Effects of Communicative Instruction versus Explicit Instruction on Taiwanese EFL Junior High Students' Word Recognition of Connected Speech

Feng-lan Kuo
Graduate Institute of Children's English
National Changhua University of Education
[1]No. 1, Jing-De Rd., Changhua City 500, Taiwan

Yihsiang Kuo
General Education Center, National Defense University
No. 75, Shiyuan Rd., Daxi Township, Taoyuan County 33551, Taiwan

Ju-ting Lee
Yang Ming Junior High School
No. 76, Chang-Shun St., Changhua City 500, Taiwan

Abstract

This study compared effects of communicative versus explicit instruction of connected speech against none connected speech instruction on word recognition of connected speech among three classes of Taiwanese EFL eighth graders. Two intact classes were randomly assigned to receive either communicative or explicit instruction of connected speech, whereas a third (control) class received its regular instruction without connected speech. The instructional period lasted six weeks with 25 minutes of connected-speech instruction a day, two days a week. A self-developed cloze test serving as a pre- and post-test evaluated spoken word recognition abilities. ANCOVA results showed that: (a) Explicit Group obtained significantly higher adjusted mean than Control Group and no significant difference existed between two experimental groups or Communicative Group and Control Group; (b) Explicit Group and Communicative Group consistently had significantly higher adjusted means than Control Group in both contraction and elision patterns, but non-significant differences arose between experimental groups; (c) there were non-significant differences among three groups in C-C linking, C-V linking, and palatalization. Educational implications and several suggestions for future research are provided based on results of this study.

Key Words: communicative instruction, explicit instruction, connected speech, word recognition

1. Introduction

1.1 Problem and Literature Review

Spoken language differs from written language in many ways. Different characteristics between them often pose great problems to learners in real communication. ESL/EFL learners understanding written forms of a speech may find it difficult to segment flow of speech. Spoken words are produced in a way unlike simply juxtaposing individual words. For example, word boundaries are not signaled with space in oral language. Moreover, spoken words are often weakened in a flow speech to keep rhythm of English, such that learners capable of discerning citation forms of individual words may not detect weak forms of words in continuous speech.

Additionally, several processes of phonological modification which take place in producing speech may reduce perceptual saliency. Hence, learners who fail to adjust themselves to phonological modifications in spoken language often encounter snags in communication. Connected speech, spoken language in a stream of speech, also differs from words articulated individually (Chrystal, 1980). Celce-Murcia, Brinton, and Goodwin (1996) indicated that connected speech patterns exist for three reasons: "*ease of articulation for the speaker, preservation of the preferred English syllable structure, preservation of grammatical information* (p. 165)."

Words produced in a flow speech may not sound identical to how they are produced in isolation: e.g., *hate* in isolation is uttered with clear /t/ in final position, differing from that in the short sentence "I *hate* you" where final /t/ sound connects with the following /ju/ as /tΣu/.

Connected speech patterns often cause problems in listening comprehension. Many studies (Cross, 2009; Fan, 1993; Fan, 2003; Field, 2000, 2003, 2004, 2008; Goh, 2000; Graham, 2006; Kuo, 2010, 2011; Kuo & Yang, 2009; Lee & Kuo, 2010; Lin, 2003; Rubin, 1994; Sun, 2002; Tsai, 2004; Tsui & Fullilove, 1998; Vogely, 1995; Wilson, 2003; Yen, 1988) have shown EFL/ESL learners perceived that recognizing words in connected speech caused listening comprehension problems. Dejean de la Batie (cited in Rubin, 1994) and Kuo (2010) argued that beginning language learners might encounter listening comprehension problems due to limited exposure to connected speech.

Similarly, by utilizing a questionnaire and three recall tasks, Vogely (1995) investigated English learners of Spanish and found that subjects' inability to recognize spoken words could be attributed to lack of exposure to connected speech. Goh (2000) investigated Chinese EFL learners' perspectives on their listening comprehension problems based on their weekly diary, small group interview, and immediate retrospective verbalization. She found that language learners' major listening problems were related to word recognition in connected speech, especially for low achievers. Similar to Goh's findings, Kuo (2010, 2011) reported spoken word recognition as a major listening difficulty impeding her Taiwanese EFL university students' listening comprehension. Graham (2006) showed that language learners perceived word recognition and speech rate as two major causes of listening difficulties. On the contrary, Khatib (2010) conducted experimental studies and found that even slowing down the speech rate, language learners still failed to recognize certain words. Hence, the features of connected speech can cause problems of word recognition regardless of the speech rate in a certain range.

