The Effectiveness of Explicit Focused-Training Multimedia Program on Features of Connected Speech in Developing Listening Comprehension and Speech Clarity

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ABSTRACT:

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This current study was inspired by the findings of a recently published study by Attia and Salem (2018). In it, 84 % of the participants in the semi-structured interviews across the four grade levels reported that the fear of being ridiculed due to their inaccurate and unintelligible pronunciation of sounds and stream of speech was a central trigger of their speaking apprehension. As such, the study emanates from the supposition that if EFL students are explicitly and systematically trained on features of connected speech, they will perhaps not only be able to receive and comprehend a highly fleeting message, but may also intelligibly produce it. A pre-post design was adopted to assess and compare the effectiveness of explicit-perception-and-production-focused-training on features of connected speech delivered via multimedia versus the traditional approach in developing listening comprehension and speech clarity among EFL majors. An intervention study of 12 weeks' programme was undertaken with 64 second graders of the English Department, Faculty of Education, Al-Azhar University. After 48 hours of instruction on suprasegmental aspects of English pronunciation, there were significant differences in listening attainments and speech clarity between the two groups of the study. The training was shown to have an enhancing effect on developing EFL learners' listening comprehension and speech clarity. The findings also indicated that there is a large effect size at the total level in both listening (.891) and speech clarity (.853) to the effect of the training program. The paper concludes with the theoretical and pedagogical implications of the study.

Keywords: **explicit focused-training, stress and rhythm multimedia program, features of connected speech, suprasegmentals, listening comprehension, speech clarity.**

مستخلص الدراسة:

فعالية التدريب المركّز الصريح على خصائص الكلام المتصل من خلال برنامج الوسائط المتعددة في تنمية الفهم ووضوح الكلام

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نبعت فكرة الدراسة الحالية من نتائج دراسة نُشرت مؤخرًا (عطية وسالم، 2018)، والتي أكدت أن 84 ٪ من المشاركين فيها في المقابلات شبه المفتوحة (Semi-structured) Interviews التي تـم إجرا ؤها علـي طـلاب الفرق الأربـع لشعبة اللغـة الإنجليزيـة بكليـة التربيـة جامعـة الأزهر أن الرهبـة والقلـق والعصبية النابعـة مـن عدم الـتمكن مـن دقـة الأصوات أو جلاء ووضوح الكلام المتصل تعد من أهم الأسباب الرئيسة والمحركة لرهبة التحدث، ومن ثم استهدفت الدراسة الحالية التحقق من صحة افتراض مؤداه أن " تدريب طلاب شعبة اللغة الإنجليزية علي استقبال وإنتاج خصائص اللغة المنطوقة في الحديث اليومي بشكل مباشر وصريح، وقد يتجاوز تحسين مستويات الفهم السمعي، الي انتاج اللغة بصورة واضحة وجلية". استخدمت الدراسة الحالية التصميم التجريبي ذو التطبيقين القبلي والبعدي لبحث فاعلية التدريب المباشر والصريح القائم على الاستقبال والإنتاج لخصائص الخطاب المتصل باستخدام الوسائط المتعددة في مقابل المدخل التقليدي في تنمية وضوح الكلام والفهم الاستماعي لدى طلاب شعبة اللغة الإنجليزية كلغة أجنبية، وقد استمرت المعالجة التجريبية لمدة 12 أسبوعا (48 ساعة)، وبلغت عينة الدراسة 64 طالب بالفرقة الثانية شعبة اللغة الإنجليزية، كلية التربية، جامعة الأزهر، ولقد أشارت نتائج البحث إلى وجود فروق دالة احصائياً في وضوح الكلام ومهارات الاستماع بين مجموعتي الدراسـة، حيث كـان للتدريب الصـريح القـائم علـى الاستقبـال والإنتـاج لـسمات الخطـاب المتصل باستخدام الوسائط المتعددة أثر فعال في تنمية وضوح الكلام ومهارات الاستماع لدى متعلمي اللغة الإنجليزية كلغة أجنبية، ولقد قدمت الدراسة التضمينات والتطبيقات التربوية لنتائج الدراسة.

الكلمـات المفتاحيـة: التـدريب الصـريح القـائم علـى الوسـائط المتعـددة – النبـر والإيقـاع، خصائص الكلام المتصل ، وضوح الكلام، الفهم الاستماعي.

