

Messages behind the Unheard Sounds: Crossing the Word Boundaries through Songs¹

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Abstract

The knowledge and application of reduced forms in word recognition is a decisive factor for English learners to attain a higher language proficiency. Listening comprehension for non-native English speakers involves aspects of diction, syntax, grammar and content. Language in the spoken form is more challenging in that learners have to discern sounds that tend to cross the word boundaries for fluency. Therefore, the ability to comprehend and identify correctly what is said is the key to understanding spoken English. To fully comprehend a naturally pronounced sentence well, ESL/EFL learners need a basic knowledge of reduced forms including C-C linking (elision), C-V linking, /h/-deletion, contraction, palatalization, flapping, and the like. An appropriate approach for students to improve listening comprehension is through songs (Crawford, 2006). The present study is a language experiment practiced on two homogeneous groups of sophomore English majors who aim at passing high-intermediate GEPT in the junior year. Both groups were given the intermediate GEPT listening test to establish their initial listening proficiency. The experimental group then underwent a six-session (240 minutes) training course, in which the afore-mentioned six reduced forms were taught through twelve songs in *Hit Parade Listening* (Kumai & Timson, 2003, 2010). The techniques and knowledge of reduced forms were explicitly taught through lectures and dictation exercises of song lyrics. Two forms of a dictation test of 17 digitally recorded sentences of similar reliability coefficient, containing the six targeted connected speech patterns, were developed as the pretest and the posttest, respectively. The results showed the subjects of the experimental group made overall significant improvement in recognizing spoken words than the control group after receiving the explicit connected speech instruction using the *Hit Parade Listening Class CD* and *Song CD*. Regarding the error types, in the pre-instructional phase, the subjects were found to have major difficulties in dictating sentences containing contraction and C-V linking; nevertheless, they made significant progress with these two patterns in the post-instructional phase. In contrast, the subjects didn't make progress regarding /h/-deletion and flapping. It's likely that the subjects have previously not been exposed enough to these two connected speech patterns.

Key words: reduced forms, connected speech instruction, word recognition in listening, song lyrics dictation

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解讀縮減音——以英語歌曲作為增進口語詞彙辨識能力之利器²

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摘要

英語學習者的縮減音知識，與運用此知識於口語詞彙辨識之能力，是影響英語能力高低的因素之一。非母語學習者的聽力理解面向包括字彙、句型、文法與內容。口說語言的理解在語言技巧中較具挑戰性，因為學習者必須立即辨識出說話者表達流暢時所省略的音。因此，正確理解與辨識口語詞彙便成了理解口說英語的利器。為完全掌握自然語流的口說英語，ESL/EFL 學習者須具備縮減音基本知識，如子音與子音的連音(C-C linking/elision)、子音與母音的連音(C-V linking)、h 音的省略(/h/-deletion)、顎化音(palatalization)、縮短音(contraction)及拍擊音(flapping)等。透過歌曲學習縮減音被視為合宜的學習方法(Crawford, 2006)。本研究屬於語言實驗，應用於兩班同質之大二英語系學生，通過中高級英檢是這些學生大三的學習目標之一。這兩組學生都做了中級英檢聽力測驗以確定其同質性。實驗組進而接受六堂(240分鐘)的縮減音訓練課程，課程內容為含上述六項縮減音之 *Hit Parade Listening* (Kumai & Timson, 2003, 2010)12 課教材。縮減音之技巧與知識以明確教學的方式傳授，並藉歌詞聽寫練習強化學習成效。本研究所自行開發之前後測，為兩種不同版本但信度相當的聽寫測驗，各含以前述六種縮減音類型為測驗目標之 17 句數位錄音的句子。研究結果顯示接受以 *Hit Parade Listening Class CD* 及 *Song CD* 做為縮減音教材明確教學後之實驗組學生，在辨識口語字彙方面較控制組學生獲得整體顯著改善。至於錯誤類型，在教學前學生之主要縮減音困難為縮短音(contraction)及子音與母音的連音(C-V linking)。施以教學後，這兩類型均有顯著進步。然而，h 音的省略(/h/-deletion)及拍擊音(flapping)卻未見進步；究其原因，可能是學生對該二類型之接觸量不足所致。