Henrichsen (1984) and Ito (2006) indicated that the presence or absence of connected speech patterns, reduced forms, affected learners' listening comprehension significantly. Moreover, the effect of reduced saliency of listening input on comprehension might vary depending on learners' proficiency level. It is estimated that about 35% of all words produced in natural speech can be reduced (Bowen, 1975, cited in Cahill, 2006). With the high frequency of the occurrence of reduced forms and effect of reduced saliency, lower-achievers or beginners may encounter difficulties in listening comprehension.

Training learners to perceive connected speech patterns has been ever more emphasized in language teaching. Several scholars (Dauer & Brown, 1992; Field, 2003, 2008; Kuo, 2013; Norris, 1993, 1994, 1995) proposed to teach connected speech patterns as an aid to enhance English learners' listening comprehension. Empirical studies (Brown & Hilferty, 1986; Carreira, 2008; Crawford, 2006; Fan, 2003; Field, 2003, 2008; Matsuzawa, 2006; Kuo, 2013; Ting & Kuo, 2012; Wang, 2005) have attested that explicitly teaching reduced forms can improve adult learners' ability to identify words in connected speech.

Field (2003), as a frequent observer of listening classes, specifically suggested that dictation could be an effective way to train learners to perceive reduced forms. Field (2008) indicated that learners often encounter problems related to processes of decoding and teachers thus should give them micro-scale dictation to improve decoding and spoken word recognition. Partially in line with Field's (2003, 2008) suggestion of small-scale dictation, Kuo (2010, 2011, 2013) consistently found (either large- or small-scale) patricidal dictation of connected speech as effective in boosting EFL university students' listening comprehension. Aforementioned studies concerning explicitly teaching connected speech mainly recruited EFL adults capable of learning explicitly stated grammatical rules; few focus on children or adolescents, who tend to learn or induce patterns via interaction, with abilities decreasing around puberty (Schmidt, 1990).

On the other hand, communicative instruction of connected speech has gradually gained attention in the research field. Celce-Murcia et al. (1996) further proposed that connected speech patterns be taught with communicative practice. Toda (2006) also suggested teaching connected speech features in context, which requires learners to interact with others for meaning. Implicit ways of connected speech instruction could also benefit language learners' perception. EFL learners with exposure to materials filled with connected speech patterns still make improvement in word segmentation (Kuo, 2009; Wang, 2005). Whether effect of explicit instruction on connected speech patterns supersedes that of implicit exposure to connected speech patterns is still in question. Thus, this study compares effects of teaching connected speech patterns explicitly and implicitly on EFL adolescents' spoken word recognition abilities.

1.2 Purpose of Study

This research compares the effectiveness of two types of connected speech instruction in improving Taiwanese EFL junior high students' spoken word recognition abilities. Explicit instruction has proven effective in heightening listeners' capacity for identifying words in connected speech; meanwhile, communicative instruction has been proposed by some scholars (Celce-Murcia et al., 1996; Toda, 2006) but has never undergone empirical studies. Thus, the present study recruited two experimental groups to receive explicit instruction and communicative instruction respectively on an inter-word level and a control group receiving no instruction related to such patterns. Explicit instruction includes rule explanation and drill practice, while communicative instruction excludes any forms of rules and focuses on students' interaction in class to acquire the connected speech patterns. To test effects among groups, a special tailored cloze test and a listening comprehension test were designed to represent connected words and comprehension-oriented indirect testing, respectively.

1.3 Research Questions

Research questions of the present study are:

1. Between explicit instruction and communicative instruction, which is more effective in improving Taiwanese EFL junior high students' spoken word recognition abilities?
2. Among connected speech patterns (contraction, C-C linking, elision, C-V linking, and palatalization), does instructional mode influence Taiwanese EFL junior high school students' spoken word recognition abilities?

