the latter scale an impressive difference in gain was obtained by the

experimental group, in the amount of 3.8 points on the 10-point rating scale. At the same time, however, we noticed that the overall score the interpreter trainees obtained in the second series of tests, was considerably lower than in the first.

The present chapter analyses the differences between the scores obtained in *recto* (straight) interpreting and those found in *verso* (inverse) interpreting in depth and relates the findings to the directionality issue. We will begin by summarizing the two experiments in § 9.3 and refer for details to Chapters 3 (for *recto* interpreting) and 8 (for *verso* interpreting). We will not reiterate the presentation of the results as they were obtained from the two experiments but again refer the reader to the said chapters. Instead we will proceed immediately to a statistical comparison of the results obtained in the two chapters.

9.3 Summary of methods

9.3.1 Participants

Sixty-two students of translation and interpreting studies at the BA level at Arak University, Iran, were chosen randomly. In the first experiment, which we will refer to in this chapter as Experiment R (for *recto*), 30 senior students were chosen. They were divided into two groups of 15 each incorporating 7 male and 8 female participants. The participants, aged 20-22 years, were all native speakers of Farsi. In the second experiment, which will be referred to as Experiment V (for *verso*) 32 students of translation and interpreting studies at the BA level from the same university were chosen randomly. These were 16 male and 16 female students. They were divided into two groups each incorporating 8 male and 8 female participants. Their age range was between 18-26 years old and they took part in all sessions of the program.

9.3.2 Materials

A TOEFL test was administered as the pre-test to measure the general English proficiency of the students and was used as an index of homogeneity of the groups as well. The reason for using the TOEFL was its pre-established indices of reliability and validity as a standard test. The authentic recorded extracts used in the instructional sessions were news, political discussions and social interviews. A pre-test and post-test of interpreting performance were developed around the points practiced during sessions of instruction and exercise in interpreting English and Farsi utterances. They were administered to both control and experimental groups in similar fashion.

9.3.3 Procedures

In Experiment R (*recto*), the 30 interpreter trainees were divided into two groups each including 7 male and 8 female participants through systematic random sampling. One of these groups was considered the control group, which received routine instruction in interpreting (i.e., the routine curriculum or the syllabus which is used by instructors in

academic settings in teaching different courses). The other was considered the experimental one, which received awareness training on prosodic features of English to practice in interpreting. Before any instruction all participants took a pre-test of general English proficiency. For the control group, the techniques of interpreting, different aspects of interpreting, and types of interpreting were normally instructed and practiced. For the experimental group students received not only the same instruction as provided to the control group but also information on prosodic features (stress at word and at sentence level) of English and their effect on their performance. Altogether each group took part in 18 sessions (two hours per session and one session every week) for a total of 36 hours of instruction. In both classes authentic extracts from spoken English were presented to the students and they interpreted the verbal utterances consecutively. Typically, the control group practiced consecutive interpreting in each session in role plays during 20 minutes while the experimental group received explanation of prosodic concepts and did prosodic exercises. In addition to the formative quizzes administered from time to time during sessions of program, a post-test test was administered at the last session to assess the performance of both groups for further analysis.

In Experiment V (*verso*), 32 two interpreter trainees participated. The same procedure was employed as in the first experiment but with two modifications. We decided to add a pre-test of interpretation at the beginning of the program to assess the basic level of the participants' consecutive interpreting skills before the start of the program. Moreover, in order to disambiguate potentially confusing rating scale called 'accent', we split this criterion into two separate scales, i.e., 'accentedness of pronunciation' and 'appropriateness of accentuation by word and sentence stresses'.

The participants' performance, both in Experiment R and Experiment V, was scored based on the criteria adapted from Sawyer (2004). Criteria 1-10 and a description of the rating procedures were elaborated in Chapters 3 (§ 3.5.2) and 8 (§8.3.2). These are:

Table 9.1 Eleven evaluation criteria subdivided into three domains used in the quality judgment of interpreting performance. Weights add up to 110. After Sawyer (2004). Note that in experiment 1 'Foreign accent' and 'accentuation' were collapsed into a single scale (7 points) called 'accent'.

Meaning		**Language use**		**Presentation**	
Accuracy	20	Grammar	7	Pace	10
Omissions	15	Expression	7	Voice	10
Overall coherence	10	Word choice	7	Accentuation	10
		Terminology	7		
		Foreign accent	7		

The intersubjective quality ratings were supplemented by more objective correlates of interpreting quality. These were of two kinds: (i) counts of errors that were observed in written protocols of the students' interpretations and (ii) acoustic measures of fluency

in the oral delivery of the interpretation. These counts and acoustic parameters were explained in detail in Chapter 7 (§§ 7.3.3-4); here they are just summarized in Table 9.2.

Table 9.2. Summary of objective correlates of interpreting quality. For details and explanations of parameters see Chapter 7 (§§ 7.3.3-4).

Counts determined from written protocols		
1.	N key concepts omitted	normalized per 100 words
2.	N key concepts incorrectly represented	normalized per 100 words
3.	N grammatical errors	normalized per 100 words
4.	N filled pauses (+ length of filled pause)	normalized per 100 words
5.	N false starts (+ length of false stretch)	normalized per 100 words
6.	N repetitions (+ length of repetition)	normalized per 100 words
Parameters measured from acoustic signal		
7.	N IPUs 'fluent runs')	Uninterrupted speech bounded by pauses
8.	N silent pauses	Silence > 200 ms
9.	N filled pauses	*eh*, *ehm*, *mm*, *mmm*
10.	Articulation time	Duration of all IPUs added together
11.	Pause time	Duration silent + filled pauses added together
12.	Filled pause time	Duration of all filled pauses added together
13.	%pause	Pause time / (articulation time + pause time)
14.	SD IPU duration	SD IPU duration
15.	SD pause duration	SD pause duration
16.	W-Speaking rate	(articulation time + pause time) / N words
17.	S-Speaking rate	(articulation time + pause time) / N syllables
18.	W-Articulation rate	articulation time / N words
19.	S-Articulation rate	articulation time / N syllables

9.4 The effect of directionality in consecutive interpreting

We will now compare the overall quality ratings obtained in Experiment R ('straight' interpreting from English into the interpreter's native language, Farsi) and in Experiment V ('inverse' interpreting from native Farsi into English). As was explained in our introduction, inverse translation and interpreting is expected to be more difficult and cognitively more demanding than straight translation/interpreting. The participants in the two experiments were different individuals, which should normally be treated as independent samples. In the present study, however, the participants can be matched with respect to their command of English at the beginning of the experiment, i.e., on the basis of their TOEFL scores – which were obtained by administering the same standardized test to both groups of participants at the same (relative) point in time. Moreover, we will not only test the effect of directionality (straight versus inverse) on the quality of interpreting at the end of the training period (i.e., on the basis of the post-test scores) but we will also examine the potential interaction with the prosody awareness training. Here we test the hypothesis that better awareness of prosody will have a

greater yield in inverse interpreting. As a result of this, inverse interpreting is expected to be relatively more difficult for the control group than for the experimental group.

Since the number of participants differed between experiment R (*recto*, 2 × 15) and Experiment V (*verso*, 2 × 16), the matching procedure requires that one participant in each of the control and experimental group be dropped from Experiment V. The optimal matching in terms of TOEFL scores between the straight and the inverse interpreting groups was obtained by excluding the individual with the highest TOEFL score in the control group (AlB in Tables 3.4-5-6), and the person with the lowest TOEFL score in the experimental group (ZaS in Tables 7.4-5-6). By doing so we minimized the mean difference in TOEFL scores between the participants in the two experiments: 518 versus 526 for the control groups in experiments R and V, respectively, and an even 536 for each of the experimental groups.

An additional problem compromising a direct comparison between the two experiments is the difference in rating instrument. In experiment V a scale was added raising the maximum score from 100 to 110. In order to make the scores comparable across experiments, the overall ratings obtained in experiment V were therefore multiplied by 100/110 = .91. The results are shown in Figure 9.2.

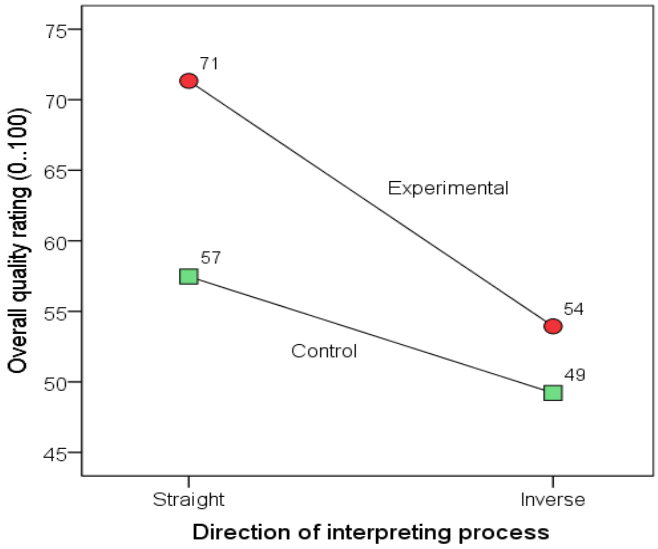

Figure 9.2. Overall quality rating of interpreting for participants with (Experimental) and without (Control) prosody awareness training broken down by direction of the interpreting process (straight: from foreign English into native Farsi; inverse: from native into foreign language).

A two-way Repeated Measures Analysis of Variance with Direction (Straight, Inverse; mean ratings 64 versus 52, respectively) and Intervention (Control, Experimental; mean ratings of 53 versus 63, respectively) then shows that both main effects are highly

significant, $F(1, 14) = 110.8$ ($p < .001$, $p\eta^2 = .888$) for Direction and $F(1, 14) = 92.0$ ($p < .001$, $p\eta^2 = .868$) for Intervention. Also, the interaction between Direction and Intervention is highly significant, $F(1, 14) = 30.2$ ($p < .001$, $p\eta^2 = .683$). Post-hoc analysis of contrasts (with Bonferroni correction for multiple comparisons) reveals that all pairs of conditions in Figure 9.2 differ from one another ($p < .05$) with the exception of the pair {54, 57}.

We provisionally conclude from these results that inverse interpreting yields lower ratings than straight interpreting overall ($\Delta = -12$ points), as well as for students with ($\Delta = -17$ points),and without prosody awareness training ($\Delta = -8$ points) separately. The effects of prosody awareness training, of course, are hardly influenced by the matching of the two experiments. The awareness training improves the overall quality of the interpreting performance by 10 points. Breaking the effect down by direction of the interpreting process, we observe that (counter to our prediction) the students benefit more from the prosody training in the straight direction (i.e., into the mother tongue, $\Delta = 14$ points) than in the inverse direction (into foreign English, $\Delta = 5$ points).

A more detailed view of the results is seen in Figure 9.3, where we plot the overall quality of interpreting as rated by the experts as a function of the individual TOEFL score that each participant obtained at the start of the experiment, with separate markers for participants in the R-experiment (*Recto*/Straight = green circles) and those in the V-experiment (*Verso*/Inverse = red squares). Within each experiment, no further breakdown is made into participants in experimental and control groups.

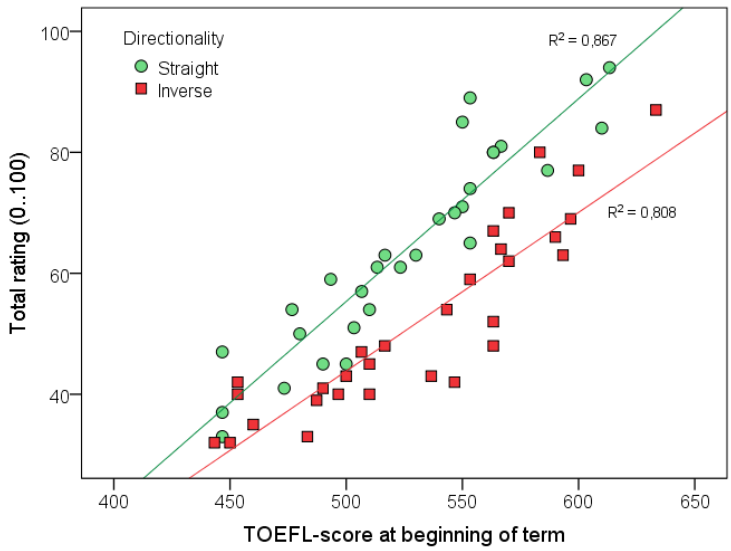

Figure 9.3. Total quality rating of interpreting (on a scale from 0 to 100) plotted as a function of the individual participant's TOEFL score obtained at the start of the training, broken down by the direction-ality of the interpreting training and tests (recto interpreting: green circes, verso interpreting: red squares). Linear regression lines are drawn separately for the recto and verso groups.

Figure 9.3 provides a clear visual confirmation that the English proficiency of the participants in the two experiments is virtually identical in terms of mean and scatter. The figure also illustrates that the participants in Experiment R obtain better quality ratings for their interpreting after the training program than their counterparts in experiment V. Finally, it can be seen that the TOEFL proficiency scores are very strong predictors of the student's interpreting performance, even though the predictive power of the TOEFL test is somewhat better in Experiment R (R^2 = .87) than in Experiment V (R^2 = .81).

So far, we have only analysed the overall ratings of the student interpreters' performance. The overall rating is the sum of the component scores the students obtained for each of ten separate rating scales. The ratings for the component scales were presented in Tables 3.4 and 8.4 for the *recto* and *verso* experiments, respectively. Figure 9.4 shows the mean ratings for each of the ten scales for the two directions side-by-side. For each experiment the means are based on the combined experimental and control groups, with N = 30 for each experiment, after elimination of two students with extreme TOEFL scores from the *verso* experiment (see above). T-tests for correlated samples, with pairs of students matched on their TOEFL scores, revealed that the differences between the *recto* and *verso* ratings were significant, with $p < .01$ (one-tailed), for each of the ten scales.

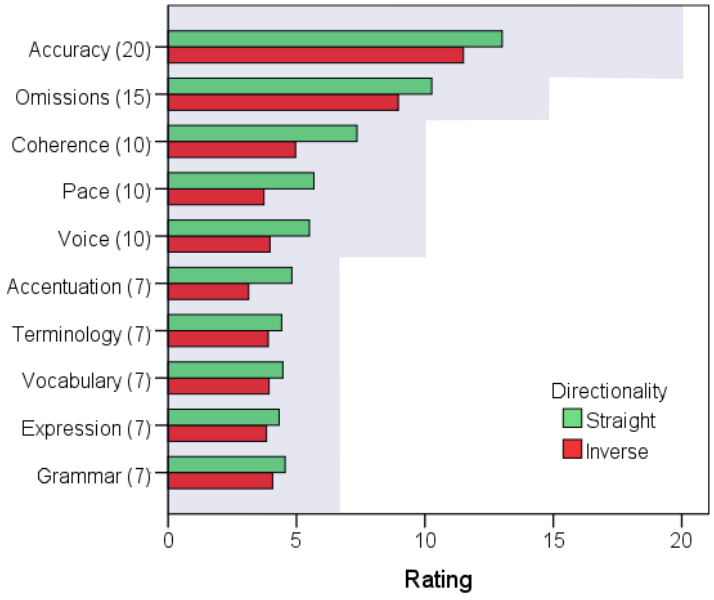

Figure 9.4. Ratings (averaged over three expert raters) for ten scales used to assess quality of interpreting in the post-test, broken down by direction of the interpreting task (straight/recto: from foreign into native language; inverse/verso: from native into foreign language). Each mean is based on 30 students. The contour of the grey polygon delineates the maximum number of points available for the rating scale. The effect of direction is significant for all ten scales ($p < .01$).