關鍵字：縮減音、口語語流教學、聽力理解之口語詞彙辨識、歌詞聽寫

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Introduction

For EFL learners, listening is the most challenging of the four language skills, for the process of reception and decoding demands immediate response to instantaneous intelligibility. Though some teachers believe that listening is the easiest skill to *teach*, most students regard it as the most difficult to *improve* (Fan, 1993). The discrepancy between the learner and the teacher lies in their different roles, one is to *give*, the other to *receive*. Second language acquisition researchers have maintained that enough exposure in the critical period (Krashen, 1982) is the most natural way of learning a foreign language, but the existing reality of English learning in Taiwan does not allow this ideal to benefit all learners. Therefore, the problem of slow or even stagnant improvement in skills of listening comprehension still exists in classes of English majors, who have passed preliminary intermediate GEPT (listening and reading) for admission.

The researchers have found that their students' difficulties in understanding some low-lexical sentences can be ascribed to not knowing where the word boundaries are. Field (2003) pointed out that low-level errors could cause problems in the flow of communication. Poor performances in the bottom-up processes might lead to poor performance in listening comprehension. Research on the issue of reduced forms has indicated that normal speech flows containing simplified patterns such as contraction, elision, deletion, assimilation, and linking can pose challenges to the novice L2 listeners (Field, 2008). In other words, when reduced forms are used in a stream of speech, word boundaries blur and difficulties occur, causing failure of listening comprehension. The key to improving listening comprehension for higher-level EFL learners therefore lies in the learning of reduced forms.

Listening is a complex skill, which involves the listeners' receiving and processing the input. When perceptual accuracy of the input diminishes, the challenge of listening comprehension will increase (Rosa, 2002). The common presence of reduced forms, assimilation, contraction, elision, linking, and deletion are found to significantly affect learners' listening comprehension (Henrichsen, 1984; Ito, 2001, 2006). Furthermore, it is estimated that about 35% of all words produced in natural speech can be reduced (Bowen, 1975, cited in Cahill, 2006). Kuo, Ting, and Pierce (2011) further confirmed in the previous study that the presence of reduced forms was a direct factor affecting the achievement of EFL English majors' listening comprehension. Instruction of reduced forms has thus been advocated as a means to remove the obstacle of improvement.

Previous studies mainly recruited adult learners (Brown & Hilferty, 1986/2006; Carreira, 2008; Crawford, 2006; Fan, 2003; Matsuzawa, 2006; Wang, 2005). Two studies experimented teaching connected speech to children (Chang, 2003; Kuo, 2009), and one most recent study used high-school students as subjects (Kuo, Lu, & Lee, 2010). But

none of them considered EFL English majors as learners who might need to be studied. The present research is a follow-up study, using subjects who were found to have encountered the same problems as those found in the previous research, linking (Kuo, 2009; Wang, 2005), contraction (Matsuzawa, 2006) and /h/- deletion in speech perception (Crawford, 2006) and some high frequency phrases (Carreira, 2006; Matsuzawa, 2006) to receive instruction of reduced forms. In order to enhance subjects' ability, palatalization, elision, C-V linking, and flapping were added to the list of instruction.

The present study aims to observe the effects of applying the knowledge of reduced forms to detect the reduced forms in a speech flow. When English majors are loaded with reading of literature and linguistics, many of the students neglect the training of listening. If the reduced forms are introduced at the juncture where professional knowledge of literature and linguistics can be applied, will students be better equipped with sensors to detect the unheard sounds? To compare the performances with and without the knowledge of reduced forms, an instruction of reduced forms through songs was intervened. The present research will address the following questions:

1. Does the learning of reduced forms through songs help intermediate-level EFL English majors improve their performance of detecting the presence of reduced forms?
2. Does the improvement vary in different connected speech patterns?