2. Method

2.1 Participants

Participants included three intact eighth-grade classes from the same school in central Taiwan. Two classes formed experimental groups. The first experimental group ($n_1 = 33$) received communicative instruction on connected speech patterns, the second ($n_2 = 36$) explicit rule instruction on connected speech patterns. The third class ($n_3 = 32$) served as control, receiving no instruction related to connected speech patterns. All participants started receiving formal English education from third grade. The elementary level GEPT listening scores of three intact classes were analyzed by one-way ANOVA to find no significant difference among three classes, $F(2, 98) = 2.60$, $p > .05$. Hence, before any intervention took place, three intact classes were homogeneous in terms of general listening. In addition, all classes took stress perception tests to assess ability of identifying stressed syllables. This test consisted of ten items, five for disyllabic and five for tri-syllabic words. Students wrote 1, 2, or 3 to identify position of the stressed syllable in a target word spoken twice. The correct response rate was 60.6% for the explicit group, 66.7% for the communicative group, and 60% for the control group. Results show that they had basic abilities of identifying stressed syllables.

2.2 Instruments

Four instruments were used to investigate effects of connected speech instruction and explore participants' attitudes toward such instruction: an outdated version of the elementary level GEPT listening test, a self-developed cloze test, an explicit treatment questionnaire, and a communicative treatment questionnaire. The elementary GEPT listening test aims to assess participants' general listening abilities. Two treatment questionnaires were developed to explore participants' perceptions of the layout of worksheets and attitudes toward connected speech instruction.

A self-developed cloze test serving as pretest and posttest assessed participants' spoken word recognition abilities. According to Field (2003), pauses in natural speech normally appear every 12 syllables. Training students to dictate sentences within 12 syllable chunk limit is thus desirable. On the self-developed cloze test, each question is limited to 9-11 syllable chunk limits. The comprehensive triggering phonetic contexts were taken into consideration. A total of 148 items were designed for pilot testing. Each item consisted of two blanks. The scoring criterion was one point for a blank with the correct answer. Since correct spelling was related to the meaning of the target word and even comprehension of the whole sentence, similar sounding words were not given any point. For example, the test takers saw a sentence printed with blanks in between, "*Sit down and let me _____ _____ something to drink.*" Then they listened to a full spoken sentence, *"Sit down and let me get you something to drink."* They should write "get" in the first blank and "you" in the second. If they put words in the wrong position, no point was given.

This self-developed cloze test was recorded and proofread by a native speaker, an experienced college English pronunciation instructor with 20 years of teaching experience. The pilot test was given to four intact classes of 8th graders. Items with a correct response rate above 0.7 or below 0.2 were eliminated. After pilot test, the self-developed cloze test consisted of 92 items with five connected speech patterns: contraction, C-C linking, elision, C-V linking, and palatalization. The reliability coefficient (Cronbach Alpha) for this cloze test was .983.

2.3 Treatments

Two experimental groups received six weeks' instruction focusing on aforementioned five connected speech patterns taught by the same teacher, while the control group still learned the content of the textbook as usual taught by another teacher. Each theme was taught in two 25-minute lessons (2 days a week). After two themes were taught, two 25-minute review lessons were conducted. Instruction lasted six weeks including four weeks of instruction and two weeks of review lessons in between. Table 1 briefly lists the six-week teaching plan below.

Table 1: *Six-Week Teaching Plan*

	Explicit	**Communicative**	**Control**
Week 01	C-V linking	Plan a trip.	*Hanlin Textbook Book IV* Unit 2 - Unit 3
Week 02	Palatalization	I miss you so much.	Unit 3
Week 03	Review (Songs): 1. I got you. (C-V linking) 2. I miss you. (palatalization)	Review (Songs): 1. I got you. (C-V linking) 2. I miss you. (palatalization)	Review 1 Units 1-3
Week 04	C-C linking & elision	Give direction.	Unit 4
Week 05	Contraction	Joe and His Family	Units 4-5
Week 06	Review (Songs): 1. Breakaway (C-C linking & elision) 2. Pretty Woman (contraction)	Review (Songs): 1. Breakaway (C-C linking & elision) 2. Pretty Woman. (contraction)	Unit 5