Introduction

This current study was inspired by the findings of a recently published study by *Attia and Salem (2018)* whose driving aim was to explore both the level and potential factors that speaking apprehension can possibly stem from within the classroom as perceived by 150 EFL majoring students. Unfortunately, the results of this study demonstrated that 84 % of the participants in the semi-structured interviews across the four grade levels of a teacher education program reported that the fear of being ridiculed due to *their inaccurate and unintelligible pronunciation of sounds and stream of speech* was one fundamental trigger of their speaking apprehension. This is especially true when we initially know that students, at that context, lack exposure to real, simultaneous spoken English, which is extremely *a messy product* due to the changes occurring in sound and stress patterns in relation to how words interact with those that follow and precede them. As such, foreign language learners may not recognize what they hear and, when speaking, they might speak in a manner so unnatural as to leave the listener staring clueless and unable to follow. What adds insult to injury is that those students do not receive any kind of training on how to go about listening to *natural, simultaneous and connected speech* at both the reception and production level, where words exist as part of a complex ecosystem whose pronunciation changes based upon adjacent words and sounds (Brown & Hilferty, 1986a; Weinstein, 2001, Brown & Kondo-Brown, 2006; Crystal, 2011; Steffensen & Fill, 2014).

It would not surprise the reader, then, that those students' approach to receiving and producing simultaneous spoken English is marred by a poor awareness of how to deal effectively with an aural message whose main distinctive feature is a message of high fleeting nature that has no clear marked word boundaries. This makes more sense when we know that language instructors, themselves, are not confident in their abilities to teach pronunciation in general (Baker, 2011; Foote, Holtby & Derwing, (2012); Fraser, 2000; Macdonald, 2002) and features of simultaneous spoken English in particular (Tench, 1996). L2 instructors of English in particular have cited their insecurities addressing speaking and pronunciation in class, given their "non-nativeness" (Murphy, 2014; Couper, 2016). Therefore, when

teaching pronunciation or listening, if any, they use material which is highly structured with emphatically and clearly articulated and adapted text. As such and after having been patronized and exposed to highly-structured, scripted and adapted English, that mainly focus on words in citation or dictionary form for years, students, according to Ur (1984:10), are going to have a very *rude awakening* when (they try) to understand any simultaneous and natural spoken English or to get engaged in any communicative act with a native speaker of English. Therefore, apprehension, frustration, shock and dismay are some of the oft-quoted feelings when EFL majoring students feel unable to decipher native speech.

The problem would be complicated when the EFL majoring students approach the task in their own way trying to listen to every word which unquestionably leads to students' inability to make use of their limited short-term-memory storage capacity. This, in turn, leads to memory overload which is manifested in students' lack of concentration and therefore the oft-complaint about the high delivery of speech where many words affect each other when trying to put them into phrases and sentences. If this is the case with receiving the language, then it would be, by greater reason, worse when it comes to language production given the fact that *reception feeds production*.

Part of such a problem can be attributed to, in addition to instructors, the fact that learning a foreign language entails a lifelong struggle with comprehension and intelligibility, even at the highest levels of proficiency (Derwing & Munro, 2009; Munro & Derwing, 2015; Fouz-Gonzalez, 2017). From the earliest stages of foreign language learning, EFL students are explicitly and implicitly socialized into a kind of half-truth about language. In fact, practices in the classroom do not reflect the reality of daily language use (Brown, 2017, p. 6). The real world is much more unforgiving. Classrooms, on the other hand, are generally more paced and words are scripted and frequently introduced in isolation or in citation forms (Ur, 1984). Pronunciation in these texts is usually clearer, the utterances are better structured, and the text is generally less "messy" than in simultaneous connected speech. Recognizing the disconnect between authentic packed with features of simultaneous connected speech and pedagogical contexts, researchers and instructors have spent the past 30 years attempting to bridge this gap (Sifakis & Sougari, 2005; Davies, Jindal-Snape, Collier, Digby, Hay, & Howe, 2013; Beckers & Van

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Merriënboer, 2016; Papavlasopoulou, Giannakos, & Jaccheri, 2017; Lai, Shum, & Tian, 2016;Moreno & Mayer, 2007; Moos & Azevedo; Webber & Miller, 2016; Hill, Song, & West, 2009).