Literature Review

English in EFL classrooms tends to be spoken at a slower speech rate or with a mother-tongue accent, and when training learners' listening skills, instructors use materials of properly articulated speech (Rosa, 2002). And EFL students do not have equal exposure to English outside of class the way ESL students do (Crawford, 2006). But real-life English is actually spoken in a fluent speech flow with phonological modifications, also known as reduced forms, which can cause English learners to miscomprehend native speakers (Carreira, 2008). The reality is the use of reduced forms is common in all registers, even in the most formal speech (Brown & Kondo-Brown, 2006). To enhance EFL students' listening comprehension skills, many researchers have focused on the development of top-down skills rather than bottom-up skills (Vandergrift, 2004), without paying sufficient attention to segmentals and suprasegmentals in pronunciation instruction (Celce-Murcia, Brinton, & Goodwin, 2010). Reduced forms, features of suprasegmentals, are also considered vital to successful communication between non-native speakers and native-speakers of English even when the elements of *Lingua Franca Core* are taken into consideration (Jenkins, 2000, 2002). The instruction of reduced forms has thus been discussed (Brown & Hilferty, 1986/2006; Carreira, 2008; Crawford, 2006; Fan, 2003; Matsuzawa, 2006; Wang, 2005) and the findings revealed

that explicit instruction is effective in improving learners' perception of reduced forms.

Instructions of Connected Speech Implemented in EFL Contexts³

Empirical studies conducted in the past decade mostly focused on investigating the effectiveness of connected speech instruction on Japanese EFL students and Taiwanese EFL students. It is likely that English education in these two countries emphasizes more on written-form vocabulary, grammar, and reading comprehension, ignoring listening comprehension. Since Celce-Murcia et al. (2010) claimed that communicative competence should be cultivated, authentic listening input has therefore gained more attention; recently studies have been conducted to improve students' spoken-work recognition.

Connected speech instruction targeting Japanese EFL students

Matsuzawa (2006) adopted seven 30-minute lessons to explicitly teach 20 Japanese business persons 10 reduced forms, without a control group. The analysis of the participants' pretest scores showed that they had difficulty in comprehending reduced forms, especially those involving flapping and contraction. In the post-instructional phase, the participants made significant improvement. In addition, a positive correlation was found between the participants' English proficiency level and their comprehension of reduced forms, but the participants' degree of improvement in perceiving reduced forms wasn't related to their English proficiency level. All the participants consented that the instruction was helpful to their listening comprehension.

Centering on the reduced forms provided in *Whaddaya Say* (Weinstein, 1982), Crawford (2006) randomly assigned 23 Japanese freshmen to an experimental group and 26 to a control group. The experimental group worked on a worksheet for 15 minutes each week for a total of seven weeks. The experimental group showed significantly higher gains than the control group after receiving the instruction. The correct responses in the pretest and the posttest for each item, excluding those that were over 90% correct responses in the pretest, were compared. The results showed that for most of the reductions, gains were over 30%.

Unlike most previous studies which recruited subjects from a single language and cultural background, Carreira (2008) recruited 19 international students, from Asian countries, studying in Japan. Based on the textbook *Hit Parade Listening* (Kumai & Timson, 2003), Carreira investigated the effectiveness of teaching reduced forms by listening and dictating pop songs. The instruction didn't improve the participants' scores of TOEIC listening sections, but it did significantly improve the learners' listening abilities to recognize spoken words. The results of the questionnaire showed that the

³ In the present study "reduced forms" and "connected speech" are used interchangeably when it comes to how sounds are connected in speech.

participants enjoyed learning reduced forms by listening to pop songs.

Connected speech instruction targeting Taiwanese EFL learners

Targeting elementary school students

Two pioneering studies (Chang, 2003; Kuo, 2009) have been conducted to investigate Chinese EFL young learners' acquisition of connected speech modifications. Chang (2003) used a single-group pretest posttest design. Based on the textbook *Whaddaya Say* (Weinstein, 1982), Chang taught 20 sixth graders ten reduced forms including *yer* for *your*, *yers* for *yours*, *fer* for *for*, *a* for *of*, *ya* for *you*, *in* for *ing*, *whaddaya* for *what do you* and *what are you*, *wanna* for *want to*, and *gonna* for *going to*. The participants made significant improvement on their posttest. The results of the questionnaire showed that their self-esteem and motivation of learning reduced forms increased and their misconception of speaking and learning pronunciation decreased.