A potential problem with the interpretation of the results is that the raters in both Experiment R and V were native speakers of Farsi, who are university instructors in English as a foreign language but who are not native speakers of English. It is not clear if these non-native raters apply the same standards when judging the students' interpreting performance in the foreign language as native English listeners would. Native English listeners might be more lenient than the Iranian evaluators. But then again, the target listeners might not be native listeners of English but members of an international audience who have to rely on English as a lingua franca.

Given that the ratings have to be viewed with some caution, let us turn to the objective measures of interpreting quality based on counts of errors and disfluencies in the written protocols of the students' interpretations, and on acoustic measurements of the recordings. Table 9.3 summarizes the results.

Table 9.3. Mean values computed for ten objective correlates of interpreting quality broken down by direction of the interpreting task (recto, verso). The difference Δ between the means (recto minus verso), the t-statistic and the p-value are given for each parameter. Significant effects of direction are in bold face in the rightmost column.

Variables	Recto	Verso	Δ	t(29)	p
Count (per 100 words of transcribed text)					
Keywords wrong	9.89	6.82	−3.07	−4.8	**< 0.001**
Keywords omitted	12.10	9.15	−2.95	−1.4	0.193
Syntax errors	0.00	1.73	1.73	1.2	0.256
False starts or repetitions	4.80	24.31	19.5	9.9	**< 0.001**
Filled pauses	1.98	5.36	3.38	2.1	**0.047**
Acoustic variables					
Speech rate (syll/s)	5.00	3.22	1.78	6.7	**< 0.001**
Articulation rate (syll/s)	6.42	4.26	2.16	13.1	**< 0.001**
Percent speech	70.13	75.56	−5.43	−2.4	**0.023**
Percent filled pause	1.85	3.25	1.40	1.2	0.256
Percent silent pause	28.02	21.19	−6.83	3.4	**0.002**

The first two count parameters relate to accuracy of interpreting. The results show that accuracy is better when the interpreters work from the foreign into their native language. The difference between *recto* and *verso* is highly significant by a t-test for correlated samples (individuals in Experiments R and V matched on TOEFL score) when it comes to the number of incorrectly interpreted words. Note that we computations were not performed on the absolute number of errors but on the prevalence of errors per unit text produced by the interpreter, i.e., per 100 words. This normalization was necessary in order to be able to compare across individuals, whose output texts differed considerably in length. The same tendency is seen in the number of keywords (or key concepts) that were omitted in the interpretation but this time the effect failed to reach significance.

The number of syntax errors differed substantially between the two directions. No syntax errors were observed when the students interpreted into their native language, while the evaluator (the present author) noted an average of 1.73 syntax errors when the participants interpreted from native Farsi into foreign English. The difference did not reach significance, however.[1]

More than twice as many filled paused were produced in the *verso*-experiment than in the *recto* direction, the difference being just significant. The largest effect by far is seen in the number of false starts and repetitions, which for the purpose of the present analysis were simply added up.[2] Five times more false starts and repetitions occurred (per 100 words of text produced) in the *verso* direction (24.3) than in *recto* interpreting (4.8). The difference is very significant.

Speech rate (i.e., including silent pauses) and articulation rate (excluding silent pauses) were significantly faster when interpreters worked into their native language. This effect will be mainly due to the greater difficulty the speakers experience when having to produce speech in the non-native language, but a secondary reason for the difference may be in the more complex syllable structure of English, which would slow the native English speaker down as well. Generally, languages with only a simple CV syllable structure have a faster articulation rate than languages that allow complex syllables with many consonants in the onset and coda (especially if lexical tones are analysed as adding to syllable complexity, e.g., Pellegrino, Coupé & Marsico 2011).

The speech-pause ratio parameters yield somewhat unexpected results. It is seen that interpreting into the native language is characterised by a relatively large percentage of silent pause time (28%) together with a relatively small percentage of speech time (70%), while the opposite is found for *verso* interpreting – with 21% silent pause time and 76% speech time. These differences in the speech-pause ratio parameters are (highly) significant between the two directions of interpreting. No significant difference is for filled pause duration (although the prevalence of filled pauses is larger for *verso* interpreting, see above). We suspect that the longer total silent pause duration in the native language should be interpreted as a sign of competence on the part of the interpreter. The silent pauses should then coincide with deeper prosodic boundaries. When interpreting into the native language, the interpreter will typically articulate relatively fast, but will also insert relatively long pauses at deep prosodic boundaries, allowing the addressee to process the incoming chunk of information. This would be an excellent communicative strategy. When interpreting into the foreign language, articulation rate will be relatively slow, which the interpreter may then try to compensate for by economising on silent pauses. The high incidence of false starts and repeats in *verso* inter-

[1] Syntax errors were only counted if they were deemed to comprise intelligibility of the interpretation. Small deviations (such as the wrong choice of determiner) and morphological infelicities (such as inflections) were ignored.

[2] False starts typically occur at the beginning of a prosodic utterance. The speaker produces a number of words, then stops and resumes speech production from the beginning of the prosodic unit. In the present analysis the second production is not counted as a repetition. It does add, however, to the total speaking time. Repetitions were scored only when one or more words were repeated verbatim without a repair (i.e., without substitution of any element).

preting will also engender short pauses followed by longer uninterrupted second attempts.

9.6 Conclusion and discussion

The present study investigated the effect of directionality on the quality of consecutive interpreting between English and Farsi by interpreter trainees. Our results showed better results when speech fragments are interpreted into the interpreter's mother tongue. This result is line with Gouadec (2007), who observed that translations into the mother tongue contain clear, effective and natural language, indistinguishable from non-translated texts that are originally produced in that language. The results of our study also agree with Pokorn's (2008) assertion that translators should only work into their mother tongue since translation into the mother tongue guarantees good quality. Moreover, our results converge with Gile's (2005) claim that interpreters working from a foreign language into their mother tongue will have the advantage of a lower cognitive load than in the case of inverse translation. The smaller cognitive load, in turn, should lead to better quality of the interpretation. In § 9.1 we reasoned that, based on Gile's processing capacity model, *verso* interpreting would require 22 percent more processing units than *recto* interpreting, all else being equal. The comparison of the results obtained in Experiments R and V bear out that the interpreting quality, as assessed by expert raters for the two directions, is 64 (for R) against 52 (for V) on a quality scale between 0 and 100, which is a difference of 23 percent in favour of *recto* interpreting. It would appear, then, that our experimental results match the theoretical prediction from Gile's processing model quite closely.

The overall conclusion, then, would appear to be that, irrespective of the modality, whether translating written text or interpreting spoken fragments, the quality of the product is better when working from a foreign language into one's native language than when working into a non-native language (also called inverse translation or inverse interpreting).

The second hypothesis was that our students would benefit more from the prosody awareness training when performing inverse interpreting (i.e., from native Farsi into foreign English) than when engaged in straight interpreting (from English into native Farsi). Our results indeed show a statistically significant interaction between direction and prosody awareness training, but the effect runs counter to our prediction: the gain due to prosody awareness is larger for straight interpreting.

These conclusions, however, should be viewed with considerable caution. At least two aspects of the results are problematic. The first is that the quality ratings in the post-test with inverse interpreting are poorer than those of the corresponding pre-test. It seems highly improbable that the student interpreters did not improve their interpreting skill at all after half a year of training, including 18 sessions lasting 90 minutes each filled with intensive practice and theoretical explanation. This seems to suggest that the Iranian news bulletins used in the post-test were just more difficult to translate or interpret than the pre-test fragments. This issue could potentially be addressed by asking a number of qualified experts to rate the linguistic and conceptual difficulty of the frag-

ments used in the tests. In hindsight, of course, it would have been better to block the fragments across pre-test and post-test so that differences in difficulty would average out.

A more important concern is that the judges who rated the interpreter trainees' performance in both series of experiments (i.e., into the native language and inversed) were native speakers of Farsi, who had learnt English as foreign language after the age of puberty. It is unclear at this time whether these judges used the same criteria with the same severity when listening to their students in the shared native language (i.e., in Farsi) as when they had to evaluate the students' performance in English – which is a foreign language to both the students and the evaluators. In future research this problem might be tackled by offering the interpretations into English to native English judges who would then be asked to rate the intelligibility of the English text in comparison to a rendition of the same news bulletin produced by native speakers of English. Similarly, the interpretations into Farsi should be compared with ratings of original Farsi news bulletins. In order to do such an experiment with perfectly balanced materials, the news bulletins in Farsi and in English should be translation equivalents produced by the best translators in the field. An alternative approach would be to test the adequacy of the interpretation in functional tests, e.g., by asking native listeners of the recipient language to perform comprehension tasks on the interpretation. As a last resort we may count the number and severity of disfluencies, omissions and grammatical errors and compute speech rate and speech-pause ratios as indexes of interpreting quality. We would test the hypothesis that inverse interpreting (i.e., into the foreign language) yields more (severe) disfluencies and errors, a lower speaking rate and a less favorable speech-pause ratio than straight interpreting (i.e., into the native language).

This would be an agenda for the future. As matters stand currently, we will have to resign to the assumption that the Farsi raters' intuitions of what constitutes a good interpretation of a Farsi text into English is a valid reflection of a native English listener's judgment.

The practical implication of the present research would be to accept as a general policy that interpreting should be done in principle only from the foreign language into the native language, that is, the direction that we call straight interpreting. It does not mean, of course, that no attention should be paid at all to teaching the skill of inverse interpreting, i.e., from native into foreign language. There may always be situations in which inverse interpreting is the only option, simply because no straight interpreter is available – but the quality of the product will be noticeably poorer and the interpreter will get tired sooner because of the heavier cognitive demands of inverse interpreting. To alleviate the problems, especially in inverse interpreting, interpreting curricula should incorporate substantial explanation of and training in the prosodic peculiarities of the target language.

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Chapter ten

Prosody training for interpreters: Does methodology matter?

Abstract

This study investigates the effect of explicit vs. implicit prosody teaching on the quality of consecutive interpretation by Farsi-English interpreter trainees. Three groups of student interpreters were formed. All were native speakers of Farsi who studied English translation and interpreting at the BA level at the University of Applied Sciences, Tehran, Iran. Participants were assigned to groups at random, but with equal division between genders (6 female and 6 male students in each group). No significant differences in English language skills (TOEFL scores) could be established between the groups. Participants took a pre-test of consecutive interpreting before starting the program. The control group listened to authentic audio tracks and did exercises in consecutive interpreting. The first experimental group received explicit instruction of English prosody and did exercises based on the theoretical explanation which was provided by their Iranian instructor. The second experimental group received implicit instruction of English prosody through the use of recasts. The total instruction time was the same for all the groups, i.e., 10 hours. Students then took a post-test in consecutive interpretation. The results showed that explicit teaching of prosody had a significantly positive effect on the overall quality of interpreting from Farsi into English compared with that of implicit prosody instruction. These results have pedagogical implications for curriculum designers, interpreter training programs, material producers and all who are involved in language study and pedagogy.

Keywords: Consecutive interpreting, explicit teaching, implicit teaching, prosody instruction.

10.1 Introduction[1]

Explicit learning is an intentional process requires learners to determine what will be learned such that the learners can express the acquired knowledge structure (Kemper 2008). Implicit learning, on the other hand, refers to incidentally learning the structure of stimuli in the learner's environment, so that it is generally hard for the learner to express what exactly this knowledge structure is (Cleeremans 1993, Berry 1997). Kemper (2008) states that the effectiveness of explicit and implicit instruction is determined by both the type of the learner and the rule that has to be learned.

Research shows that correct prosody (intonation, rhythm, and stress) is important for successful EFL (English as a Foreign Language) pronunciation (Gut & Pillai 2014;, Kang 2010, Xue & Lee 2014, Pickering 2004, Yoon 2014, Yenkimaleki & Van Heuven 2016a, b, c, d). Gut and Pillia (2014) predict that second-language learners will face problems in producing prosodic focus marking when their first language is different from the second language in the way it signals focus.

By considering the important role of explicit teaching of prosody in second language acquisition, there are very few studies which have focused on the contribution of explicit prosody instruction in EFL contexts (Jang & Lee 2015). However, there are some studies which indicate the importance of segmentals over suprasegmentals (e.g., Flege et al. 1995). Flege et al. (1995) found that Italian EFL learners produced accurate vowels and consonants (segments) more than accurate prosody. Jilka (2007), writing on the difficulty associated with the teaching of prosody, points out that establishing comprehensive and universal rules and guidelines for speech production (including prosody) is difficult. It is easier to design rules that target the segmental pronunciation and prosodic problems that are specific to the specific combination of native and foreign language at issue. Jilka also says that nature of prosodic features is inherently complicated and because of the complexity of prosodic feature errors, no specific teaching methodology deals with them appropriately. Moreover, most of the teaching methods focus on segmental aspects of the second language learner's pronunciation problems (reported in Yenkimaleki 2016a, b). Ahrens (2004: 10) states that, in order to solve some of the problems of instructors in prosodic feature awareness, technology should be called upon to solve the problems associated with this aspect. She claims that through computer-aided analysis of voice characteristics and prosody we can get more information on the relationship of prosodic domains. She maintains that computer-aided analysis of voice characteristics is helpful in its present state but there should be more cooperation with experts in voice and signal processing. Hirschfeld and Trouvain (2007), discussing the current methodology in teaching prosody, suggest that suitable methods for prosody teaching be developed for second language learners. It demands the development of software that automatically recognizes segmental phonetic and prosodic deviations fro the native norm, presents exercises in training programs and assesses the mastery of prosodic features for second language learners. Moreover, they

[1] This chapter is identical to Yenkimaleki, M. & Heuven, V. J. van (2016). Prosody instruction for interpreter trainees: Does methodology make a difference? An experimental study. *Proceedings of the 8th International Conference on Psychology Language and Teaching (ICPLT), 19−20 December 2016, Dubai. PEOPLE, International Journal of Social Sciences*, 19 (submitted).

state that systematic training awareness of prosodic features results in higher degree of intelligibility in the foreign language, which was illustrated by teaching practice in different academic settings.

Generally, the teaching of pronunciation in EFL settings is looked upon as a luxury and has received little attention (e.g., Goodwin et al. 1994). In the pre-reform movement era in foreign-language teaching methodology, pronunciation had either a reputation as a subject language teachers tended to avoid (Fraser 2006, Macdonald 2002) or it was instructed implicitly depending on the learner's capability of imitating sounds and rhythms without any explicit instruction – i.e., an intuitive-imitative approach of teaching pronunciation (Celce-Murcia et al. 1996). A number of scholars paid attention to this issue in EFL contexts by investigating the explicit teaching of phonological rules (e.g., Murakawa 1981, De Bot & Mailfert 1982, Leather 1990, Champagne-Muzar et al. 1993, Pennington 1998, Ahren 2004, Derwing & Munro 2005, Venkatagiri & Levis 2007, Foote et al. 2011, Derwing et al. 2012, Robinson et al. 2012, Yenkimaleki & Van Heuven 2013, 2016a, b, c, d, Suwartono 2014, Koike 2014, Yenkimaleki 2016). Some studies report a positive effect of implicit teaching of pronunciation rules. For instance, Papachristou (2011) ran an experimental study investigating the effectiveness of pronunciation teaching of English to Greek state school students aged 16 years old, examining the production of English vowels. The implicit form of pronunciation instruction resulted in more native-like production of vowels.