As illustrated in Table 1, in the first two weeks, two experimental groups focused on learning C-V linking and palatalization, the control group on content of the textbook used at school (without connected speech patterns). In the third week, two experimental groups reviewed C-V linking and palatalization with two pop songs. The instructor gave students a worksheet printed with lyrics and blanks in between. Students had to partially dictate the songs. Then, they worked in pairs to figure out answers while listening to each song. Finally, the explicit group was asked to underline the connected speech patterns occurring in the song, while the communicative group was taught the meaning of lyrics. The final three weeks of instruction focused on C-C linking, elision, and contraction with the same procedure as the first three weeks.

For both experimental groups, time distribution of each 25-minute lesson was divided into three sections: first ten minutes allocated to instruction or review of lessons, the middle seven to pair work or discussion, the last eight for checking answers or presentation. The explicit and communicative groups learned connected speech patterns respectively based on two sets of worksheets. The set of worksheets for the explicit group were developed based on Celce-Murcia et al. (1996) and supplemented with self-developed sample phrases and sentences. The set of worksheets for the communicative group were self-developed based on the task design of Ellis (2003) and the communicative drills of Brown (2007).

Two experimental groups reviewed connected speech patterns in Weeks 3 and 6 by partially dictating pop songs. The instructor gave learners the lyrics on a piece of paper with blanks in between. Subsequently, the instructor played the song three times. At the first playing, students had to listen to the song and try to fill in the blanks. Before the song was played again, students discussed their answers with other classmates. After the second play, the instructor released the correct answers and asked students to mark the target connected speech patterns occurring in the song. Finally, the song was played again at the end of the lesson.

2.3.1 Explicit instruction

The class receiving explicit rule instruction was aided by phonetic symbols (K.K. system). Rules were explained one by one in Chinese, each followed by a set of examples or a set of sentences for students to underline potential connected speech patterns. The first 10 minutes of each 25-minute lesson were allocated to introducing a new lesson or reviewing what had been taught in the last period. For the middle seven minutes, students worked in pairs to practice examples or discuss answers of exercises. For the last eight minutes, some students were invited to share answers or read sample sentences to the class.

Based on Celce-Murcia et al. (1996), worksheets and handouts were developed to include rules, examples, and practice. A sample of the worksheet focusing on C-V linking is presented below. The instructor followed the order and content of the worksheet to teach the students.

The first part of the worksheet presents formation of the connected speech pattern and environment for the occurrence. For example, C-V linking occurs when a word ends with a consonant and the next word starts with a vowel. The consonant and the vowel were integrated to form a syllable. Based on rules presented on the worksheet, the instructor explained rules in Chinese. The second part included some samples of C-V linking. The instructor demonstrated and compared examples produced without and with connected speech patterns. For instance, the instructor said "stand up" twice. The first time, the instructor produced "stand" and "up" slowly and separately; the second time, "stand up," sounded like "standup." Students had to first repeat after the instructor and then practice reading examples. The final part of the worksheet listed sentences with C-V linking: e.g., *"Please turn on the light."* The instructor read sentences and students underlined potential connected speech patterns occurring in sample sentences. Then they worked five to ten minutes in pairs and discussed answers. The instructor then led students to read each sentence and checked answers. Finally, the instructor invited some students to read sentences and gave them feedback.

2.3.2 Communicative instruction

Based on ideas proposed by Celce-Murcia et al. (1996) and Toda (2006) as well as supplemented with task design of Ellis (2003) and communicative drills of Brown (2007), communicative instruction included a weekly activity, a total of four weeks supplemented with two weeks of review lessons. Connected speech patterns were embedded in activities. Four worksheets respectively focusing on C-V linking, palatalization, C-C linking, elision, and contraction were developed. Materials of review lessons for the communicative group were the same as those for the explicit group. Time distribution of each 25-minute lesson for the communicative group was: [1] first ten minutes, the instructor introduced background of the activity or scenario; most important, instructor told students their task; [2] middle seven minutes, paired students finished tasks; and [3] students shared their results with classmates in the last eight minutes.