Unlike previous studies which mostly investigated the effectiveness of connected speech instruction by testing the participants' perception of reduced forms, Kuo (2009) examined the effectiveness of linking instruction on sixth graders' development of producing reduced forms. Two groups of sixth graders were chosen to be the experimental group (N = 33) or the control group (N = 32). The instruction focused on C-V linking, /h/-deletion, C-C linking, and V-V linking. The experimental group received instruction on linking twice a week for 14 weeks. After receiving the instruction, the experimental group significantly improved their speech production and developed phonological awareness. Among the taught categories, V-V linking with a large degree of variance posed more problems to the experimental group.

Targeting freshman students

Fan (2003) recruited two freshman language lab classes and divided them into one high-proficiency group (top 27%) and one low-proficiency group (bottom 27%) based on their English scores of the college entrance exam. Without a control group, the study included two experimental groups receiving instruction. The participants received six-week explicit instruction and listening training on five connected speech patterns including C-V linking, C-C linking, /h/-deletion, assimilation, and flap of /t/. The analysis of their pretest scores showed both groups had problems in C-V linking, /h/-deletion, assimilation, and flap of /t/. After receiving the instruction, both groups made significant improvements in each rule. The analysis of the questionnaire showed that there was a positive correlation between proficiency level and the subjects' confidence in listening comprehension.

Focusing on raising the participants' awareness of reduced forms, Wang (2005) recruited two classes of students enrolled in Freshmen English. Based on movie clips containing connected speech patterns, the experimental group (N = 37) received seven

30-minute explicit rule instruction, while the control group (N = 33) focused on checking listening comprehension using the same materials. The materials covered four types of reduced forms: elision, assimilation, contraction, and linking. Results of descriptive statistics showed that the experimental group gained higher scores than the control group on the cloze posttest. According to the participants' responses to the questionnaire, the experimental group held positive attitude toward the instruction.

Targeting graduate students

Brown and Hilferty (1986/2006) recruited 32 Chinese graduate students of the age around 40. The participants were randomly assigned to the experimental group or the control group. The experimental group received four weeks of daily 10-minute lesson on reduced forms, while the control group received a daily practice of 10 minutes drill in discriminating minimal pairs. The results showed that the experimental group gained significantly higher scores than the control group on the posttest. The four-week instruction had a marked effect on the participants' spoken word recognition.

Chung (2008) proposed a film-based learning system to aid learners' listening comprehension of reduced forms. The system could not only extract the reduced forms in the films but also automatically developed cloze tests based on the extracted materials. Chung recruited 32 graduate students and randomly assigned them to an experimental group or a control group based on their scores of TOEIC to achieve homogeneity. At first, the experimental group (N = 16) and the control group (N = 16) both self-learned the computer assisted materials on reduced forms. In the second section, the experimental group could search the key words in the movie to review specific movie segments related to reduced forms, while the control group could only review predetermined sample sentences stored in the computer. Finally, the experimental group did cloze tests based on the extracted examples of the movies to review the lesson, while the control group just watched the movie again. The results showed that the experimental group didn't surpass the control group on TOEIC listening but gained significantly higher scores on the reduced form cloze posttest than the control group.