Therefore, prosody teaching should be included in the interpreter training curriculum. But in order to see which methodology of instruction (implicit vs. explicit) works better in training interpreters, this issue needs to be studied systematically. The results will shed more light on the optimally effective choice of methodology for instructors and practitioners in teaching prosodic features for interpreter trainees.

Concretely we asked the following research question: *Does an explicit method of prosody instruction enhance the quality of consecutive interpreting performance for student interpreter trainees more than implicit instruction?*

At this stage we prefer not to suggest specific hypotheses as to which of these methodologies will be more effective. This will depend on the working languages in different countries, the expectations the students have about the effective methodology of prosody instruction and the proficiency of instructors in implementing the methodological rules in teaching prosodic features. In this exploratory study we will address the question on the basis of an experiment in which student-interpreters with Farsi as the native language and English as the second working language were trained with explicit, implicit or no special attention for prosodic differences between the working languages. Students were trained and tested in recto interpreting, i.e., from the foreign language (English) into their native language (i.e., Farsi). This direction of the interpreting process was targeted since earlier research has shown that the benefits gained by prosody awareness training are easier found for straight (*recto*) interpreting than for inverse (*verso*) interpreting (see Chapter 9).

10.2 Method

10.2.1 Participants

Thirty-six students of translation and interpreting between Farsi and English were chosen randomly from 100 senior students at the University of Applied Sciences, Tehran, Iran. They were randomly divided into three groups of twelve students that each incorporated six male and six female students. The participants were native speakers of Farsi with an age range of 18-27 years. They participated in all sessions of the training program.

10.2.2 Procedure

The participants were divided into one control group and two experimental groups through the application of systematic random sampling. The control group received routine exercises, asking them to listen to authentic audio tracks in Farsi and then interpret these into English. The first experimental group spent less time on these tasks and instead received explicit prosodic feature awareness instruction for 20 minutes during each session. The second experimental group also spent less time on interpretation tasks and instead received implicit prosodic instruction for 20 minutes during each session.

At the beginning of the program all the participants took a pre-test of general English proficiency. The test battery was the standard Longman's TOEFL English proficiency test, with separate modules testing the learner's (i) Listening comprehension, (ii) Reading comprehension and (iii) Structure and writing skills. The participants took part in the program for ten sessions (one hour per session) in five weeks, i.e., ten hours in all. Then, the control group and experimental groups took a pre-test on consecutive interpretation so that their level of expertise in interpreting could be assessed before they received any type of training.

The control group listened to 400 minutes of authentic audio tracks and did exercises in consecutive interpreting. Moreover, both the control group and the experimental groups listened during 200 minutes to the Iranian instructor who explained how to do exercises and also provided feedback on the students' consecutive interpreting performance. Both experimental groups altogether listened for 200 minutes to authentic audio tracks and did exercises in consecutive interpreting according the contents of the audio tracks. The first experimental group received 200 minutes of explicit instruction of English prosody and did the exercises based on the theoretical explanation which was provided by their Iranian instructor (for details, see Chapter 3, Appendix 3.2, pp. 50−86). The second experimental group received 200 minutes of implicit instruction in English prosody through authentic audio tracks and did the exercises based on the tasks. This group received instruction of prosodic features implicitly through the use of "recasts", i.e., reformulating the learner's immediately preceding erroneous utterance while maintaining his or her intended meaning (for details see Ammar & Spada 2006). The activities covered by the three participant groups and the time (in minutes) spent on them are summarized in Table 10.1.

Table 10.1. Summary of activities and time spent (minutes) by three groups of participants in the experiment.

Activity	Group		
	Control	Explicit	Implicit
Audio tracks/exercises in interpretation	400	200	200
Listening to instructor for feedbacks	200	200	200
Explicit prosody instruction		200	
Implicit prosody instruction			200
Total time spent	600	600	600

In all the sessions, at different times, formative tests were administered to the participants in order to measure their progress and to diagnose problems on the part of the participants. Then, the control group and experimental groups took a post-test on consecutive interpretation so that the effect of treatment could be assessed. Both pre-test and post-test were composed of three 30-seconds audio extracts (BBC World Service, for details see Chapter 3, for examples see Appendix 3.1) that the participants were supposed to listen to and interpreted into Farsi after a one-minute interval. Three raters, who were native speakers of Farsi and lecturers in the Translation and Interpreting Department at the University of Applied Sciences, evaluated the participants' interpreting performance. The participants' performance was scored based on the criteria adapted from Sawyer (2004). These criteria were elaborated in Chapter 3 (§ 3.5.2). They are:

Table 10.2. Eight evaluation criteria subdivided into three domains used in the quality judgment of interpreting performance. Weights add up to 100. After Sawyer (2004).

Meaning		**Language use**		**Presentation**	
Accuracy	20	Grammar	10	Pace	10
Omissions	15	Expression	10	Accentuation	10
Additions	15	Terminology	10		

10.3 Results

At the beginning of the program all the participants took a pre-test of general English proficiency so that we can see whether the participants form a homogeneous group not. The test battery was the standard Longman's TOEFL English proficiency test, with separate modules testing the learner's (i) Listening comprehension, (ii) Reading comprehension and (iii) Structure and writing skills. Table 10.3 shows the participants' TOEFL scores.

Oneway analyses of variance were run for the three TOEFL component scores separately as well as for the overall (i.e., mean) TOEFL score with group (control, implicit, explicit) as a fixed factor. The very small differences in the scores were never

statistically significant for any of the four dependent variables, $F(2, 33) < 1$ in all cases. We conclude that there were no differences between the three groups in terms of proficiency in English prior to the experiment.

Table 10.3. Raw component and overall (mean) scores on TOEFL proficiency test obtained by control and experimental (implicit instruction; explicit instruction) groups. Within each group subjects are listed in descending order of the overall TOEFL score.

Control group						Experimental groups											
						Implicit instruction						Explicit instruction					
ID	Gender	List. Comp	Struct.& writing	Read. Comp	Overall TOEFL	ID	Gender	List. Comp	Struct.& writing	Read. Comp	Overall TOEFL	ID	Gender	List. Comp	Struct.& writing	Read. Comp	Overall TOEFL
C01	M	66	67	66	66.3	I01	M	68	65	65	66.0	E01	F	67	65	65	65.6
C02	F	65	63	65	64.3	I02	M	66	65	63	64.6	E02	M	66	63	61	63.3
C03	M	62	61	66	63.0	I03	F	65	63	63	63.6	E03	M	63	61	61	61.6
C04	M	61	61	59	60.3	I04	M	62	60	61	61.0	E04	F	60	58	63	60.3
C05	F	61	58	57	58.6	I05	F	60	59	60	59.6	E05	M	59	60	59	59.3
C06	F	57	56	57	56.6	I06	F	57	58	56	57.0	E06	M	58	57	59	58.0
C07	F	54	55	56	55.0	I07	M	55	60	53	56.0	E07	F	56	57	58	57.0
C08	M	53	54	52	53.0	I08	F	52	56	53	53.6	E08	F	53	56	54	54.3
C09	F	51	52	50	51.0	I09	F	50	53	47	50.0	E09	F	52	54	51	52.3
C10	F	50	51	49	50.0	I10	M	49	51	47	49.0	E10	F	50	49	50	49.6
C11	M	49	52	48	49.6	I11	M	48	50	46	48.0	E11	M	49	48	47	48.0
C12	M	48	51	47	48.6	I12	F	47	46	44	45.6	E12	M	46	47	45	46.0
Mean		56.4	56.7	56.0	56.5	Mean		56.5	57.1	54.8	56.2	Mean		56.5	56.2	56.0	56.3
SD		6.4	5.2	6.9	6.1	SD		7.5	6.1	7.5	7.0	SD		6.7	5.8	6.5	6.3

The three expert raters were in excellent agreement in their judgments of the interpreting performance of the 36 participants in the pre-test. Cronbach's alpha computed on the overall scores given by the raters was as high as .969, while the coefficient never dropped below .935 when one rater was left out. On the strength of this finding all further analyses of the pre-test scores were done on the ratings after averaging over the three experts.

Table 10.4 shows the scores obtained by the interpreter trainees on the pre-test. These scores are the sum of the rating components as defined in Table 10.2. The scores range theoretically between 0 and 100. The individual trainees' score range between 65 and 93. The differences in scores on the pre-test between three groups are very small, as

they were in the TOEFL proficiency test. The TOEFL scores are very strongly correlated with the judged quality of the interpreting performance for each of the three groups of participants, with r = .944 for the control group, .969 for the implicit instruction group and .997 for the explicit instruction group (N = 12, p < .001 in all three cases). The correlation across all 36 participants was r = .963 (p < .001). Given this high correlation we decided to evaluate the statistical significance of the differences in pre-test scores between the three participant groups by a repeated measures oneway analysis of variance (RM-ANOVA) with participants matched on the basis of the TOEFL scores. Degrees of freedom were Huyhn-Feldt corrected (not shown here) whenever the assumption of sphericity was violated. The RM-ANOVA revealed a significant effect of group, $F(2, 22) = 3.8$ (p = .038, $p\eta^2$ = .257). Post-hoc analysis for contrasts (α = .05, with Bonferroni correction for multiple testing) indicated that only the difference between the control group (81.9) and the implicit-instruction group (80.7) was significant. This should not be a problem for the experiment, however. If the intervention (implicit or explicit prosody instruction) should be beneficial, we expect the experimental groups to outperform the control group in the post-test.

Table 10.4. Overall quality rating of interpreting performance in the pre-test (on a scale between 0 and 100). Ratings are listed for each judge separately as well as averaged over judges, for participants in control group and two experimental groups. Within each group subjects are listed in descending order of the overall TOEFL score (see Table 10.2).

Control group					Experimental groups									
					Implicit instruction					Explicit instruction				
ID	Rater 1	Rater 2	Rater 3	Mean	ID	Rater 1	Rater 2	Rater 3	Mean	ID	Rater 1	Rater 2	Rater 3	Mean
C01	91	90	94	91.6	I01	89	90	93	90.6	E01	92	91	95	92.6
C02	89	88	90	89.0	I02	90	88	90	89.3	E02	89	92	90	90.3
C03	88	87	91	88.6	I03	88	87	90	88.3	E03	89	90	89	89.3
C04	86	90	90	88.6	I04	85	86	86	85.6	E04	89	90	84	87.6
C05	84	89	90	87.6	I05	84	87	80	83.6	E05	88	89	81	86.0
C06	83	80	87	83.3	I06	83	84	79	82.0	E06	82	87	80	83.0
C07	82	80	86	82.6	I07	83	81	76	80.0	E07	80	84	79	81.0
C08	80	79	81	80.0	I08	81	80	77	79.3	E08	79	80	74	77.6
C09	79	77	78	78.0	I09	78	74	76	79.0	E09	76	79	70	75.0
C10	75	74	73	74.0	I10	75	72	74	73.6	E10	73	76	70	73.0
C11	72	70	70	70.6	I11	70	69	70	69.6	E11	70	69	69	69.3
C12	70	68	67	68.3	I12	68	68	65	67.0	E12	65	63	67	65.0
Mean	81.5	81.0	83.0	81.8	Mean	81.1	80.5	79.6	80.6	Mean	81.0	82.5	79.0	80.8
SD	6.6	7.8	9.1	7.7	SD	7.1	7.8	8.5	7.5	SD	8.7	9.3	9.2	8.8

At the end of the training program, a post-test of interpreting was run to assess the effect of the treatment. We aimed to make the pre-test and post-test equally difficult but with different fragments and items. The raters and procedures were the same as in the pre-test.[2] The results of the post-test ratings for control group and experimental groups are presented in Table 10.5.

Table 10.5. Post-test scores. For more information see Table 10.4.

Control group					Experimental groups									
					Implicit instruction					Explicit instruction				
ID	Rater 1	Rater 2	Rater 3	Mean	ID	Rater 1	Rater 2	Rater 3	Mean	ID	Rater 1	Rater 2	Rater 3	Mean
C01	89	88	90	89.0	I01	90	92	94	92.0	E01	96	97	96	96.3
C02	88	87	90	88.3	I02	90	89	92	90.3	E02	95	94	93	94.0
C03	87	89	88	88.0	I03	89	89	91	89.6	E03	93	92	91	92.0
C04	86	89	88	87.6	I04	87	86	87	86.6	E04	92	91	90	91.0
C05	86	89	90	88.3	I05	85	88	82	85.0	E05	90	91	89	90.0
C06	84	81	88	84.3	I06	84	85	80	83.0	E06	91	88	87	88.6
C07	83	81	84	82.6	I07	84	83	79	82.0	E07	88	87	85	86.6
C08	81	80	82	81.0	I08	80	81	89	83.3	E08	84	86	83	84.3
C09	80	78	78	78.6	I09	80	77	79	78.6	E09	82	84	82	82.6
C10	75	73	73	73.6	I10	73	70	75	72.6	E10	80	80	81	80.3
C11	72	71	71	71.3	I11	71	70	71	70.6	E11	78	76	75	76.3
C12	70	64	65	66.3	I12	71	69	68	69.3	E12	73	71	70	71.3
Mean	81.7	80.8	82.2	81.5	Mean	82.0	81.5	82.2	81.9	Mean	86.8	86.4	85.1	86.1
SD	6.3	8.2	8.5	7.6	SD	7.0	8.2	8.4	7.6	SD	7.3	7.6	7.5	7.4

The overall scores obtained in the post-test were roughly the same as those obtained in the pre-test for the control group as well as for the experimental group with implicit instruction. In fact, the score obtained by the control group had dropped .3 of a point, while the implicit-instruction group had gained 1.2 points. The second experimental group, with explicit instruction of prosody, obtained a score of 86.1 points, which is a considerable (5.3 points) improvement vis-à-vis the pre-test. The effect of group on the post-test scores was statistically significant by the same type of RM-ANOVA as was used in the pre-test, $F(2, 22) = 47.8$ ($p < .001$, $p\eta^2 = .813$). Post-hoc analyses revealed, however, that the difference between the control group and the implicit-instruction

[2] In fact, the speech fragments produced in the pre-test and the post-test were rated in one large session. One rater (the present author) knew the students; the other two raters did not. For more information on the rating procedure see § 8.4.1.

group was not significant but that the explicit-instruction group differed from the other groups.

We assume that, in spite of our precautions to make the pre-test and the post-test equally difficult, the post-test has turned out to be somewhat more difficult. It would be hard to imagine that 600 hours of practice and feedback with interpreting tasks would not yield any positive results for the control group. It is therefore probably better to depart from the assumption of equal pre-test and post-test, and evaluate the effect of the intervention (implicit or explicit instruction) by adopting the gain, i.e., the difference between the post-test and the pre-test score obtained by the same individual, as the optimal dependent variable. The gain values are listed in Table 10.6.

An RM-ANOVA on the gain-scores reveals a highly significant effect of participant group, $F(2, 22) = 55.9$ ($p << .001$, $p\eta^2 = .836$). Moreover, post-hoc analyses show that the differences in gain between all tree groups of participants are significant. The explicit-instruction group (+5.3) outperformed the implicit-instruction group (+1.3), which in turn gained significantly more by the treatment than the control group (−0.3).