Four activities devised by the researchers were implemented for the communicative group. Connected speech patterns were also embedded in each activity. For example, the second weekly activity named "I miss you so much" focused on palatalization. Each student first received a worksheet with information about the activity and hints to complete the task. In the scene, a girl has not met her friends for a long time; she wants to contact her friends and ask them out. Students worked in pairs to think about how they could start a conversation with old friends after not meeting for a long time and how they might invite them out.

Later, they had to create a dialogue based on the situation. The worksheet supplied 22 possible expressions: 12 with palatalization, the other 10 serving as supplements for adding variety to the activity. The instructor taught what each expression meant and how to read it. The first eleven expressions were suitable for initiating a conversation between old friends who had not seen each other for a long time; the other eleven expressions were for asking a friend out. For instance, "I didn't get your messages for a long time" let students initiate dialogue with the expression. Still, students were encouraged to make original sentences and use their own expressions. After conversations, they were invited to perform on stage. Students were expected to infer patterns by interaction and exposure to input rich in reduced forms.

2.4 Data Collection

The researcher-developed cloze test assessing participants' spoken word recognition of five connected speech patterns was administered to all classes one week before and after the six-week treatment as pretest and posttest. Moreover, an elementary level GEPT listening test was also given to all classes one week prior to the study to verify if they had similar listening comprehension.

Additionally, the explicit treatment questionnaire was administered to the explicit group one week after the study, a communicative treatment questionnaire to the communicative group.

2.5 Data Analysis

ANCOVA was employed to answer two research questions, comparing groups' scores on posttest assessing spoken word recognition of five-pattern connected speech since Dimitrov and Rumrill (2003) suggested that ANCOVA was appropriate for analyzing pretest-posttest data to reduce error variance.

3. Results and Discussion

To adjust posttest scores for differences among groups on the pretest, ANCOVA was used to analyze posttest scores of three classes. The independent variable was instruction mode: i.e., explicit, communicative, or none. The dependent variable was posttest score and the covariate was pretest score. Table 2 reports ANCOVA results of three groups' scores on cloze posttest. A preliminary analysis evaluating homogeneity-of-regression (slopes) assumption was conducted prior to ANCOVA to ensure that the relationship between the covariate and the dependent variable did not differ significantly as a function of the independent variable, $p_1 > .05$. The test rates interaction between the covariate and the independent variable. If the interaction is significant ($p_1 < .05$), results from an ANCOVA are not meaningful (Green, Salkind, & Akey, 2000) or vice versa. Since p_1 values for all kinds of scores in Table 2 were non-significant, a series of ANCOVAs were conducted afterwards with their p values ($= p_2$) reported in Table 2 too.

Table 2: ANCOVA Results of Cloze Posttest Scores

	#	Explicit ($n_1 = 36$)			Communicative ($n_2 = 33$)			Control ($n_3 = 32$)				ANCOVA
		Mean 1	Mean 2	Adj-M2	Mean 1	Mean 2	Adj-M2	Mean 1	Mean 2	Adj-M2	p_1	p_2
C-C	70	33.50	35.56	38.84	34.88	37.48	34.89	26.69	29.44	34.55	.431	.734
Con-	52	27.68	35.75	34.24	27.67	34.06	32.57	22.53	24.78	28.01	.122	*.000
Eli-	30	14.97	16.61	16.29	16.12	17.15	15.79	12.66	12.78	14.55	.491	*.015
C-V	24	10.53	11.94	11.35	11.30	12.36	11.06	7.72	9.78	11.79	.914	.446
Pal-	8	3.72	4.17	3.78	3.76	4.36	3.98	2.34	2.97	3.83	.351	.779
TS/RCS	184	90.42	104.03	99.38	93.75	105.45	97.58	71.94	79.75	93.10	.806	*.032

Note 1: Mean 1 = pre test mean score; Mean 2 = posttest mean score; Adj-M2 = adjusted posttests mean score

Note 2: C-C = consonant-consonant linking; Con- = contraction; Eli- = elision; C-V = consonant-vowel linking; Pal- = palatalization; TS/RCS = total score of recognizing above five patterns of connected speech

Note 3: Maximal scores for C-C linking; contraction, elision, C-V linking, and palatalization are 70, 52, 30, 24, and 8, respectively.