In sum, some of the previous studies, though reporting effectiveness of instruction, were conducted without a control group (Carreira, 2008; Fan, 2003; Matsuzawa, 2006). Regarding teaching materials, some used films as teaching materials in Taiwanese EFL context (Chung, 2008; Wang, 2005), and only Carreira (2008) used pop songs in Japanese EFL context. Both films and songs have been shown to be effective materials for instructing connected speech. The subjects in the previous studies have encompassed elementary school students (Chang, 2003; Kuo, 2009), college freshman students (Fan, 2003; Wang, 2005), and even graduate students (Brown & Hilferty, 1986/2006; Chung, 2008), but no study has investigated whether presence of connected speech affects the listening comprehension of English majors with higher English proficiency. Furthermore,

it remained unknown whether instruction of connected speech patterns would improve English majors' word recognition in listening comprehension. In addition, the effectiveness of pop songs has not been examined as useful teaching materials in facilitating connected speech recognition in Taiwanese EFL context. Therefore, the present study recruited sophomore English majors for further investigation of the effectiveness of connected speech instruction. As for the connected speech patterns explored in previous studies, the range of connected speech was not comprehensive; some focused more on linking and /h/-deletion (Fan, 2003; Kuo, 2009), whereas some only limited on reduction and contraction (Chang, 2003; Chung, 2008). The present study thus targeted on six connected speech patterns, which are introduced below.

Types of Connected Speech Patterns

Chrystal (1980) defined connected speech as spoken language in continuous speech which differs from words being produced in isolation. According to Celce-Murcia, et al. (2010) and Brown and Kondo-Brown (2006), the common connected speech patterns found in English include assimilation, elision, contraction, and linking. Pioneering researchers in Taiwan have found that elision, C-V linking, C-C linking, contraction, /h/-deletion, and palatalization are the basic reduced forms causing problems for EFL learners (Fan, 2003; Kuo, 2009; Wang, 2005). On top of these reduced forms, the present study included one more confusing reduced form, flapping, for investigation. The definition of various connected speech patterns is provided as follows.

Elision, also named deletion or omission, refers to the phenomenon that a sound in the citation forms is eliminated in certain environment. Consonant clusters in English tend to undergo elision. When the consonant cluster occurs in the final position of a word and the next word starts with a consonant, the consonant cluster will be modified. For example, /d/ in “blind man” will be deleted.

Contraction is the only connected speech pattern that can be reflected in written forms. Contraction often occurs in function words, such as “am,” “is,” “will,” “have,” and “has.” For example, “I am” can be contracted as “I’m.” Previous studies such as Carreira (2008), Matsuzawa (2006), and Wang (2005) confirmed effectiveness of contraction instruction.

Linking is a process in which the final sound of a word is connected with initial sound of the next word. There are three subcategories in English: C-V linking, C-C linking, and V-V linking. It occurs when a final consonant is followed by an initial vowel. The consonant in the intervocalic position such as “pick up” will be produced as “pi-cup.” Fan (2003) and Kuo (2009) suggested instruction of C-V linking.

/h/-deletion happens when the final consonant of a word is connected with an initial /h/ of the following word. The sound of /h/ tends to disappear. For example, “tell him” will sound like “telim”.

Palatalization refers to the assimilation process, where a word ending with an alveolar consonant /s, z, t, d/ is followed by another word with an initial palatal glide /j/. Sample examples are “miss you”, “as you”, “just yet”, and “did you”.

Flapping is a sound in which the tip of the tongue rapidly flaps against the alveolar ridge in passing to the place of articulation of the succeeding sound (Pennington, 1996). Both voiced and voiceless stops appear on the surface as voiced flaps. For example, “I need a bit of butter.”

To conduct a more comprehensive investigation, the present study included the above six connected speech patterns in the instruction.

Methodology

Participants

The subjects for the present study are two intact classes of sophomore English majors in a university in central Taiwan, whose main courses are literature and linguistics. One group was randomly assigned to be the experimental group receiving explicit connected speech modification instruction, whereas the other group was treated as the control group without receiving connected speech instruction. The two groups were given the GEPT intermediate level listening test to ensure their homogeneity before the treatment. On the GEPT intermediate level listening section, the mean score of the experimental group is 40, while the mean score of the control group is 38.6 (out of the maximal score 45). The independent *t*-test result on the listening scores of the experimental group and the control group shows there is no significant difference ($t = 1.546, p > .05$). Hence, they are homogeneous in terms of their general listening abilities.