Table 10.6. Gain (difference between post-test and pre-test scores) for three groups of participants. For more information see Table 10.4.

Participant group					
Control		Implicit instruction		Explicit instruction	
ID	Gain	ID	Gain	ID	Gain
C01	−2.6	I01	1.4	E01	3.7
C02	−0.7	I02	1.0	E02	3.7
C03	−0.6	I03	1.3	E03	2.7
C04	−1.0	I04	1.0	E04	3.4
C05	0.7	I05	1.4	E05	4.0
C06	1.0	I06	1.0	E06	5.6
C07	0.0	I07	2.0	E07	5.6
C08	1.0	I08	4.0	E08	6.7
C09	0.6	I09	−0.4	E09	7.6
C10	−0.4	I10	−1.0	E10	7.3
C11	0.7	I11	1.0	E11	7.0
C12	−2.0	I12	2.3	E12	6.3
Mean	−0.28	Mean	1.25	Mean	5.30
SD	1.18	SD	1.25	SD	1.72

Figure 1A-B-C shows how the TOEFL scores, which were used as the matching criterion, and the group membership together determine the participant's interpreting performance.

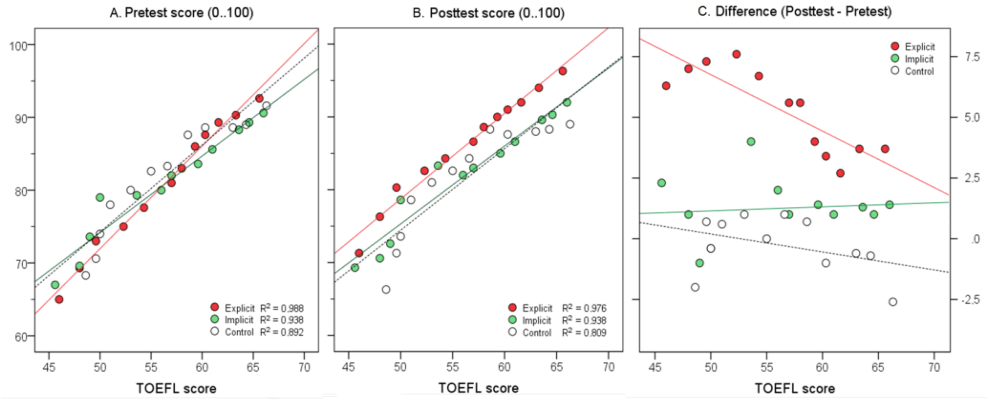

Figure 10.1. Pre-test score (A), post-test score (B) and Gain (difference between post-test and pr-etest score, C) plotted as a function of the individual interpreter trainee's TOEFL score prior to the experiment, broken down by three groups of participants.

as established just before the experiment started. It also shows that there is no difference in scatter between the participant groups. In panel B the strong correlation between TOEFL score and post-test performance has hardly changed but at the same time is obvious that the group that received explicit instruction on prosody has better scores overall. Panel C shows that all three participant groups differ from one another when the trainees' performance is expressed in terms of gain between pre-test and post-test. The improvement in interpreting quality is largest for the experimental group with explicit instruction, intermediate for the implicitly instructed group, and no gain is seen for the control group. Moreover, we point out that explicit instruction in the use of prosody affects the trainees differentially. There is a significant but inverse correlation ($r = -.848$, $N = 12$, $p < .001$) between an individual's TOEFL score and the size of the benefit gained by the treatment: the poorer (in terms of the TOEFL proficiency score) the students at the start of the experiment, the more they benefit by the explicit instruction. No such inverse relationship is observed for the other two groups.

As a final exercise, we computed the gain obtained between pre-test and post-test for each of the eight rating scales separately. Since the training of the experimental groups was focused on prosody, we would expect those rating scales evaluating prosodic aspects of the interpreters' performance to improve more than other aspects – relative to the control group. Figure 10.2 plots the gain for each of the eight scales for the three participant groups separately. Table 10.7 is a summary of the RM-ANOVAs which were run to test the effect of participant group on each of the eight rating scales separately. Braces in Figure 10.2 include participant groups that do not differ significantly from each other by post-hoc analyses (with Bonferroni correction for multiple comparisons, $\alpha = .05$).

Table 10.7 shows that the effects of participant group are fairly small, or absent, for most rating scales, with the exception of three. The two scales that pertain to prosody

prove highly sensitive to the group effect, with large percentages of the variance in the judgments accounted for ($p\eta^2 > .750$). The largest effect is obtained for judged optimality of pace (i.e., fluency of interpreting). All three groups differ from each other such that the explicit-instruction group E gains more than the implicit instruction group I, which in turn gains more than the control group C. The second-largest effect of group is observed for the accentuation scale, where E outperforms I and C, which do not differ significantly from each other.

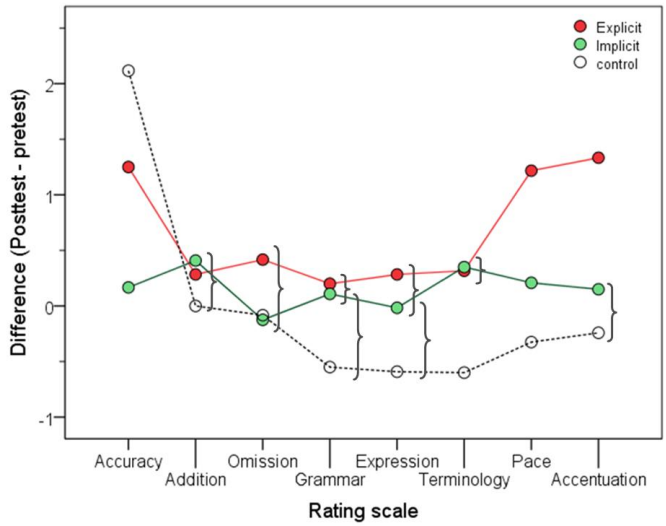

Figure 10.2. Gain (difference between post-test and pre-test) for each of eight rating scales, broken down by participant group. Maximum difference is 10 points, except for Accuracy (20 points), Omissions (15 points) and Additions (15 points). Braces include group levels which do not differ significantly for the scale at issue by a Bonferroni test.

Interestingly, the effect of participant group is reversed for the Accuracy scale. Here we find that C > E > I. This finding suggests that focusing on prosody (whether by implicit or by explicit instruction) diverts the interpreter's attention away from accuracy. When the training program does not specifically draw the students' attention to prosodic aspects of the interpreting task, the traditional method would appear to impress on the students that accuracy in interpreting is the most important aspect to attend to – which is, in fact, made explicit by the recommendation to weight this scale more heavily than any other rating scale in the judgment procedure.

Table 10.7. Summary of RM-ANOVA on each of eight rating scales with participant group as the factor. P-values are based on Huyhn-Feldt corrected degrees of freedom (not indicated in the table).

Rating scale	*F*	*p*	$p\eta^2$
Accuracy	28.5	< .001	.722
Omissions	1.6	.224	.127
Additions	1.5	.239	.122
Grammar	5.5	.011	.334
Expression	6.1	.008	.356
Terminology	13.3	< .001	.547
Pace	35.0	< .001	.761
Accentuation	34.1	< .001	.756

10.4 Conclusion

This study investigated the effect of explicit vs. implicit prosody teaching on the quality of consecutive interpreting by Farsi-English interpreter trainees. The results showed that the teaching of prosody had a significantly positive effect on the overall quality of interpreting even when the time spent on prosody training could not be devoted to the traditional interpreting practice. The results also revealed that explicit instruction in the use of prosody leads to a greater improvement of interpreting quality than implicit instruction, and that the gain yielded by explicit instruction was especially beneficial as the trainee was less proficient in English at the start of the training program. Moreover, the results showed that the effect of explicit prosody teaching was especially strong as far as the interpreter's use of accentuation is concerned, i.e., on the scale that should be most sensitive to the intervention.

The results of this study converge with Yenkimaleki and Van Heuven (2016a, b, c, d), who argued that the explicit teaching of prosodic features should improve interpreter trainees' speech perception and production, which in turn should result in better performance in interpreting tasks. The results of this study are also in line with Fullana (2006), who stated that second-language learners cannot achieve native-like pronunciation without the help of explicit instruction. However, there are some studies which hold that implicit teaching of strategy instruction would help students reinforce their awareness of the language rules and would impact more strongly on students' developing pronunciation skills than explicit instruction (e.g., Griffiths 2003, Papachristou 2011). In light of such conflicting experimental results this issue demands more investigations with other learners and different combinations of source and target languages.

The pedagogical implications of this study would pertain to interpreting programs all over the world. Policy makers, curriculum developers, practitioners, and administrators need to make a number of changes in their overall approach in methodology choice in teaching prosody at interpreter training programs. Producers of teaching materials for interpreter training programs should be in contact with researchers in the field of phonetics, take publications of phonetics into consideration and include methodological issues of prosody teaching in the textbooks for interpreting programs.

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Chapter eleven

Conclusion

11.1 Introduction

In this thesis, I focused on prosodic feature awareness training and its effect on different aspects of interpreting, the pedagogy and current problems of curriculum building in interpreting studies. I made an attempt to relate the intersubjective expert judgments to objective measures that can be expected to correlate with judgments. The aim of this study was to investigate the effect of prosodic feature awareness training on different aspects of interpreting for interpreter trainees. The study aimed to gain a solid platform for developing theories in training qualified future interpreters. Also, the study aimed to get a result which can increase both the intelligibility and naturalness of our systems within speech production and raise the efficacy of recognition in interpreting. So far, no experimental studies have been done on the effect of prosodic awareness on the quality of interpreting. The result of this study showed that interpreter trainees perform better when they have conscious knowledge of stress at the word level and sentence level. Statistical analysis of the data showed that awareness of word stress would have more contributions on interpreter trainees' performance especially on the variables of accent, pace, voice and accentuation. Now some concluding remarks about these issues will be made and shortcomings of this study and some clues for future research in this area will be pointed out as well.

11.2 Summary of main findings

The starting point of the present research project was that adult students of a foreign language will find it difficult, if not impossible, to acquire native competence in the foreign language. A high level of proficiency in the foreign language is required, nevertheless, for anyone who wants to be a successful interpreter. In this dissertation all interpreting was done between Farsi and English, two languages which belong to the same Indo-European language family but which have departed enormously from each other over the centuries, to the extent that no mutual intelligibility remains. Phonologically, Farsi is characterized by a very simple syllable structure, a syllable-timed rhythm, a simple (almost fixed) word-stress system, and a sentence stress system that is not sensitive to pragmatic rules. English, in contrast, allows complex syllable structures, is stress timed, has a complex and highly irregular system for assigning word stress, and assigns focus through sentence stress by an interaction of syntactic and pragmatic rules. The hypothesis that underlies the entire dissertation is that making Iranian (i.e., Farsi-speaking) student interpreters aware of the peculiarities of the prosody of English and how English prosody differs from that of Farsi, would yield better quality interpreting between English and Farsi.

The first experiment that I reported on (Chapter 3) confirms this basic hypothesis unequivocally. The experimental group, which received explicit training in prosody awareness, was rated 14 points better on a scale from 0 to 100 than the control group (71.3 versus 57.5), even though no differences between the two groups were found at the start of the experiment. It was not the case that the control group received less training time; rather, the control group spent more training time on consecutive interpreting according to the traditional training method (i.e., learning by doing) while the experimental group spent less time on the routine curriculum to free up time for the prosody awareness modules. At the same time, however, the results of the experiment showed that a factor of overriding importance was the student's individual proficiency in English at the start of the experiment. The better the student's proficiency (as indexed by his/her TOEFL score), the better the quality of interpreting. Given the massive effect of proficiency (explaining 88 percent of the variance in the quality ratings), it is all the more surprising that the prosody training still accounted for another 5 percent of the variance in the quality assessment.

Importantly, the direction of the interpreting in the first experiment was *recto*, i.e., from foreign English into native Farsi. It came somewhat as a surprise that prosody training should have such strong effects on the quality of *recto* interpreting. Greater awareness of the prosodic characteristics of English, and of the prosodic differences between English and Farsi, apparently prompted the better performance by the experimental group. We reasoned that the prosody awareness training should pay off especially in the phase of the *recto* interpreting process during the perception of the input speech in English. Better knowledge of word and sentence prosody should pay off, first of all, in better word recognition in the foreign language. Secondly, insight in the way English exploits sentence prosody (phrasing, marking communicatively important information through sentence stress), led us to predict that our prosody training would improve overall comprehension of spoken English.

Chapter 4 showed that, indeed, our prosody awareness training resulted in better recognition of English words. The experiment was set up in exactly the same way as the interpreting experiment but new participants were enrolled and the post-test was a word recognition test that required the participants to simply listen to English words and write them down in ordinary spelling. The experimental and control groups were matched for proficiency on English, and no difference in word recognition scores were found at the start of the experiment (31% correct recognition for either group). However, at the end of the training program the experimental group outperformed the control group in a comparable word-recognition test by four points, which was a significant difference.

Chapter 5 repeated the experiment with yet another group of students but this time the post-training test was a standard multiple-choice listening comprehension test. Again, participants were matched for English proficiency and proved identical at the start of the experiment with a listening comprehension score of 52% for each group. However, at the end of the prosody awareness training the control group had not improved its listening comprehension whereas the experimental group had gained 3 points, which represented an admittedly small but statistically significant improvement.

In light of the first three experiments, then, it seems reasonable to conclude that prosody awareness training is beneficial to student interpreters in *recto* interpreting and that at least part of the gain can be explained through better word recognition and better text comprehension in the foreign (English) input speech.

In a fourth experiment (in Chapter 6) we wondered whether prosody training would be more effective than making the students more aware of the segmental differences between English and Farsi. This would be a strategic experiment in the sense that it may tell us whether we should invest the limited time available for the phonetic/phonological aspects of the interpreting curriculum in segmental or in suprasegmental properties. This time an experiment was set up with three groups of students, which were matched on TOEFL scores and which obtained identical scores on a listening-comprehension pre-test. One group was trained according to the routine curriculum, the second group spent less time on the routine training and received the prosody awareness modules instead, while the third group spent an equal amount of time and effort on segmental differences between English and Farsi. The control group gained an insignificant .5 of a percent better listening comprehension while the prosody group gained a significant 3.5 points (comparable to the gain found in the earlier experiment on listening comprehension). The segmentally trained group had the strongest gain in listening comprehension, i.e., 7.1 points, which made it significantly better than the two other groups. The conclusion follows that segmental training would be an (even) better investment in the interpreting curriculum than prosody awareness training, and that the combination of both types of training would (hypothetically) yield superior listening comprehension and interpreting quality.

In Chapter 7 we aimed to establish objective correlates of the various rating scales used by the experts to assess the students' interpreting performance. Strong correlations were found between several assessment scales and objective correlates, which could be either counts of errors in written transcripts of the students' oral interpreting performance or acoustic measures that relate to optimal pace (rate of delivery by the interpreter). This can be seen as cross-validation of the intersubjective assessment made by the experts. The results also allowed us to come up with objective criteria in a later stage of the project when we wanted to ascertain whether indeed *recto* interpreting yields better quality than *verso* interpreting.