Note 4: p_1 = p value of *interaction between independent variable (group) and covariate (pretest score)* p_2 = p value of ANCOVA investigating difference in posttest score (dependent variable) among groups

Note 5: If p_1 is significant (<.05), results from ANCOVA are not meaningful (Green, Salkind, & Akey, 2000)

3.1 Effects of Explicit vs. Communicative Instruction on Overall Spoken Word Recognition

ANCOVA results of total scores on spoken word recognition posttest in Table 2 show significant intergroup differences with $p_2 = .032$. Follow-up tests were conducted to evaluate pair wise differences among adjusted means for different instruction modes. The Holm's sequential Bonferroni procedure was used to control Type I error across three pair wise comparisons. Results of post hoc analysis reported in Table 3 indicated the explicit group ($M = 99.38$) obtained significantly higher adjusted mean than the control group ($M = 93.10$), $p = .010$ and no significant difference arose between experimental groups ($p = .443$) or communicative group and control group ($p = .071$).

Table 3: Post Hoc Analysis of Cloze Posttest Scores

Group	Mean	Adjusted Mean	Explicit MD (*p*)	Communicative MD (*p*)	Control MD (*p*)
Explicit	104.03	99.38	—		
Communicative	105.45	97.58	1.80 (.443)	—	
Control	79.75	93.10	6.28 (.010) *	4.48 (.071)	—

p < .05; *MD* = mean difference

Above results suggest explicit instruction of connected speech was significantly more effective in boosting adolescents' spoken word recognition abilities than no such instruction, which concurs with previous studies focusing on adults (Brown & Hilferty, 1986; Fan, 2003; Ting & Kuo, 2012; Wang, 2005). From current and previous studies, one can conclude that explicit instruction of connected speech is effective in building spoken word recognition abilities for both adults and adolescents. Language instructors are advised to teach connected speech patterns explicitly.

Though the explicit group did not significantly outnumber the communicative group in adjusted mean on posttest (*p* = .443), it manifestly outdid the control group while the communicative group did not. These results imply that explicit instruction might be better in augmenting junior high students' spoken word recognition abilities than communicative instruction to some extent. Future studies can prolong the teaching period to ascertain whether the gap between both instruction modes will enlarge to reach a significant level (*p* <.05) or decrease over time. Future research can also compare effects of two instruction modes longer than six weeks for learners at different ages.

Another suggestion for future studies is to combine both instruction modes with explicit teaching followed by communicative activities. The former is efficient for rule teaching and explanation, the latter more interesting and/or useful for applying rules for communication or consolidating acquisition of connected-speech rules or knowledge, which in turn might be more effective than each individual mode alone. Such a suggestion or hypothesis is based on treatment questionnaires assessing participants' attitudes toward connected speech instruction they received. Both explicit and communicative groups held positive attitudes toward layout of worksheets, instruction mode, and effects of connected speech instruction, and supplementary material, songs. Both groups welcomed connected speech instruction and looked forward to taking English listening lessons.

Yet the communicative group was more positive toward practicing listening through interaction and communication. Chances are that practicing listening with peers can add more variety to listening activities and hence become more interesting, while practicing listening with rules may prove dull for learners. Thus, communicative instruction better enhances learners' motivation for and confidence in English listening. Teachers can try to combine these two instruction modes by first teaching connected speech patterns explicitly and then implementing communicative activities as practice.

The suggestion for mixed instruction mode (explicit + communicative) is also in line with Laufer's (2009, p. 351) literature review of Mondria and Wiersma's (2004) study concluding that "*receptive learning proved best for receptive knowledge, and productive learning for productive knowledge. Additional receptive learning did not lead to improved productive knowledge.*" This means that effective teaching/learning should include both receptive and productive activities. Explicit instruction usually relates to receptive learning, communicative instruction to productive learning.