Material selection

Celce-Murcia, et. al. (2010) supported the use of songs in teaching reduced forms. They suggested using songs with clearly stressed words and conversational rhythm patterns. To expressively convey the feelings, the moods, and the power, singers tactfully and naturally use reduced forms so that the boundaries of words can be crossed artistically and fluently without leaving traces of choppy expressions. This kind of unforced flow is exactly what a fluent speaker possesses. Since the subjects were majors of English literature and linguistics and songs are considered close to the literary genre of poetry, songs are inspiring materials for learning reduced forms. Students can focus on not only forms but also content. In order to use the subjects' background knowledge to the fullest, the present study thus adopted the materials used by Carreira (2008), songs from *Hit Parade Listening* (Kumai & Timson, 2003, 2010) as the teaching materials. *Hit Parade Listening* selects songs properly demonstrating the use of connected speech. The

connected speech forms covered in the textbook are comprehensive, including contraction, deletion, elision, palatalization, flapping, linking, etc.

Instruments

The pretest and posttest was a self-developed dictation test, which consisted of 17 sentences read in two ways, presence and absence of reduced forms. The reliability coefficient of the pretest and posttest was determined to be .753. The recording was done by a native speaker, who is an experienced instructor of pronunciation in a university. Subjects were required to write down the full form of each word in the spoken sentence they heard. The test paper had blanks in it for the full sentences. Only the words related to reduced forms were scored. In order to prevent the subjects from predicting the answer, the 17 sentences present/absent of reduced forms are randomly mingled in two versions. In other words, there are two versions of dictation test; in each test, there are sentences read with presence and absence of reduced forms. This is to eliminate any kind of anticipation of reduced forms. The two versions of test were taken in the same class period, with an irrelevant activity of the regular course to interfere with the subjects' memory of the 1st version of test. In each version, there were 6 types of reduced forms to be detected. Among the 17 sentences, the scoring was on the percentile basis. To score the test, only the blanks for sentences with presence of reduced forms were counted.

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. In the self-developed cloze test, each question was limited to 9 to 11 syllable chunks limit. Within each question, the gap-filled targeted connected speech patterns took the comprehensive triggering phonetic contexts into consideration. The cloze test aims to measure the participants' lexical segmentation abilities (spoken word recognition). The blanks in each question vary depending on the targeted connected speech patterns. One point will be given when a blank is filled with a correct word. A sample test sentence targeting palatalization is shown as follows. Though the students were required to transcribe the whole sentence, only the two words "praise yourself" were counted.

(If) (you) (*praise*) (*yourself*), (you) (will) (sound) (too) (proud)!

Treatment

The experimental group underwent explicit instruction of reduced forms through songs chosen from *Hit Parade Listening*, from which 12 units were used as the teaching materials. A total time for instruction was 240 minutes, evenly allotted to the 6 targeted connected speech patterns; i.e., 40 minutes were used for the instruction of one connected speech pattern. The regular format of connected-speech learning in each unit follows the pattern of *Sound Check*, *Listening for Language*, *Conversations in Action*, and *Lyrics*. A

sample example is given as follows.

Before the song was played, the class went over reduced form practice designed in the book, *Sound Check*, which familiarized students with the connected speech pattern they were about to learn. And fill-the-blank activities, *Listening for Language* and *Conversations in Action* were done as warm-up activities. *Listening for Language* focuses on words or phrases, and *Conversations in Action* focuses on complete sentences.

Listening for Language

Lisa's very busy. She _____ able to help me today. (won't be)

Conversations in Action

Lucy: Stay here, will you, Jack?

Jack: All right. Where are you going?

Lucy: _____. It _____. (I'm going to the bank) (won't take long)

Jack: I see. _____ for you here. (I'll wait) (p.27)

These exercises allowed students to sharpen their recognition for the connected speech pattern targeted in the unit. Then the song was played to the students, who were required to listen to the meaning of the lyrics, focusing on discerning words which had cross the word boundaries. During the second playing of the song, students filled in the blanks of reduced forms. Between the first and the second playing of the song, the formation of the targeted connected speech form was introduced and instructed to the class.