Indeed, intelligible pronunciation is perceived as an essential component of communicative competence, which is now widely accepted as the ultimate goal of language teaching (Derwing and Munro, 2005; Jenkins, 2000; Levis, 2005; Isaacs and Trofimovich, 2012). In fact, communicating orally in a second language involves knowledge of at least three elements of that language: Vocabulary (lexicon), Grammar (Syntax), and pronunciation (phonology). Without a minimal competence in all three of these areas, communication cannot even be attempted. An extensive word store and/or perfect grammar cannot even compensate for *incomprehensible and unintelligible pronunciation*; without adequate, accurate and intelligible pronunciation skills, the students' ability to communicate, by and large, is severely limited. Wong (1987) succinctly spells the central role of pronunciation in language learning in general and communication in particular highlighting that even when the non-native speakers' vocabulary and grammar are excellent, if their pronunciation falls below a certain threshold level, they are unable to communicate effectively. Indeed, students with good English pronunciation are likely to be understood even if they make errors in other areas, whereas students with bad pronunciation will not be understood, even if their grammar is perfect. Those students may entirely avoid speaking in English, and, in turn, experience apprehension, social isolation, employment difficulties and limited opportunities for further study (see Morley, 1991; Gilakjani, 2012). In a nutshell, correct pronunciation leads to more efficient communication and consequently better outcomes.

Wong (1993) goes on to propose that the importance of pronunciation is even more distinct when the connection between pronunciation and listening comprehension is considered. This is very much true since one of the essential goals of teaching pronunciation is to enable learners to understand and be understood which are the two main processes in any communicative act (Goodwin, 2001). Indeed, there is an interdependent relationship between listening comprehension and pronunciation: *"if learners cannot hear English well, they are cut off from language … if they cannot be understood easily, they are*

cut off from conversation with native speakers" (Gilbert, 1995, p.1). More precisely, speech production is affected by speech perception. Listening is, to some extent, the flip-side of pronunciation. The extent to which one affects the other cannot be underestimated; one needs to be able to hear phonemic contrast before one can successfully produce it.

Despite the importance of pronunciation in language learning and teaching in general and in oracy skills in particular, it has tended to be *marginalized* for the past three decades, when quite evidently it ought to be an essential aspect within a teaching and learning context (Gilbert, 1995; Setter and Jenkins, 2005; Saito, 2012) for the central role it plays in personal and social lives ((Hedge, 2000, Tench, 1981; Rossiter, 2009; Zielinski, 2007; Field, 2005; Scarcella and Oxford, 1994; Watkins, Rauber & Baptista, 2009; Celce-Murcia,. Brinton, Goodwin, & Griner, 2010). The negligence and absence of pronunciation teaching in EFL classrooms is clearly manifested in how pronunciation is referred to in the relevant literature. Pronunciation is perceived as: *"the Cinderella area of foreign language teaching"* (Kelly, 1969), *"the neglected orphan of second language acquisition studies"* (Deng, Holtby, Howden-Weaver, Nessim, Nicholas, Nickle, Pannekoek, Stephan, & Sun, 2009), *"the poor relation of the English language teaching world"* (Pardo, 2004), *"the lost ring of the chain"* (Moghaddam, Nasiri, Zarea and Sepehrinia, 2012) and *"the underrepresented skill in the (profession research) literature"*. (Deng, Holtby, Howden-Weaver, Nessim, Nicholas, Nickle, K., Pannekoek, Stephan, & Sun, (2009).

In teaching and learning the sound system of a second or foreign language, a basic distinction is often drawn between the study of individual sound differences (i.e., *Segmentals*: the individual sounds that can be broken down in a language, be they consonants or vowels) and the study of larger segments of the system (the *suprasegmentals*: a **speech** feature such as linking, elision, assimilation , **stress** or word juncture that accompanies or is added over consonants and vowels; these features are not limited to single sounds but often extend over syllables, words, or phrases). Pronunciation involves the perception and production of segmentals (sounds), both alone and in the stream of speech, where they undergo a number of modifications and interact with suprasegmental (prosodic) features, particularly stress and intonation. Pronunciation entails both segmental and suprasegmental features, although such different aspects of

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pronunciation are treated in isolation, it is imperative to remember that they all work in combination when we speak and are therefore usually best learnt as an integral part of spoken language (Dalton C. and B. Seidlhofer, 1994; Cauldwell, 2002; Collins B, and I. Mees 2008 ; Trofimovich and Baker, 2006; Setter and Jenkins, 2005.

