Effect of prosody awareness training on the quality of consecutive interpreting between English and Farsi

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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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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.

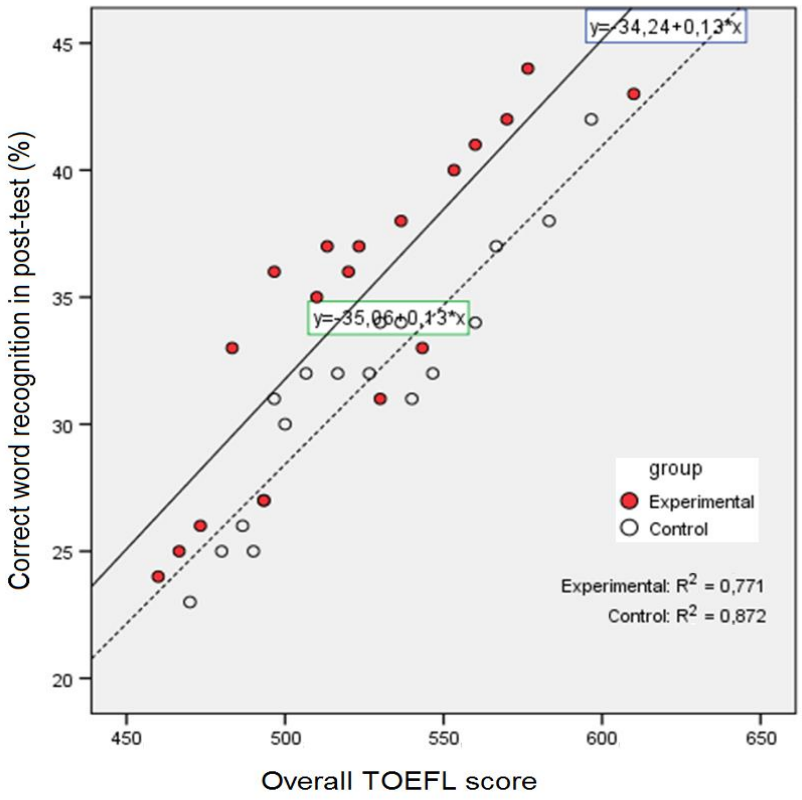

Figure 4.1. Post-test word-recognition score plotted against the overall TOEFL score for each of 36 participants. Members of the experimental group are indicated by closed markers, members of the control group by open markers.

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