A passage of lyrics is shown here as an example.

Song: Stand by Me (Ben E. King)

When the _____ has come (night)

And the land is _____ (dark)

And the moon is the only light _____ see (I can)

No, I _____ be afraid (won't)

No, I _____ be afraid (won't)

Just _____ as you stand (as long)

Stand by me.

The scheduled class time for the *Oral Training course* was 2 sessions in a row for one week. The instruction was extended to 6 weeks, excluding pretests and posttests, based on sessions. That is to say, the researcher used part of the class time, for the experiment. The overview of the 6-week instruction design is shown in the appendix. After the instruction sessions were completed, the posttest following the format of the

pretest was administered in both the control and the experimental groups.

Data analysis

Students were required to transcribe the whole sentences in the pretest and posttest, but only the targeted reduced forms (2 words in each test sentence) were scored, 1 point each, making the maximal score 34. Two independent *t*-tests were utilized to answer the first research question; whereas paired-*t* tests were used to answer the second research question.

Results and Discussion

As shown in Table 1, the results of the independent *t*-test on the scores of the pretest showed that there was no significant difference between the experimental group and the control group, $t(67) = 1.772$, $p > .05$. The experimental group and the control group were homogeneous in dictating sentences with connected speech modifications.

Table 1. Independent *t*-test results on the pretest scores between the experimental group and the control group

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
experimental	36	13.5278	4.80170	1.772	.081
control	33	15.4242	4.00804		

Maximal score: 34

The correct-answering rates on the pretest for the experimental and the control groups were respectively 40% and 45% only. This indicates that English majors with intermediate level of GEPT listening proficiency still encountered difficulties recognizing spoken words.

To answer the first research question, “Does the learning of reduced forms through songs help intermediate-level EFL English majors improve their performance of detecting the presence of reduced forms?”, the results of the independent *t*-test on the scores of the posttest show that there is significant difference between the experimental group and the control group, $t(67) = 4.415$, $p < .001$. The experimental group performed significantly better than the control group after receiving the instruction. The results shown in Table 2 indicate that explicit instruction of connected speech forms through songs was a positive measure to assist intermediate-level EFL English majors in Taiwan. And pop songs were shown to be useful teaching materials to strengthen the understanding of reduced forms. This is in line with the finding of Carreira (2008) using pop songs in the Japanese EFL context.

Table 2. Independent *t*-test results on the posttest scores between the experimental group and the control group

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
experimental	36	20.5278	4.43677	4.145	.000*
control	33	16.2424	4.12334		

Maximal score: 34

To answer the second research question, “Does the improvement vary in different connected speech patterns?”, Table 3 shows the descriptive statistics of the experimental group’s correct answering rate among the six targeted connected speech patterns in the pretest and the posttest respectively. As shown in Table 4, the paired *t*-test results of the experimental group's performance between the pretest and posttest among the six types of connected speech patterns revealed that the experimental group made significant improvement on contraction, C-V linking, palatalization, and elision, but not on /h/-deletion and flapping. The results indicate that students’ improvement did vary in different connected speech patterns.

Table 3. Descriptive statistics of the correct answering rate in the pretest and posttest among the six types of connected speech patterns

Type		<i>M</i>	<i>SD</i>
contraction	Pretest	.3000	.36078
	Posttest	.5528	.40767
C-V linking	Pretest	.3688	.36886
	Posttest	.7130	.42375
palatalization	Pretest	.5741	.34732
	Posttest	.8194	.32395
/h/-deletion	Pretest	.4861	.50331
	Posttest	.4583	.50176
elision	Pretest	.4444	.39855
	Posttest	.6111	.44581
flapping	Pretest	.4444	.44844
	Posttest	.5208	.43957

Table 4. Paired *t*-test results on the experimental group's performance in the six types of connected speech patterns

Type	<i>Gain</i>	<i>SD</i>	<i>t</i>	<i>p</i>
contraction	.25277	.51104	6.636	.000*
C-V linking	.34414	.53550	6.679	.000*
palatalization	.24537	.37749	6.755	.000*
/h/-deletion	.02778	.71152	-0.331	.741
elision	.16667	.64459	2.194	.032*
flapping	.07639	.51498	1.259	.212