Additionally, future research can compare effects of two (explicit vs. communicative) or three instruction modes (explicit, communicative, and explicit + communicative) on EFL learners' listening comprehension at different ages. However, experimental duration longer than six weeks is strongly suggested for two reasons. First, listening comprehension is far more complex than spoken word recognition of connected speech because the latter is the first phase of listening comprehension, which consists of three phases, including word perception (recognition and segmentation), parsing, and utilization (Anderson, 1995, cited in Goh, 2000, p. 57). Significant improvement in listening comprehension should take more time and practice than that in spoken word recognition of connected speech.

Second, significant improvement in listening comprehension was reported by empirical studies entailing 15-17 weeks of teaching and/or (partial) dictation of connected speech (Kuo, 2010, 2013; Kuo & Yang, 2009; Rahimi, 2008).

Although results in Table 3 suggest the communicative group not significantly outperforming the control group on spoken word recognition posttest, the former got higher posttest scores than the latter by 4.48 points on adjusted mean scores, suggesting communicative instruction of connected speech might be more effective than no connected speech instruction to some extent in boosting EFL adolescents' spoken word recognition of connected speech. As suggested by Celce-Murcia et al. (1996) and Toda (2006), communicative ways of instruction can be utilized to teach connected speech. Nevertheless, this study did not find that the communicative group significantly outperformed the control group on overall spoken word recognition abilities after six weeks of instruction. Future studies can prolong beyond six weeks to see whether communicative instruction of connected speech will be more salient to reach significance for diverse age groups than no such instruction.

According to the survey conducted by Rosa (2002) and Lu and Kuo (2011), most instructors did not teach connected speech in class due to time constraints and lack of suitable materials. The worksheets devised for this study provide teachers with materials to teach connected speech patterns communicatively or explicitly. Language instructors can tailor them to meet their students' needs.

3.2 Effects of Explicit vs. Communicative Instruction on Word Recognition of Five Connected Speech Patterns

The researcher-developed cloze test serving as both pretest and posttest also assessed five connected speech patterns. ANCOVA was employed to analyze three groups' performances on each connected speech pattern to explore if they performed differently on diverse connected speech patterns. ANCOVA results of posttest scores in Table 2 show that among five connected speech patterns (C-C linking, contraction, elision, C-V linking, and palatalization) significant differences among groups existed in contraction (p_2 = .000) and elision (p_2 = .015), non-significant differences in C-C linking (p_2 = .734), C-V linking (p_2 = .446), and palatalization (p_2 = .779). For contraction and elision patterns reaching a significance level (p <.05), follow-up tests were conducted to evaluate pairwise differences among the adjusted means for different instruction modes. Results of post hoc analysis reported in Table 4 indicated that the explicit group and the communicative group consistently had significantly higher adjusted means than the control group in both contraction and elision patterns, but non-significant differences arose between two experimental groups. These results suggested six weeks of both explicit and communicative instruction of connected speech yielded significant effects on word recognition of contraction and elision but non-significant effects on C-C linking, C-V linking, and palatalization. Salient effects of connected speech instructions on contraction and elision may be attributed to different characteristics of contraction and elision explained below.

Table 4: Post Hoc Analysis of Three Groups' Performance on Contraction and Elision

	Contraction				Elision			
Group	Mean	Adjusted Mean	Explicit *MD* (*p*)	Commu- *MD* (*p*)	Mean	Adjusted Mean	Explicit *MD* (*p*)	Commu- *MD* (*p*)
Explicit	35.75	34.24			16.61	16.29		
Commu-	34.06	32.57	1.66 (.239)		17.15	15.79	.050 (.339)	
Control	24.78	28.01	6.22 (.000)*	4.56 (.002)*	12.78	14.55	1.74 (.005)*	1.24 (.047)*

*p< .05; MD = Mean Difference; Commu- = Communicative

Contraction differs from four other connected speech patterns. The process of contracting two words together changes not only sound but also orthography. Connected speech instruction can raise learners' awareness to capture correspondence between sound change and orthographical change. In addition, contractions are more predictable in sentences, since they often occur with function words such as pronouns, auxiliaries, and/or negative particle *not*. High frequency of occurrence of these words may also contribute to effects of explicit or communicative teaching of contraction. Language instructors can enhance spoken word recognition abilities by either giving learners concrete rules and examples or embedding contractions in communicative tasks. Learners internalize rules from explicit teaching and/or infer patterns from interaction or communication. Although elision shares similarity with other connected speech patterns (C-C linking, C-V linking, palatalization): sound change does not reflect on orthography, connected speech instructions show dissimilar effects on four patterns, which may be explained by observing four patterns within word level. The present study focused on teaching connected speech patterns occurring in word boundaries, but four connected speech patterns also loom in individual words.