It was our working hypothesis that prosody awareness training would be more beneficial for interpreting into the foreign language (*verso*) than into the interpreter's native language (*recto*). The effects of the prosody training should be immediately noticeable as a reduction of incorrect word stresses and inappropriate sentence stresses, i.e., speech production errors that might seriously compromise the interpreter's intelligibility in the non-native language. To test this hypothesis, the *recto* interpreting experiment carried out in Chapter 3 was repeated in Chapter 8 but this time all training and testing was done in *verso* interpreting. Again, the experimental and control groups were matched in terms of their English proficiency TOEFL scores, and obtained identical interpreting assessments at the beginning of the training. At the end of the training period, the students who took the prosody awareness modules, obtained better interpreting quality ratings than the control group that followed the routine curriculum. The gain obtained by the experimental group was only a little better (2.2 points) than that obtained by the

control group (a negative gain of .2 points). The effect of the prosody training was significant but small in comparison to the effect found in *recto* interpreting (14 points better for the experimental group. We must conclude, then, that prosody training is more beneficial in *recto* interpreting, in that it crucially facilitates the processing of the non-native input speech.

In Chapter 9 we tested the hypothesis that *verso* interpreting is more difficult than *recto* interpreting. We took our cue from Gile's (1995) processing model of interpreting, which predicts that *verso* interpreting makes 22% more demands on the interpreter's mental resources than *recto* interpreting. The results of Chapter 3 (*recto* interpreting) and Chapter 8 (*verso* interpreting) were compared to test this hypothesis, both in terms of the intersubjective assessment by expert raters and in terms of objective correlates of interpreting quality as established in Chapter 7. The results of the comparison showed that, indeed, the difference in interpreting quality differed (by 23%) in favour of *recto* interpreting. Moreover, *recto* interpreting showed superior performance in terms of objective correlates of quality: a faster speech rate and articulation rate coupled with longer silent pauses, fewer false starts, repetitions and filled (i.e., hesitation) pauses. Rather unexpectedly, however, *verso* interpreting turned out to be more accurate in terms of preservation of meaning, i.e., fewer concepts in the input speech were incorrectly rendered or omitted in the interpretation. In hindsight, it would appear that the greater passive than active knowledge of the foreign language allows the interpreter to recognize relatively unusual words and phrases, which, once understood, can easily be expressed in the vocabulary of the interpreter's native language. Although the same words and phrases would be recognized effortlessly in the native language, finding adequate equivalents in the foreign language would be more difficult.

In the last experiment we aimed to find an answer to the question which foreign-language teaching instruction would yield better results: the explicit prosody awareness training we have used so far or an implicit teaching method with intensive exposure to differences in word and sentence stress in English (relative to Farsi) but no explicit explanation of the differences in the English and Farsi prosodic rules. Again, three groups of students were selected such that English proficiency was matched across individual participants and no significant differences in interpreting performance were found in a pre-test at the beginning of the training period. After completion of the prosody awareness training, however, the control group had not gained at all by the interpreting training (indicating possibly that the post-test was more difficult than the pre-test). The implicit instruction group gained one percentage point but was not significantly better than the control group. The group that underwent explicit prosody awareness training gained 5 percentage points, which was significantly better than the other two groups. We conclude from this final experiment that an explicit, cognitive and rule-based explanation of prosodic differences between native and foreign language should be the preferred teaching method in the interpreter training curriculum.

11.3 General discussion and implications

Studies on the teaching of English prosody as a foreign language during the last decade have made clear the significance of suprasegmental features in the production of

language and perception of spoken messages (Anderson-Hsieh et al. 1992, Anderson 1993, Brazil et al. 1980, Chela-Flores 2003). Moreover, it has also been found (Derwing et al. 1998) that EFL students who had received awareness training emphasizing supra-segmental features would transfer their knowledge to spontaneous language production in the real world. However, prosodic feature awareness training is not a priority in most EFL and interpreting programs or in materials for instruction (Chela-Flores 2003). The lack of teaching supra-segmentals is not based on those extensive gaps in theoretical investigations and pedagogical materials but is due to the fact that practitioners consider it unimportant (Chela-Flores 2003). Teachers and material producers have focused more on stress and intonation than any other aspects of pronunciation because stress and intonation have vital role in communication of meaning (Gilbert 1993, Morley 1987, Chela-Flores 2003). Rather, the lack of attention seems to be due to the intrinsic difficulty found in the teaching of stress and intonation (Roach 1991, Chela-Flores 2003). In teaching of prosody, the important element in an academic setting would be instructors who should be proficient enough in teaching and practicing prosody. The most important reasons would be that more often than not the instructors themselves are not qualified because they are not aware of linguistic issues of message communication, especially the effect of prosodic awareness in message communication (Pearl 1995, Kornakov 2000). It was stated that this issue can be remedied through having in-service training for instructors in different academic settings.

The general curriculum of interpreting studies was discussed and it was suggested that the curriculum of interpreting studies needs to be modified in order to meet the needs of students in this field so that it can make them qualified interpreters in their future jobs. One of these changes can be in the period of training for interpreters. The training period at present is in most of the cases too long since most of the students do not show any interest to enter into training settings since they think that it would take a long time for them to graduate and find a job in their field. Therefore, they prefer to embark on other, related fields. Another aspect requiring change would be the quality of training which needs to be reconsidered and modified. In some domains of interpreting at this time there is no training of prosodic features and differences therein between the source and target language involved in the interpreting task. A third aspect can be the syllabus instructors use in different classes, which needs to be studied to see which points and domains function better compared to other ones. Therefore, according to the nature of learning, sound and logical decisions should be made in order to get good results. The following points should receive more attention in interpreting studies. Firstly, a comprehensive curriculum should be designed while cooperating with scholars in this field. As Sawyer (2004) pointed out, the most important problem in doing studies in the area of curriculum of interpreting would be unreliable sources (Pym 1998) about the documents. Collecting these documents from different academic settings and schools of interpreting studies would be so difficult because in most of the cases there would not be an exact place in collecting them. Secondly, implementation of the new curriculum should be done with more attention to training settings. In this regard, Sawyer (2004) asserted that the complexity of curriculum design and perceiving this issue by practitioners should be taken into account. Lateral, required expertise in different dimensions should be available when implementing those aspects and there should be reliable assessment to see whether the curriculum would be effective or not. Thirdly,

evaluation of students' performance in different universities according an educational plan should be done with careful attention to all aspects of learning.
Moreover, it was suggested that prosodic feature awareness training should be included in the curriculum of the training of future interpreters. So, this demands that instructors, who are the models in most of the cases for the interpreter trainees, be conscious and proficient enough in the perception and production of prosodic features of the language(s) that they are working with. The materials which are produced for the interpreter training should include prosody teaching and tasks which can make the learners raise their consciousness about this aspect. Omission is viewed negatively by most instructors. Such critics should be aware that in some cases omitting part of the message makes the mediation of meaning comprehensively possible since the interpreters would be under time pressure, cognitively overloaded and tired by concentrating so the omission makes them release from this pressure.

Prosody and its role in interpreting were investigated and it was suggested that prosodic feature awareness training should be an important element on training future interpreters. Prosody plays an important role in the process of word recognition, a role which assumes greater relative importance when the segmental speech quality deteriorates, as in synthetic speech or in speech spoken with a non-native accent (e.g., Van Heuven 2008). In low-quality speech, recognition of words by native listeners will be problematic when an incorrectly placed stress directs the listener to access the wrong part of the mental lexicon.

Since two languages are involved in interpreting (source and target language), when interpreters suffer from memory overload in the highly demanding context of interpreting (in real time and often in front of an audience), conscious awareness of the stress pattern of the source language will help the interpreters to fill the gaps in received distorted messages, which in these circumstances are typically imparted through degraded speech.

The issue of consciousness raising in the area of prosody was elaborated and it was pointed out that interpreter trainees should be trained in this aspect. The important role of 'consciousness raising' in the field of second-language learning has been stated by different researchers. According to Schmidt (1990) there has been a widespread recognition that consciousness has a very important role in learning in general and specially in language learning after the decline of behaviorism. The mainstream perspective in current cognitive psychology would be that awareness is a fundamental aspect of learning and it has even been stated that it is impossible to have learning without conscious awareness (Brewer 1974, Dawson & Schell 1987, Lewis & Anderson 1985). Bialystok (1978) provided a theoretical framework in which consciousness knowledge plays a very important role. Moreover, Rutherford and Sharwood Smith (1985) asserted that drawing the learner's attention to the formal properties of language (i.e., raising the learner's consciousness) can be advantageous in second-language learning. Therefore, considering different points of view, recognition of stress position has an important role for interpreter trainees in message perception. Interpreter trainees should receive awareness training in prosodic features consciously in order to perceive the message appropriately and deliver it to the audience as comprehensively as possible. Instructors should include this insight in their training of future interpreters and in some cases they

could use technology in order to aid them in applying whatever method which suits best for the trainees in different contexts.
It was strongly recommended that curriculum designers of interpreting programs include prosodic feature awareness training in the necessary syllabus for training future interpreters in order enhance the quality of communication of the message. Moreover, material producers for interpreting programs should include the technical aspects and theoretical discussion of phonological awareness in their materials for instructors in academic settings.

I have investigated the relationships between the expert judgments of the quality of the participants' interpreting performance on the one hand and objective correlates of their performance on the other. In the quality judgments a rating instrument was used that was comprised of ten scales. Seven of these pertain to aspects of quality that can be (and actually were) established by examining written transcripts of the interpreting tasks. These aspects relate to abstract linguistic properties of the interpretations, such as the accuracy with which the ideas in the source text were expressed, number of words omitted, appropriateness of choice of words and terminology, number of grammatical errors, and overall coherence of the interpretation. The remaining three scales were meant to capture the phonetic aspects of the delivery of the interpretation, i.e., the degree of accentedness, the pace (or fluency) of the delivery and the pleasantness of the voice. These three phonetic aspects all relate to relatively long-term aspects of speech, i.e., are not properties of specific vowels or consonants. It turned out, then, that the total number of errors in the interpreted passages (i.e., wrong words and number of omitted words added together) afford excellent prediction of the accuracy (and omissions) rating, with correlation coefficients in excess of .900. The actual numbers of wrong words and omissions were quite disparate, however. The conclusion follows, therefore, that the expert judges were not able to differentiate between these two aspects of accuracy, even though they were clearly different in the interpreters' productions.

These lexical accuracy parameters (words incorrectly translated or omitted altogether) are the two most important aspects of the overall rating of the students' interpreting performance. Incorrect words were weighted by 20, omissions by 15, so that together they represent 35 percent of the overall score. The other eight aspects together, with weights of either 7 or 10, represent the remaining 65 percent. The three phonetic-prosodic evaluation scales are very highly intercorrelated, even if the correlation coefficients are computed for the experimental and control groups combined ($.888 < r < .976$). I decided to concentrate on the prediction of pace (fluency) as this parameter has rather straightforward acoustical correlates. The results showed that the pace rating for the control group can be predicted most successfully by a single parameter, i.e., percent pause duration, which by itself explains 72 percent of the variance in the pace rating. Curiously enough, no predictive model was possible for the experimental group and only two single predictors yield marginally significant correlations with pace, i.e., the variability in the duration of the interpausal units and the relative number of disfluencies.

The effect of explicit teaching of prosody on developing word recognition was investigated systematically as well. The results of the study showed that the explicit teaching

of prosodic features contributes significantly to the interpreter trainees' developing word recognition skills. Statistical analysis of the data showed that conscious knowledge of prosodic features of stress at the word level had a positive effect on the participant's word recognition skills. This result of the study was in line with previous studies (e.g., Segalowitz & Segalowitz 1993, Cutler 2001), which also stated that conscious knowledge of prosodic features may help second-language learners retrieve words from their mental lexicon. Since in interpretation message perception plays an important role in the communication of message, explicit teaching of prosodic features for interpreter trainees would help them doing a better job. If in training programs the issue of explicit teaching of prosody of the target language (and the prosodic differences between the source and the target languages) is practiced in class, then not only will the future interpreters acquire better word recognition skills in the target language but also develop better general listening comprehension skills. Moreover, the effect of prosodic feature awareness training at word and at sentence level on developing global listening comprehension was investigated. The result of the study showed that awareness training of prosodic features would contribute to interpreter trainees significantly in developing listening comprehension skill if they have conscious knowledge of stress at word and at sentence level. Statistical analysis of the data showed that prosodic feature awareness of stress at the word and at sentence levels enhances the participant's listening comprehension skill. This perspective was supported by Khaghaninejad and Maleki (2015), who stated that explicit teaching of phonetic rules for English-as-a-foreign- language students results in developing listening comprehension skills. The finding also showed that explicit teaching of prosodic features at word and at sentence level would be pedagogically important for training future interpreters. The result of the study converged with Xiaoyu's (2009) claim that the explicit teaching of suprasegmentals for English-as-foreign-language students would contribute a lot in overcoming phonological obstacles in their listening comprehension.

An additional experiment on the effect of explicit teaching of prosody on the quality of consecutive interpretation from Farsi into English interpreter trainees was performed. The results showed that explicit teaching of prosody did have a significant effect on the overall quality of interpretation for Farsi-English interpreter trainees. Moreover, the results showed that the effect of the prosody awareness training was very strong as far as the interpreter's use of accentuation is concerned, i.e., on the scale that should be most sensitive to the intervention. The important issue is that different studies have shown that instructors do not teach pronunciation explicitly, maybe because they are not proficient enough in teaching it (e.g., Burgess & Spencer 2000, MacDonald 2003, Murphy 1997). This problem exists in interpreter training programs as well. These programs do not explicitly teach pronunciation rules and prosody of target language to interpreter trainees. This demands that policy makers reconsider the curriculum of interpreter training.

Moreover, we tried to systematically determine which direction of interpreting (straight or inverse) would result in better interpreting performance, and how direction might interact with prosodic feature awareness training. Overall, the data showed better performance when speech fragments were interpreted into the interpreter's mother tongue. This result is line with Gouadec (2007), who observed that translations into the mother tongue contain clear, effective and natural language, indistinguishable from

non-translated texts that are originally produced in that language. The results of the study also agree with Pokorn's (2005) assertion that translators should only work into their mother tongue since translation into the mother tongue guarantees good quality. Moreover, the results converge with Gile's (2005) claim that interpreters working from a foreign language into their mother tongue will have the advantage of a lower cognitive load than in the case of inverse translation. The smaller cognitive load, in turn, should lead to better quality of the interpretation. The overall conclusion, then, appeared to be that, irrespective of the modality, whether translating written text or interpreting spoken fragments, the quality of the product is better when working from a foreign language into one's native language than when working into a non-native language (also called inverse translation or inverse interpreting).

And at last, we investigated the effect of explicit vs. implicit prosody teaching on the quality of consecutive interpreting by Farsi-English interpreter trainees. The results showed that the teaching of prosody had a significantly positive effect on the overall quality of interpreting even when the time spent on prosody training was could not be devoted to the traditional interpreting practice. The results also revealed that explicit instruction in the use of prosody led to a greater improvement of interpreting quality than implicit instruction, and that the gain yielded by explicit instruction was especially beneficial as the trainee was less proficient in English at the start of the training program. Moreover, the results showed that the effect of explicit prosody teaching was especially strong as far as the interpreter's use of accentuation is concerned, i.e., on the scale that should be most sensitive to the intervention.