According to Jenkins (2000), English stress is considered as teachable, but intonation is as learnable. Teachable components can be achieved by concrete instruction during a shorter time. But it takes longer exposure to improve components which are regarded as learnable. Likewise, the researchers considered the connected speech patterns of contraction, C-V linking, palatalization, and elision as teachable components and assumed that /h/-deletion and flapping might be classified as learnable elements. Some prior empirical studies also included flapping and /h/-deletion in their investigation. Fan (2003) and Crawford (2006) taught flapping and /h/-deletion, while Kuo (2009) taught /h/-deletion.

Based on the comparison between the subjects' pretest and posttest performance, Fan (2003) found that her subjects made significant improvement on /h/-deletion, but the subjects still need to work on flapping even after receiving the instruction. Based on descriptive statistics, Crawford (2006) found that the subjects of his study were less familiar with /h/-deletion. According to survey results, the subjects of Kuo's (2009) study impressionistically considered /h/-deletion to be marginally difficult compared with C-V, C-C, and V-V linking. The results of the previous studies and the present study showed that flapping and /h/-deletion posed problems not only to non-English majors but also to English majors. Future studies are suggested to implement different teaching methods or extend the instructional period to improve Chinese EFL learner's connected speech perception regarding flapping and /h/-deletion.

The lack of knowledge and practice of reduced forms can lead to unsatisfactory performance of English listening and speaking, even for English majors with the intermediate GEPT level. Since the subjects for the present study are English majors, who have started to study literature and linguistics in their sophomore year, it would be highly advantageous for instructors of language courses to properly integrate the students' specialized fields of knowledge into the field of English language learning. For this study, the knowledge of phonetics and phonology the students have acquired in linguistics helps them a lot in understanding and applying the knowledge of reduced forms in the dictation

test. What is required of the students is not sufficient exposure to input only; it is more about the ability of analyzing, integration, and deduction. For students whose major is English, fluency is an ideal goal to attain. Knowledge is knowing the facts; wisdom is knowing what to do with the fact. Only when the knowledge of reduced forms is applied to constant practice will the value of the knowledge be revealed and treasured. Only when an English major tactfully applies his/her valuable professional knowledge to the production of good English will he/she possess the signature of an English major.

Conclusion

The present study investigated the effectiveness of learning connected speech through songs for intermediate-level EFL English majors and further determined if the improvement varied in different connected speech patterns. Results indicated that students in the experimental group made significant progress. Based on the compatible results of this study and previous ones, songs are highly recommended to be used in the courses training EFL students to recognize connected speech in a natural speech flow.

Previous studies concerning connected speech have mainly focused on confirming the problems and methods of instruction to improve perception. Studies working on the efficacy of production instruction are still limited, especially in the EFL context. Dauer and Browne (1992) suggested that students can greatly improve their production of English for better intelligibility by different ways like shortening function words, linking words together, authentically pronouncing /t/ and /d/, and pronouncing final consonant groups. Reed and Michaud (2005) also considered linking to be the first and most important sound concept in addition to function word reduction, sound deletion, and sound contraction. For future studies, the researchers, therefore, suggest that efforts be made to compare the effectiveness of instruction focusing on connected speech for more fluent and intelligible production.

Appendix

Instruction Design (a total of 240 minutes for instruction)

Targeted reduced forms	Songs	Time
Contraction	<i>Stand by Me</i> <i>Top of the World</i>	40'
Palatalization	<i>I Don't Want to Miss a Thing</i> <i>Hero</i>	40'
Elision	<i>I Just Called to Say I Love You;</i> <i>Yesterday Once Moe</i>	40'
C-V linking	<i>If We Hold on Together</i> <i>Woman</i>	40'
/h/-deletion	<i>When a Man Loves a Woman</i> <i>Save the Best for the Last</i>	40'
Flapping	<i>Honesty</i> <i>Heal the World</i>	40'

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