The last two consonants of *slept* form C-C linkage, the second consonant, and vowel a kind of C-V link. The word *casual,* pronounced as [ˋkæʒʊəl], contains palatalization: */s/* followed by /jʊ/ palatalized to /ʒ/. Elision appears in the word *possible*, with two */s/* being produced as one. Spelling and pronunciation show that when two identical consonant letters occur in a pair, only a single consonant is realized in pronunciation. Elision resembles C-C linking at inter-word level. Yet, a major difference is that C-C linking happens between non-identical consonants, while elision merges two identical consonants. It is likely that elision is easier for learners to detect as a single unit, while other connected speech patterns are more like combination of two distinct categories.

Since effects of teaching contraction and elision for both explicit and communicative groups are salient, language instructors are suggested to teach contraction and elision either explicitly or communicatively. Prior studies (Brown & Hilferty, 1986; Carreira, 2008; Crawford, 2006; Fan, 2003; Matsuzawa, 2006; Wang, 2005) indicate that explicit instruction is effective in enhancing acquisition of connected speech patterns. This study further suggests that, besides explicit instruction, communicative instruction or explicit + communicate instruction can be an alternative way for teaching connected speech patterns. Language instructors have various choices and flexibilities for teaching connected speech patterns. Nonetheless, the present study dealt only with adolescent learners. Future studies can focus on whether salient effects can be found on learners of different ages.

4. Conclusions and Suggestions

ANCOVA results show the explicit group significantly outperformed the control group on the spoken word recognition posttest after six weeks of instruction but did not significantly outnumber the communicative group, which likewise did not significantly surpass the control group. These results portended that six weeks of explicit instruction significantly enhancing junior high students' spoken word recognition of connected speech, whereas six weeks of communicative instruction was inadequate to attain significance. Therefore, future studies are suggested to have longer teaching periods (e.g., 12-16 weeks) to compare effects of both instruction modes (communicative vs. explicit) in spoken word recognition of connected speech for learners at different ages.

Based on results of attitude questionnaires that the communicative group had more positive attitudes toward practicing listening via interaction and communication, we hypothesize that the combined instruction mode, explicit + communicative, probably works (significantly) better than either method alone. However, this hypothesis calls for empirical research. Future studies lasting 12-16 weeks are suggested to compare effects of three instruction modes (explicit vs. communicative vs. explicit + communicative) on word recognition of connected speech and/or listening comprehension at different ages.

Among five connected speech patterns, both explicit and communicative instruction of connected speech yielded similar results: both had significantly better effects on recognition of contraction and elision than none connected speech instruction, non-significantly on C-C linking, C-V linking, and palatalization. As Kuo (2013) suggested, 13 weeks' small-scale partial dictation of connected speech can significantly augment decoding skill and listening comprehension. Hence, it is worthwhile to explore whether each instruction mode supplemented with small-scale partial dictation can significantly elevate EFL learners' spoken word recognition on C-C/C-V linking and/or palatalization.

Insufficient teaching material availability may pose an obstacle for teaching connected speech patterns. The study afforded some examples, especially communicative activities and worksheets on connected speech patterns. The worksheets provided in Celce-Murcia et al. (1996) are good examples of explicitly teaching connected speech patterns. English teachers can utilize or modify them or even develop their own worksheets. In Taiwan, it is still hard to find textbooks specifically designed to teach English connected speech patterns; English teachers in Taiwan can refer to the textbooks published in other countries: e.g., *Whaddayasay* (Weinstein, 1982), *Hit Parade Listening* (Kumai & Timson, 2010). However, catering to students' current proficiency level is another important issue. These textbooks or materials may not necessarily be directly used to teach junior high students. It is worthwhile for English teachers to spend time and effort to tailor proper materials and/or activities to bolster their students' spoken word recognition of connected speech and listening comprehension.

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