11.4 Prosodic feature awareness training

The teaching of prosody should be of the utmost importance in the interpreter training curriculum. Also, in this respect, appropriate materials and data should be chosen carefully according the mother tongue of the learners and the analysis of the data should be done by professionals to see the gaps in the teaching and students' learning processes. The choice of methodology in the teaching of prosody can be another topic. It should target individual differences between learners in different contexts. Prosodic features do not just transmit the content of an utterance, but also other communicatively important information (Hirschfeld & Trouvain 2007). Generally the native speakers can understand a lot of points from the accent and other features, e.g., the social status, the educational status and the degree of intelligence (Hirschfeld & Trouvain 2007).

Theoretical explanation of what prosody is and how it can be described are not as simple as an instructor might wish, because the rules governing realizing prosody are not as clear-cut as the rules of realizing the sounds of a word (Hirschfeld & Trouvain 2007). Lots of points determine the correctness and the acceptability of the prosody of an utterance, such as the communicative situation and the text type (Hirschfeld & Trouvain 2007, He et al. 2012). Looking at the issue from a practical perspective, it can be pointed out that practitioner needs are not always clear for the researchers in this area. In order to teach prosody effectively, there should be mutual communication between researchers and practitioners (Hirschfeld & Trouvain 2007). Since in foreign

language teaching the learners try to imitate their instructor's accent and consider it as the model for them, the instructor's pronunciation plays a crucial role in practice (Dieling & Hirschfeld 2000, Hirschfeld & Trouvain 2007).

The other aspect is the type of exercises in prosodic feature awareness training. These should be chosen carefully. Instructors suppose that prosodic feature is learned through listening and imitation. Therefore, most materials focus on imitation exercises. Pronunciation problems on the part of foreign-language learners can stem from many different reasons. Therefore, different types of exercises for the development of speaking and listening skill should be chosen with attention to all aspects and their application schedule should be done with great care as well (Trouvain & Gut 2007).

The last point in prosodic feature awareness training is the methodological aspect for instructors. The most important features of prosody must be clarified in a precise way to both learners and instructors. In this regard, Hirschfeld & Trouvain (2007) pointed out that, first of all, instructors should develop a clear view of the importance of prosodic feature awareness in the production and reception of a second language. Secondly, instructors should understand what role they have in the actualization of prosodic feature awareness with their students. Finally, instructors themselves should be taught (and made aware of) the workings of prosody in case they are not proficient enough in teaching prosody. It is recommended that instructors must like and able to understand, explain, and modify the most important problems in the area of prosodic features generally, and also to provide the necessary feedback to their students. Instructors should have complete knowledge of the rules, features and structure of the native languages of their learners since an eclectic method of teaching needs to be applied: simply practicing the parrot method of teaching cannot work in prosodic feature training awareness (Hirschfeld & Trouvain 2007).

Therefore, methodology, types of the exercises, the instructor's pronunciation and the type of the materials all together play a very important role in order to train learners efficiently to be qualified interpreters. In this regard the policy makers in different societies have a decisice role in modifying the curriculum and implementing it in different academic settings in different countries.

11.5 Shortcomings and suggestions for further research

In the first part of this thesis I introduced the interpreting process, pedagogy and current practice of interpreting in the Iranian educational system and tried to elaborate current problematic areas in ithe nterpreter training program. These issues can be studied in another country so that some points can be enlightened from a comparative perspective.

In chapter 2, my purpose was to disentangle some of the prominent issues in the pedagogy of interpreting studies. Since this chapter is basically a theoretical exercise based on literature, it would be worthwhile studying the effect of affective factors like anxiety; self-esteem, etc. experimentally on interpreting so that in training future interpreters such person-individual variables can be taken into account as well. Moreover, in this

chapter, I pointed out several unresolved issues in the pedagogy of interpreting. Again, it would be very interesting, and in fact necessary, to run experimental studies on any of these aspects in order to investigate these areas and apply the results to the training of future interpreters.

In chapter three the effect of prosodic feature awareness training on the performance of consecutive interpreting for English-Farsi interpreter trainees was systematically studied. This issue can be investigated in another country with other participants to enlighten this aspect deeply.

In chapters four and five I addressed questions concerning the prosodic feature awareness training and its effect of developing word recognition skills and global listening comprehension for interpreter trainees. However, answering questions raises questions, so that the present research opens the way to further research on this issue.

In chapter eight the effect of explicit teaching of prosody and its effects on the performance of Farsi-English interpreter trainees were investigated. This perspective can be investigated in another country with other participants as well.

In the final test of the students' consecutive interpreting performance in Chapters three and seven, I allowed the interpreter trainees a time lapse of two minutes to take notes and prepare the interpretation. This follows normal practice in conference settings but it obscures the direct view on what the interpreter does during the immediate, on-line processing of the input speech, and how processing the input might interact with the preparation of the summary and formulation processes that are executed once the input it processed. It would be instructive in this respect if we could compare the interpreter's immediate response to the input with the final product that s/he would produce after two minutes of preparation time. For one thing, one would expect many more hesitation phenomena to occur in the immediate interpreting mode than in the delayed mode. This could be achieved in a follow-up study by instructing the participants to start interpreting immediately after the stimulus passage is finished. Or it is possible for the participants to interpret some of the passages immediately and for some the others start after one or two minutes of notes-taking and reflection to see if that makes a measureable difference in performance.

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Summary

The aim of the dissertation is to investigate the effect of prosody awareness training on the quality of consecutive interpreting between English and Farsi. It aims to provide a platform for developing theories on interpreter training. Also, the study aims to develop methods which increase both the intelligibility and naturalness of speech production of consecutive interpreters and raise the efficacy of recognition of non-native speech input in the interpreting process. So far, no experimental studies have been done on the effect of prosodic feature awareness training on the quality of interpreting.

Chapter one is the introduction. In this part, the research questions and the goals of dissertation are presented. The main question of this dissertation is: does awareness training of prosodic features (stress at word and sentence level) yield better performance by student interpreters? Normally, interpreting is done from a foreign language into the interpreter's native language, so called straight or *recto* interpreting. Sometimes, however, it may be necessary to interpret from one's native language into a foreign language. This is called inverse (or *verso*) interpreting. The second question this dissertation tries to answer is whether the beneficial effect of prosody awareness training might be different depending on the direction of the interpreting process.

Chapter two introduces interpreting studies and its pedagogy. Interpreting is defined as consisting of presenting in the target language the closest possible meaning of what is uttered in the source language, either simultaneously or consecutively, preserving the intention of speaker. Consecutive interpreting is the process by which the interpreter listens to a (sometimes fairly lengthy) section of speech delivered in the source language and then produces an oral rendition of the same message in the target language. Simultaneous interpreting is similar but the interpreter does not wait for the source language speaker to finish his turn but renders the speaker's message into the target language as he or she is speaking – so the speech produced by the source-language speaker and by the interpreter overlap in time. The materials produced for interpreter training should include prosody teaching and tasks which can make the learners raise their awareness of prosody. Omission is viewed negatively by most instructors. I argue that instructors should be aware that in some cases the omitting of part the message makes the mediation of meaning comprehensively possible, especially when interpreters are under time pressure, cognitively overloaded and/or tired from concentrating so the omission allows them to ease the pressure. Moreover, instructors should bear in mind that they should have cooperation with researchers in this area and they should not look at themselves just as practitioners.

Chapter three presents an experimental study of the effect of prosodic feature awareness training in interpreting. By prosody we mean all properties of speech that cannot be predicted from the identity of the mere string of vowels and consonants that make up a spoken sentence. Prosody refers to such phenomena as word stress (making one syllable stand out from all other syllables in a word) and sentence stress (making one

word more prominent than other words in a phrase or sentence), phrasing and intonation. Prosody helps listeners to divide the incoming speech into interpretable smaller units and highlight the key words in the sentence. The prosodic systems differ between languages which often results in incorrect speech production in a non-native language and misunderstanding of non-native input. Prosodic feature awareness training can therefore be useful to interpreters both in speech production and speech recognition. This chapter asks if awareness training of prosodic features (specifically, stress at the word and sentence levels) results in better performance by interpreter trainees. The participants of this study were 30 Iranian senior students of English translation and interpreting at the State University of Arak. The results of this study showed that interpreter trainees perform better if they have conscious knowledge of stress at the word and at sentence level and of the differences between the stress systems of their native target language (Farsi, i.e., New Persian) and of the foreign source language (English). Statistical analysis of our data showed that awareness of stress at the word and at sentence level contributes to the interpreter trainees' performance, especially on the variables of accentuation, pace (fluency of delivery) and (pleasantness of) voice.

Chapter four investigates the effect of the explicit teaching of prosodic features on developing word recognition skills by interpreter trainees. Two groups of student interpreters were composed. All were native speakers of Farsi who studied English translation and interpreting at the BA level at the State University of Arak, Iran. No significant differences in English language skills (TOEFL scores) could be established between the groups. Participants took a pre-test of word recognition skill before starting the program. The control group received routine exercises in listening comprehension, while the experimental group spent part of the time on theoretical explanation and practical exercises developing conscious knowledge of prosodic features of English, such as word and sentence stress. The total instruction time was the same for both groups, i.e., 8 hours. Students then took a post-test of word recognition skills. The results show that prosodic feature awareness training did yield a statistically significant improvement of word recognition skills.

Chapter five investigates the effect of explicit teaching of prosodic features on developing listening comprehension by interpreter trainees. Two groups of student interpreters were formed. All were native speakers of Farsi who studied English translation and interpreting at the BA level at the State University of Arak, Iran. Participants were assigned to groups at random (9 female and 9 male students in each group). No significant differences in English language skills (TOEFL scores) could be established between the groups. Participants took a standard pre-test of listening comprehension before starting the program. The control group practiced listening comprehension, while the experimental group spent part of the time on theoretical explanation of, and practical exercises with, prosodic features of English. The total instruction time was the same for both groups, i.e., 8 hours. Students then took a standard listening comprehension test. The results show that the prosodic feature awareness training significantly improved the students' listening comprehension skills.

Chapter six investigates the effect of explicit teaching of segmentals (properties of vowels and consonants) and suprasegmentals (prosody) on developing listening comprehension skills for Farsi-English interpreter trainees. Three groups of student inter-

preters were formed. All were native speakers of Farsi who studied English translation and interpreting at the BA level at the University of Applied Sciences in Tehran, Iran. Participants were assigned to groups at random (6 female and 6 male students in each group). No significant differences in English language skills (TOEFL scores) could be established between the groups prior to the experiment. Participants took a pre-test of listening comprehension before starting the program. The control group listened to authentic audio tracks in English and discussed their contents, watched authentic English movies, discussed issues in the movies in pairs in the classroom. The first experimental group spent part of the time on theoretical explanation of, and practical exercises with, English prosody. The second experimental group spent part of the time on theoretical explanation of, and practical exercises with, English vowels and consonants. The total instruction time was the same for all three groups, i.e., 12 hours. Students then took a post-test of listening comprehension skills. The results show that the explicit teaching of properties of vowels and consonants yielded better listening comprehension skills than teaching prosody awareness or using the routine curriculum.

Chapter seven attempts to relate the intersubjective expert judgments to objective measures that can be expected to correlate with the judgments. If such correlates can be found, the expert judgment can be predicted from some combination of objective correlates. If this prediction is sufficiently accurate, expert judgments could be dispensed with in the future and be replaced by objective measurements. Somewhat surprisingly, the results show that the intersubjective ratings of the students' interpreting performance can be quite adequately predicted from objective measures for members of the control group through multiple linear regression analysis but that such predictions are less successful in the case of the experimental group. The members of the control group received more favorable ratings from the expert judges as their speed of delivery was faster. Such a linear relationship was absent in the case of the experimental group. For the latter group it seemed as though the speed of delivery of the interpretation was most favorably rated if it was in the middle of the range. Less favorable ratings were obtained not only for slow delivery (as in the case of the control group) but also for excessively fast delivery by some members of the experimental group.

Chapter eight investigates the effects of explicit teaching of prosody on the performance of Farsi-English interpreter trainees, i.e., for inverse interpreting (from native into foreign language). Two groups of student interpreters were formed (8 female and 8 male students in each group). All were native speakers of Farsi who studied English translation and interpreting at the BA level at the State University of Arak, Iran. At the beginning of the program all the participants took a pre-test of general English proficiency. No significant differences in English language skills (TOEFL scores) could be established between the groups. The participants also took a pre-test to measure their basic interpreting skill. The control group was then taught interpreting skills by the ordinary curriculum in fifteen sessions, while the other, experimental group, spent part of the time on theoretical explanation and practical exercises emphasizing prosodic differences between Farsi and English. Both groups participated in the program for 15 sessions in five weeks with each session 90 minutes (all together 22 hours and 30 minutes). The control group received instruction and practice about the techniques of interpreting, different aspects of interpreting, and types of interpreting. The experimental group received not only the same type of instruction as provided to the control

group, be it in less time, but also awareness training on prosodic features (stress at word and at sentence level) of English and their effect on their performance for 20 minutes in each session. Three expert raters assessed quality measures of interpreting performance in both the pre-test and a post-test. All rating scales that pertain to prosodic aspects in the trainees' interpreting performance, proved susceptible to the explicit teaching of prosody. The results of the study showed that explicit teaching of prosody statistically did have a positive effect on the overall interpreting performance.

Chapter nine investigates the effect of directionality on the quality of consecutive interpreting between English and Farsi by interpreter trainees. This is doen by comparing the results obtained in Chapter 3 for straight (*recto*) interpreting with those found in Chapter 8 for inverse (*verso*) interpreting. In each of the two experiments the group that had received prosody training outperformed the control group, especially on prosody-related rating scales such as pace (fluency). Moreover, the results showed better scores overall when interpreting was done into the mother tongue of trainees. Finally, the gain in performance by the experimental groups was larger for *recto* than for *verso* (i.e., from Farsi into English) interpreting.

Chapter ten investigates the effect of explicit vs. implicit prosody teaching on the quality of *verso* consecutive interpreting by Farsi-English interpreter trainees. Three groups of student interpreters were formed with 6 female and 6 male students in each group. All were native speakers of Farsi who studied English translation and interprêting at the BA level at the University of Applied Sciences, Tehran, Iran. No significant differences in English language skills (TOEFL scores) could be established between the groups. Participants took a pre-test of consecutive interpreting before starting the program. The control group listened to authentic audio tracks in English and did exercises in consecutive interpreting. The first experimental group received explicit instruction of English prosody and did exercises based on the theoretical explanation which was provided by their Iranian instructor. The second experimental group received implicit instruction of English prosody through the use of recasts (paraphrase exercises). The total instruction time was the same for all the groups, i.e., 10 hours. Students then took a post-test in *verso* consecutive interpreting. The results showed that explicit teaching of prosody had a significantly better effect on the overall quality of interpreting from Farsi into English compared with that of implicit prosody instruction.

Chapter eleven concludes the dissertation. The results of the experiments are summarized and the overall questions answered. Weaknesses in the set-up and execution of the experiments are identified and discussed. Suggestions for improvement and further research are presented. The chapter finishes with a discussion of the pedagogic implications of the research reported in the dissertation for the design of the (Iranian) interpreter training curriculum, the development of teaching methods and course materials, and the prospect of using computer-assisted language learning (CALL technology to improve production and perception of English as a foreign language for Iranian interpreter trainees.

Samenvatting

Dit proefschrift gaat na in hoeverre een prosodiebewustzijnstraining de kwaliteit verhoogt van consecutief tolken tussen het Engels en het Nieuw Perzisch (Farsi). Het proefschrift wil bijdragen aan verbetering van de tolkopleiding door methoden te onderzoeken die mogelijk de verstaanbaarheid en natuurlijkheid van de spraakproductie van consecutieve tolken in de vreemde taal verhogen en die leiden tot effectievere verwerking van vreemde-taalinput tijdens het tolkproces. Er is tot nog toe nauwelijks experimenteel onderzoek gedaan naar het effect van prosodiebewustzijnstraining op de kwaliteit van het tolkproces.

In **Hoofdstuk een** "Inleiding" worden de onderzoeksvragen en doelstelling van het proefschrift geformuleerd. De hoofdvraag van het proefschrift luidt: Leidt bewustmaking van prosodische eigenschappen (woord- en zinsklemtoon) tot beter prestaties door student-tolken? Normaliter wordt er getolkt vanuit een vreemde taal in de moedertaal van de tolk, het zgn. rechtuit of *recto* tolken. Soms kan het echter nodig zijn om te tolken vanuit de eigen taal in een vreemde taal. Dit heet invers of *verso* token. De tweede vraag die dit proefschrift wil beantwoorden is of het eventueel gunstige effect van prosodiebewustmaking verschilt naar gelang de richting van het tolkproces.

Hoofdstuk twee geeft een inleiding in tolkonderzoek en de pedagogie van het tolkonderwijs. Tolken wordt gedefinieerd als het presenteren in de doeltaal van de best passende betekenis van wat gezegd wordt in de brontaal, simultaan dan wel consecutief, waarbij de bedoeling van de spreker zo veel mogelijk recht wordt gedaan. In het geval van consecutief tolken luistert de tolk naar een (soms redelijk lang) stuk tekst dat wordt gesproken in de brontaal en produceert vervolgens een mondelinge weergave van dezelfde boodschap in de doeltaal. Bij simultaan tolken wacht de tolk niet totdat de brontaalspreker zijn beurt eindigt maar produceert hij een mondelinge weergave van de brontekst terwijl de brontaalspreker doorspreekt – zodat de bronspreker de tolk tegelijkertijd aan het woord zijn. Materiaal dat geproduceerd wordt t.b.v. de tolkopleiding dient mede gericht te zijn op prosodische verschijnselen en taken te bevatten die erop gericht zijn de tolk-in-opleiding bewust te maken van prosodie. Weglatingen worden door de meeste tolkinstructeurs als fouten beschouwd. Ik betoog echter dat instructeurs er rekening mee moeten houden dat in sommige gevallen een deel van de boodschap weggelaten mag worden zonder dat de boodschap geweld wordt aangedaan. Met name wanneer tolken werken onder tijdsdruk, cognitief overbelast of vermoeid zijn, kunnen weglatingen de druk verminderen. Het is belangrijk dat tolkdocenten samenwerking zoeken met onderzoekers van het tolkproces en zichzelf niet louter zien als uitvoerend.

Hoofdstuk drie doet verslag van een experimenteel onderzoek naar het effect van prosodiebewustzijnstraining op het tolken. Onder prosodie verstaan we alle eigenschappen van spraak die niet herleidbaar zijn tot de identiteit van de opeenvolgende klinkers en medeklinkers waaruit we een gesproken zin opgebouwd kunnen denken. Prosodie om-

vat dan verschijnselen zoals woordklemtoon (waarmee één lettergreep in een woord sterker wordt gemaakt dan alle andere in het woord) en zinsklemtoon (waarmee een woord als belangrijker wordt voorgesteld dan andere woorden in een woordgroep of zin), frasering en zinsmelodie. Prosodie helpt de luisteraar de binnenkomende spraakstroom op te delen in interpreteerbare kleinere eenheden en geeft aan welke onderdelen van de zin communicatief belangrijk zijn. Elke taal heeft zijn eigen prosodisch systeem, waardoor er vaak fouten insluipen als we spreken in een vreemde taal en waardoor er bij het beluisteren van een vreemde taal misverstand kan optreden. Een prosodiebewustmakingstraining is daarom potentieel nuttig voor tolken-in-opleiding, zowel bij de spraakproductie als bij de spraakwaarneming in de vreemde taal. In dit hoofdstuk wordt nagegaan of bewustmaking van prosodische eigenschappen (met name van klemtoon op woord- en zinsniveau) leidt tot betere tolkprestaties bij leerlingtolken. Deelnemers aan het onderzoek waren 30 Iraanse ouderejaars tolken-in-opleiding aan de Staatsuniversiteit van Arak. De resultaten van dit onderzoek geven aan dat leerlingtolken beter presteren als zij bewust gemaakt zijn van woord- en zinsklemtoon en van de verschillen hierin tussen hun moedertaal (Farsi) en de vreemde taal (Engels). Statistische analyse van de resultaten laat zien dat de prestaties bij *recto* tolken, d.w.z. vanuit het Engels naar het Farsi, beter waren op alle beoordeelde aspecten, maar met name op de accentuering, de spreeksnelheid en de stemkwaliteit.

Hoofdstuk vier onderzoekt het effect van dezelfde expliciete prosodietraining als gebruikt in het vorige hoofdstuk op de ontwikkeling van woordherkenningsvaardigheid in het Engels door de tolken-in-opleiding. Twee groepen werden samengesteld. Alle deelnemers waren moedertaalsprekers van het Farsi en BA-student tolk-vertaler Engels aan de Staatsuniversiteit van Arak in Iran. Er waren geen significante verschillen tussen de groepen in taalvaardigheid in het Engels (zoals vastgesteld a.h.v. TOEFL-scores). De deelnemers kregen bij de start van het onderzoek een woordherkenningstoets. De controlegroep doorliep vervolgens de standaard luistervaardigheidstraining terwijl de experimentele groep een deel van de tijd besteedde aan theoretische uitleg van prosodische eigenschappen van het Engels en aan praktijkoefeningen om hun bewuste kennis van Engelse prosodie (met name van woord- en zinsklemtoon) te vergroten. De totale instructietijd was voor beide groepen hetzelfde, namelijk 8 uur. Studenten namen daarna deel aan een post-test om hun woordherkenningsvaardigheid opnieuw te meten. De resultaten wijzen uit dat de prosodietraining een statistisch significante verbetering in woordherkenning opleverde.

Hoofdstuk vijf onderzoekt het effect van expliciete prosodietraining op de ontwikkeling van algemene luistervaardigheid in het Engels van Iraanse token-in-opleiding. Twee groepen werden samengesteld zoals in hoofdstuk vier. De deelnemers warden op toevalsbasis ingedeeld in een van de twee groepen (met negen mannen en negen vrouwen per groep). Er waren geen verschillen in Engelse taalvaardigheid (TOEFL-scores) bij de start van het programma. Deelnemers namen bij wijze van pre-test deel aan een standaard Engelse luistervaardigheidstest. De controlegroep oefende zijn luistervaardigheid zoals in hoofdstuk vier, terwijl de experimentele groep een deel van de tijd besteedde aan theoretische uitleg van, en praktische oefeningen met, beklemtoning op woord- en zinsniveau. De totale instructietijd bedroeg 8 uur voor beide groepen. Het programma werd afgesloten met een post-test bestaand uit een standaard luistervaardigheidstest

vergelijkbaar met de pre-test. De resultaten tonen aan dat het prosodietrainingsprogramma leidde tot betere luistervaardigheid bij de studenten.

Hoofdstuk zes gaat na of expliciete aandacht voor segmentalia (eigenschappen van klinkers en medeklinkers) meer of minder bijdraagt aan de ontwikkeling van luistervaardigheid in het Engels door leerlingtolken Farsi-Engels dan aandacht voor suprasegmentalia (prosodie). Drie groepen tolken-in-opleiding werden samengesteld uit BA studenten tolk-vertaler Engels aan de Universiteit voor Toegepaste Wetenschappen in Tehran, Iran. Deelnemers werden op toevalsbasis toegewezen aan groepen (zes vrouwen en zes mannen per groep). Er waren voorafgaand aan het experiment geen significante verschillen in Engelse taalvaardigheid (op basis van TOEFL-scores) tussen de drie groepen. Evenmin bleek enig verschil in Engelse luistervaardigheid uit een pre-test. De controlegroep beluisterde originele geluidsopnamen in het Engels en besprak de inhoud daarvan, keek naar Engelse films en discussieerde in paren over vraagstukken die in de films aan de orde werden gesteld. De eerste experimentele groep bracht een deel van de lestijd door met theoretische uitleg van, en praktijkoefeningen met, Engelse prosodie (zoals in eerdere hoofdstukken beschreven). De tweede experimentele groep besteedde in plaats daarvan dezelfde tijd aan uitleg van, en oefening met, Engelse klinkers en medeklinkers. De totale instructietijd was voor de drie groepen hetzelfde, namelijk 12 uur. De resultaten wijzen uit dat expliciete instructie in eigenschappen van klinkers en medeklinkers betere luistervaardigheid tot gevolg had dan de prosodietraining of het standaard lesprogramma.

In **hoofdstuk zeven** wordt gepoogd de intersubjectieve beoordelingen door experts van de tolkprestaties uit hoofdstuk drie te relateren aan objectief vaststelbare maten waarvan aangenomen kan worden dat deze correleren met de oordelen. Als zulke correlaties worden gevonden, dan zijn de expertoordelen voorspelbaar uit enige combinatie van objectieve correlaten. Bij een voldoende accurate voorspelling kan de expertbeoordeling in de toekomst achterwege blijven en worden vervangen door objectieve kwaliteitsmaten. De resultaten laten zien dat de intersubjectieve beoordeling van de tolkprestaties van de leerlingtolken via lineaire regressieanalyse heel adequaat voorspeld kan worden uit objectieve maten bij de controlegroep maar, enigszins onverwacht, dat de voorspelling minder accuraat is bij de experimentele groep. De leden van de controlegroep kregen een betere beoordeling van de experts naar mate hun spreeksnelheid hoger was. Een dergelijk lineair verband ontbrak bij de experimentele groep. Voor deze groep leek het er eerder op dat de spreeksnelheid het gunstigst werd beoordeeld als deze in het middenbereik lag. Minder gunstige oordelen werden niet alleen gegeven bij lage spreeksnelheden (zoals in de controlegroep) maar ook bij buitensporig hoge spreeksnelheid zoals aangetroffen bij sommige leden van de experimentele groep.

Hoofdstuk acht onderzoekt de effecten van expliciete prosodietraining op de prestatie van Iraanse tolk-vertalers-in-opleiding als zij moeten werken vanuit het Farsi naar het Engels, dus voor invers tolken, d.w.z. vanuit de moedertaal naar de vreemde taal. Twee groepen leerlingtolken werden gevormd (acht vrouwen en acht mannen per groep). Alle deelnemers waren moedertaalsprekers van het Farsi en studeerden tolk-vertalen op BA niveau aan de Staatsuniversiteit van Arak in Iran. Er waren bij het begin van het trainingsprogramma geen verschillen in Engelse taalvaardigheid tussen de groepen (in termen van TOEFL-scores). Allen namen deel aan een pre-test aan de hand waarvan hun

inverse tolkprestaties konden worden vastgesteld. De controlegroep doorliep vervolgens het standaard lesprogramma, terwijl de experimentele groep een deel van de lestijd besteedde aan theoretische uitleg van, en praktische oefeningen deed met, woord- en zinsprosodische verschijnselen in het Engels met nadruk op de verschillen tussen de twee werktalen. Beide groepen werkten een lesprogramma af van 15 blokuren (90 minuten per les) met een totale lestijd van 22 uur en 30 minuten. De experimentele groep besteedde per blokuur 20 minuten aan theorie en praktijk van prosodie terwijl de controlgroep deze tijd besteedde aan gebruikelijke lesstof. Drie Iraanse experts (docenten tolk-vertalen Engels) beoordeelden de prestaties van de deelnemers – zowel in de pretest als in de post-test – op tien kwaliteitsschalen. Alle schalen die betrekking hadden op prosodie lieten een hogere score en grotere vooruitgang zien bij de experimentele groep.

Hoofdstuk negen onderzoekt het effect van directionaliteit (richting van het tolken) op de kwaliteit van de consecutieve tolkprestatie bij Iraanse leerlingtolken Engels-Farsi. Dit wordt gedaan aan de hand van een vergelijking van de resultaten in hoofdstuk drie behaald voor *recto* tolken met die van hoofdstuk acht voor het invers token. In beide experimenten deed de experimentele groep die de prosodietraining had ondergaan, het beter dan de controlegroep, met name op de beoordelingsschalen die te maken hebben met prosodie (zoals spreeksnelheid). Bovendien lieten de resultaten hogere scores zien als er getolkt werd vanuit de vreemde taal in de moedertaal dan andersom. De voortuitgang in tolkprestatie was het grootst bij de experimentele groepen, welk effect sterker was bij *recto* dan bij *verso* tolken, dus het sterkst bij tolken vanuit het Engels naar de moedertaal.

Hoofdstuk tien onderzoekt het effect van expliciete versus impliciete prosodietraining op de kwaliteit van het invers tolken door leerling tolk-vertalers Farsi-Engels. Die groepen tolken-in-opleiding werden gevormd met zes vrouwen en zes mannen per groep. Allen waren moedertaalsprekers van het Farsi en studeerden aan de BA tolk-vertaalopleiding Engels aan de Universiteit voor Toegepaste wetenschappen in Tehran, Iran. Er waren geen significante verschillen in Engelse taalvaardigheid (TOEFL-scores) tussen de groepen aan het begin van het trainingsprogramma noch in tolkprestaties zoals vastgesteld aan de hand van een pre-test. De controle- en experimentele groepen werkten een trainingsprogramma af volgens het stramien van de vorige experimenten, waarbij echter alle tolkopdrachten invers werden uitgevoerd. De totale lestijd bedroeg 10 uur voor beide groepen, waarbij de experimentele groep 20 minuten per blokuur besteedde aan prosodische verschijnselen in Engelse woorden en zinnen. Eén experimentele groep kreeg prosodietraining met expliciete uitleg van regelmaten in beklemtoning van Engelse woorden en zinnen. De andere groep kreeg geen expliciete uitleg maar moest dezelfde Engelse voorbeeldzinnen parafraseren (recast- of herformuleringsoefeningen). De resultaten gaven aan dat expliciet prosodieonderwijs (met uitleg) leidde tot een significant grotere kwaliteitswinst in inverse tolkprestatie, dus van Farsi naar het Engels, dan impliciete instructie (alleen parafraseren van voorbeeldzinnen, zonder uitleg van regels).

Hoofdstuk elf besluit dit proefschrift. Het vat de resultaten van de experimenten samen en geeft antwoord op de gestelde onderzoeksvragen. Tekortkomingen in de opzet en uitvoering van de experimenten worden geïdentificeerd en besproken. Suggesties

ter verbetering en voor toekomstig onderzoek worden gegeven. Het hoofdstuk eindigt met een bespreking van de onderwijskundige implicaties van het onderzoek dat in dit proefschrift is beschreven, met name wat betreft de inrichting van het lesprogramma voor (Iraanse) studenten tolk-vertalen, de ontwikkeling van onderwijsmethoden en cursusmaterialen, en de mogelijkheid om gebruik te maken technologie t.b.v. van computerondersteund taalleren (CALL) om zowel de productie als de perceptie van het Engels als vreemde taal te verbeteren bij Iraanse tolken-in-opleiding.

خلاصه

هدف از انجام این رساله بررسي اثر آگاهمندسازي . هدف آن ارائه یک پلت فرم برای توسعه نظریه ها درباره تربیت مترجم شفاهی میباشد . همچنین، پژوهش حاضر با هدف توسعه روشها که باعث افزاییش قابل فهم بودن و طبیعی بودن تولید گفتار توسط مترجمان متوالی انجام شده است می باشد و همچنین برای بالا بردن اثربخشی فهم گفتار غیر بومی در فرایند ترجمه شفاهی است. تا کنون، هیچ مطالعات تجربی درارتباطه با اثر آموزش آگاهی از عروض بر کیفیت ترجمه شفاهی انجام نشده است.

فصل اول مقدمه است. در این بخش، بسوالات تحقیق و اهداف پایان نامه ارائه شده است. سوال اصلی پایان نامه این است: آیا آموزش آگاهی از ویژگی های عروضی (تکیه در سطح واژه و جمله) باعث عملکرد بهتر توسط داشجویان ترجمه شفاهی میشود؟ به طور معمول، ترجمه شفاهی از زبان خارجی به زبان مادری مترجم انجام می شود، که ترجمه مستقیم و ترجمه رکتو نامیده می شود. گاهی اوقات، ممکن است که لازم باشد که ترجمه از زبان مادری به زبان خارجی شود که ترجمه معکوس (یا ورسو) نامیده میشود. سوال دوم این پایان نامه این است که آیا اثرات مفید آموزش آگاهی عروض ممکن است بسته به جهت روند ترجمه است متفاوت باشد؟

فصل دوم معرفی مطالعات ترجمه شفاهی و آموزش آن است. ترجمه شفاهی ارائه مطالب در زبان مقصد با نزدیک ترین معنای ممکن از آنچه در زبان مبدأ است، می باشد؛ یا به طور همزمان و یا متوالی، البته باحفظ مقصود سخنران. ترجمه متوالی فرایندی است که در آن مترجم گوش به (گاهی اوقات نسبتا طولانی) یک بخش از سخنرانی در زبان مبدأ میکند و پس از آن به صورت شفاهی همان پیام را در زبان مقصد ارایه میدهد. ترجمه همزمان مشابه ترجمه متوالی است، اما مترجم منتظر پایان یافتن سخن نمیماند؛ بلکه مترجم پیام سخنران را در زمانی که او صحبت می کند انتقال میدهد- پس سخن سخنران مبدا همزمان با سخن مترجم در یک زمان اتفاق میافتد. مواد درسی تولید شده برای تربیت مترجم باید شامل آموزش عروض باشد وتمرینهای که آگاهی فراگیران را از عروض افزایش دهد. حذف قسمتی از سخن در ترجمه شفاهی بار منفی برای اکثر مدرسین دارد. استدلال من این است که در برخی از موارد حذف بخشی از پیام ارتباط پیامی را اخدشه دار نمی کند، به ویژه هنگامی که مترجمین تحت فشار هستند، یا از نظر ذهنی در فشارند / یا به خاطر تمرکز زیاد خسته هستند؛ بنابراین حذف قسمتی از پیام اجازه می دهد تا آنها کاهش فشار داشته باشند . علاوه بر این، مدرسین باید در نظر داشته باشند که آنها باید همکاری با محققان در این زمینه را داشته باشند و آنها باید خود را فقط به عنوان مدرس محض ندانند.

فصل سوم ارایه یک مطالعه تجربی می باشد که تاثیر اموزش آگاهی از عروض در ترجمه شفاهی می باشد. منظور ما از عروض تمام خواص سخن می باشد که نمیشود از صرف حروف صدادار و صامت در یک جمله پیش بینی شود. عروض اشاره به پدیده هایی مانند تکیه در کلمه (یک هجا از تمام هجاهای دیگر در یک کلمه نمود پیدا کند) و تکیه در جمله (یک کلمه برجسته تر از عبارت دیگر در یک عبارت یا جمله باشد)، عبارت بندی و زیر و بمی صدا می نماید. عروض کمک می کند تا شنوندگان سخن دریافتی را به واحدهای کوچکتر قابل فهم تفسیم و کلمات کلیدی در جمله را برجسته کنند. سیستم های عروضی بین زبان های مختلف تفاوت میکند که اغلب باعث تولید گفتار نادرست در یک زبان غیر بومی و سوء تفاهم های در فهم زبان غیر بومی می شود. بنابراین آموزش آگاهی از عروض می تواند به مترجمین هم در تولید گفتار و درک گفتار مفید باشد. در این فصل سوالی که پرسیده میشود این است که ایا آموزش آگاهی از ویژگی های عروضی (به طور خاص، تکیه در کلمه ودر سطح جمله) منجر به عملکرد بهتر توسط دانشجویان مترجم شفاهی میشودد؟ شرکت کنندگان در این مطالعه 30 دانشجوی سال آخر ایرانی در رشته مترجمی در دانشگاه اراک بودند. نتایج حاصل از این مطالعه نشان داد که دانشجویان

مترجمی شفاهی عملکرد بهتری خواهند داشت اگر آنها دانش آگاهانه در مورد تکیه درسطح کلمه و در سطح جمله داشته باشند و از تفاوت های بین سیستم های تکیه در زبان خود (فارسی، به عنوان مثال، فارسی جدید) و در زبان خارجی (انگلیسی) داشته باشند. تجزیه و تحلیل آماری داده ها نشان داد که آگاهی از تکیه درسطح کلمه و در سطح جمله منجر به عملکرد بهتر دانشجویان مترجمی میشود، به خصوص در متغیرهای تأکید، سرعت (تسلط ارایه) و صدا (خوشایند بودن).

فصل چهارم به بررسی اثر آموزش صریح ویژگی های عروضی در توسعه مهارت های تشخیص کلمه توسط دانشجویان مترجمی شفاهی میپردازد. دو گروه از دانشجویان مترجی تشکیل شدند. زبان مادری همه آنها فارسی بود که دانشجویان رشته مترجی زبان انگلیسی در سطح مقطع کارشناسی در دانشگاه دولتی اراک بودند. تفاوت های معنا داری در مهارت های زبان انگلیسی (نمرات تافل) بین دو گروه وجود نداشت. شرکت کنندگان قبل از شروع دوره در امتحان مهارت شناخت کلمات شرکت کردند.گروه گواه تمرینات همیشگی در فهم شنیداری انجام دادند در حالیکه گروه تجربی قسمتی از ساعت کلاس را صرف تمریناتی که عروض زبان بود کرد مانند تکیه در سطح کلمه و در سطح جمله. زمان آموزش برای هر دو گروه ۸ ساعت بود. دانشجویان سپس در امتحان بعد از دوره شرکت کردند. نتایج نشان داد اموزش اگاهی عروضی تاثیر معنا داری در پیشرفت مهارتهای شناخت کلمات داشته است.

فصل پنجم به بررسی تأثیر آموزش صریح ویژگی های عروضی در توسعه مهارت گوش دادن توسط دنشجویان مترجمی می باشد. دو گروه از دانشجوییان مترجمی تشکیل شدند. زبان مادری همه انها فارسی بود که مترجمی زبان انگلیسی در سطح مقطع کارشناسی در دانشگاه اراک تحصیل میکردند. تفاوت های معنا داری در مهارت های زبان انگلیسی (نمرات تافل) بین دو گروه وجود نداشت. شرکت کنندگان به طور تصادفی ۹ دختر و۹ پسر در هر گروه بودند. شرکت کنندگان قبل از شروع دوره در امتحان مهارت گوش کردن شرکت کردند.گروه گواه تمرینات همیشگی در فهم شنیداری انجام دادند در حالیکه گروه تجربی قسمتی از ساعت کلاس را صرف تمریناتی که عروض زبان بود کرد مانند تکیه در سطح کلمه و در سطح جمله. زمان آموزش برای هر دو گروه ۸ ساعت بود. دانشجویان سپس در امتحان بعد از دوره شرکت کردند. نتایج نشان داد اموزش اگاهی عروضی تاثیر معنا داری در پیشرفت مهارتهای گوش دادن داشته است.

فصل ششم به بررسی تأثیر آموزش صریح عروض و خواص حروف صدادار و بیصدا در توسعه مهارت های درک مطلب شنیداری برای دانشجویان مترجمی انگلیسی میاشد. سه گروه از دانشجوییان مترجمی تشکیل شدند. زبان مادری همه انها فارسی بود که مترجمی زبان انگلیسی در دانشگاه علوم کاربردی تهران تحصیل میکردند . تفاوت های معنا داری در مهارت های زبان انگلیسی (نمرات تافل) بین سه گروه وجود نداشت. شرکت کنندگان به طور تصادفی ۶ دختر و۶ پسر در هر گروه بودند. شرکت کنندگان قبل از شروع دوره در امتحان مهارت گوش کردن شرکت کردند.گروه گواه تمرینات همیشگی در فهم شنیداری انجام دادند در حالیکه گروه تجربی اول قسمتی از ساعت کلاس را صرف تمریناتی که عروض زبان بود کرد مانند تکیه در سطح کلمه و در سطح جمله و گروه تجربی دوم قسمتی از ساعت کلاس را صرف تمریناتی که خواص حروف صدادار و بیصدا بود کرد . زمان آموزش برای هر سه گروه ۱۲ ساعت بود. دانشجویان سپس در امتحان بعد از دوره شرکت کردند. نتایج نشان داد اموزش اگاهی از خواص حروف صدادار و بیصدا تاثیر معنا داری در پیشرفت مهارتهای گوش دادن نسبت به گروه اول تجربی داشته است.

فصل هفتم در پی ارتباط نمره دادن به صورت سلیقه ای و رویکردهای اصولی می باشد که چقدر این دو مسئله به هم ارتباط دارند. اگر چنین ارتباطی یافت شود می توان نمره دادن متخصصین به یک مسئله را از طریق رویکرد اصولی نیز اعلام کرد. اگر چنین رویکردی درست باشد در نتیجه دید سلیقه ای در نمره می تواند جای خود را به رویکرد اوصولی در اینده بدهد. ما رابطه بین نمره دادن متخصصین در مورد کیفیت ترجمه شفاهی دانشجویان را با رویکردهای اصولی مقایسه کردیم تا به یک ارتباط منطقی در این مسئله دست یابیم. نتایج نشان داد که نمره دادن سلیقی می تواند جای خود را به نمره دادن اصولی دهد.

فصل هشتم ارایه یک مطالعه تجربی می باشد که تاثیر اموزش آگاهی از عروض در ترجمه شفاهی اززبان مادری به زبان خارجی می باشد. زبان مادری همه شرکت کنندگان فارسی بود که مترجمی زبان انگلیسی در سطح مقطع کارشناسی در دانشگاه اراک تحصیل میکردند. تفاوت های معنا داری در مهارت های زبان انگلیسی (نمرات تافل) بین دو گروه وجود نداشت. شرکت کنندگان به طور تصادف‌ی ۸ دختر و ۸ پسر در هر گروه بودند. شرکت کنندگان قبل از شروع دوره در امتحان ترجمه شفاهی شرکت کردند.گروه گواه تمرینات همیشگی در ترجمه شفاهی انجام دادند در حالیکه گروه تجربی قسمتی از ساعت کلاس را صرف تمریناتی که عروض زبان بود کرد مانند تکیه در سطح کلمه و در سطح جمله. نتایج حاصل از این مطالعه نشان داد که دانشجویان مترجمی شفاهی عملکرد بهتری خواهند داشت اگر آنها دانش آگاهانه در مورد تکیه درسطح کلمه و در سطح جمله داشته باشند و از تفاوت های بین سیستم های تکیه در زبان خود (فارسی، به عنوان مثال، فارسی جدید) و در زبان خارجی (انگلیسی) داشته باشند. تجزیه و تحلیل آماری داده ها نشان داد که آگاهی از تکیه درسطح کلمه و در سطح جمله منجر به عملکرد بهتر دانشجویان مترجمی میشود.

فصل نهم بررسی اثر جهت ترجمه بر کیفیت عملکرد مترجمین بین زبان انگلیسی و فارسی می باشد. این با مقایسه نتایج به دست آمده در فصل 3 به صورت ترجمه مستقیم (رکتو) و در فصل 8 به صورت ترجمه معکوس (ورسو) میباشد. هردو گروه قسمتی از ساعت کلاس را صرف تمریناتی که عروض زبان بود کرده بودند مانند تکیه در سطح کلمه و در سطح جمله. نتایج نشان داد که ترجمه به زبان مادری نمرات بهتری در کل برای دانشجویان دارد.

فصل دهم ارایه یک مطالعه تجربی می باشد که تاثیر اموزش آگاهی از عروض به صورت صریح و ضمنی در ترجمه شفاهی اززبان مادری به زبان خارجی می باشد. زبان مادری همه شرکت کنندگان فارسی بود که مترجمی زبان انگلیسی در سطح مقطع کارشناسی در دانشگاه علوم کاربردی تحصیل میکردند. تفاوت های معنا داری در مهارت های زبان انگلیسی (نمرات تافل) بین سه گروه وجود نداشت. شرکت کنندگان به طور تصادف‌ی ۶ دختر و ۶ پسر در هر گروه بودند. شرکت کنندگان قبل از شروع دوره در امتحان ترجمه شفاهی شرکت کردند.گروه گواه تمرینات همیشگی در ترجمه شفاهی انجام دادند در حالیکه گروه تجربی اول قسمتی از ساعت کلاس را صرف تمریناتی که عروض زبان بود کرد مانند تکیه در سطح کلمه و در سطح جمله و گروه ترجمی دوم به صورت ضمنی اموزش عروض دیدند. سپس شرکت کنندگان امتحان ثانویه ترجمه شفاهی دادند. زمان اموزش برای هر سه گروه ۱۰ ساعت بود. نتایج حاصل از این مطالعه نشان داد که دانشجویان مترجمی شفاهی عملکرد بهتری خواهند داشت اگر روش اموزش عروض انها به صورت صریح در مورد تکیه درسطح کلمه و در سطح جمله باشد. تجزیه و تحلیل آماری داده ها نشان داد که روش اموزش صریح آگاهی از تکیه درسطح کلمه و در سطح جمله منجر به عملکرد بهتر دانشجویان مترجمی میشود.

فصل یازدهم نتیجه گیری پایان نامه است. نتایج حاصل از آزمایش ها خلاصه شده و به سوالات کلی پاسخ داده شده است. نقاط ضعف شناسایی و بحث شده است. پیشنهادات برای بهبود و تحقیق بیشتر ارائه شده است. این با بحث اینکه چه راهکارهی برای تربیت مترجم شفاهی باید مشخص شود خاتمه پیدا می کند. همچنین روشهای کارامد وکاربردی برای تربیت مترجم شفاهی با به کار گیری تکنولوژی مطرح میشود

Curriculum vitae

Mahmood Yenkimaleki was born on June 30, 1975 in Tafresh, Iran. He graduated from Kashan University in the field of Teaching English as Foreign Language. In 1999, he obtained his bachelor's degree and worked as an English teacher at high school for a year. In 2001, he was admitted as a master candidate at the University of Isfehan majoring in Teaching English as Foreign Language. He graduated in 2003 as top student from the University of Isfehan and started as a lecturer at Tafresh Azad University and Arak University. In 2004 he was promoted to head of the Translation Department at Tafresh Azad University and continued this job till he came to Leiden to do his PhD on the effect of prosody awareness training on the quality of consecutive interpreting between English and Farsi. The present dissertation is the result of this research.