For nearly two decades, pronunciation resources initially designed using a contrastive analysis approach, focused on L1-L2 segmental differences in single-syllable words. Course books consisted primarily of phonetic symbols, charts and diagrams of place and manner of vowel-consonant articulation and lists of minimal pairs for practice purposes (Roach, 2004; Hewings, 2004). Such resources helped strengthen a conception among researchers, practitioners and teachers concerned with teaching pronunciation. They downgraded the teaching of English pronunciation to the ability of students to accurately and rapidly pronounce discrete sounds (i.e., vowels and consonants) (see Murphy, 1997; Roads, 1999; Dalton & Seidlehofer, 1994). This is, in part, because segmental phonology is easier to define, to identify and therefore to teach (Coniam, 2002). More importantly and according to Tench (1996) instructors are much less confident in discussing suprasegmental features because they are features of *"language in use rather than of language in units (like words)"* (p. 2). For EFL learners, many of them also believe that if they want to have good pronunciation, they just need to work on individual sounds learning (Edwards, 1992; Cenoz & Garcia-Lecumbero, 1999).

Unfortunately, this conception is not true as mastering individual sounds of English, words in citation, does not guarantee that a student pronunciation is intelligible and comprehensible. Experience showed that quite a large number of students, though, having a fairly good command of sounds, still speak English in a way that sounds foreign, choppy, unnatural, unintelligible or sometimes even incomprehensible and hard to be understood. Pronunciation of English entails much more than the ability to receive or produce its individual sounds or words in citation. Suprasegmentals or how sounds are organized in connected speech play a greater role in communication and in the second language classroom than the sounds themselves (Gilbert, 2001; Pennington & Richards, 1986; Dalton and Seidlhofer, 1994;

Cauldwell, 2002; Collins & Mees 2008; Trofimovich and Baker, 2006; Setter & Jenkins, 2005). In principal, the scope of pronunciation is much broader than an inventory and description of sounds, it embraces suprasegmental features of spoken language (involving linking, word stress, sentence stress, rhythm, and connected speech processes, which provide the framework for utterances and direct the listeners' attention to new and important information (Anderson-Hsieh, Johnson, & Koehler, 1992; Setter and Jenkins, 2005).

Suprasegmentals, or features of simultaneous connected speech, was claimed to have the greatest and fastest impact on the intelligibility (Anderson–Hsieh, Johnson, & Koehler, 1992; Munro & Derwing, 1995; Hahn, 2004; Pennington & Ellis, 2000; Tajima, Port, & Dalby, 1997; Derwing & Munro, 2005) and comprehensibility of learners' second language production (McNerney & Mendelsohn, 1992; Anderson-Hsieh and Koehler, 1988; Derwing, Munro and Wiebe, 1998; Chun, 2002; Brown, 2006; Trouvain and Gut, 2007). This is perhaps due to the fact that suprasegmentals may carry more of the overall meaning load than do segmentals, misunderstanding caused by suprasegmentals is apt to be a more serious issue than that caused by segmentals. Students who use incorrect rhythm patterns or who do not connect words together are at best frustrating and demotivating to the native listener. More seriously, if such students use improper intonation contours, they can be perceived as abrupt, or even rude; and if the stress and rhythm patterns are too unfamiliar to listeners, the speakers who produce them may not be understood at all.

Contemporary views maintain that the sounds of a language are crucial, yet not enough for understanding. The stress, rhythm and adjustments in connected speech such as linking, assimilation and elision are major organizing structures that native speakers rely on to process speech. Not only do stress, rhythm and adjustments in connected speech provide structure, but they also direct the listener to the centers of attention in the stream of speech. Because of their major roles in communication, features of connected speech merit greater priority in the teacher education programs than attention to individual sounds. In addition, since students usually have a limited time frame for formal language study, they should work on the features of pronunciation that have the greatest bearing on communicative effectiveness (Morley,

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1999; Celcia-Murcia & et., al., 1996). Therefore, teaching speech from the perspective of suprasegmentals seems indispensable in a Communicative Language Teaching setting. Learning pronunciation should not be limited to finding primary stress and comparing individual vowel and consonant sounds in a given word, as has often been the case with pronunciation learning in the past.

With this in mind, EFL majoring students need to be explicitly taught and trained on how to be able to cope with the features of simultaneous connected speech or what Lass (1984, p. 298) referred to as the *'extremely messy product'*, whereby word boundaries tend to become muddled, sounds connect, they also change, in some instances disappear, and ultimately become complicit in altering rhythmic patterns in relation to how words interact with those that follow and precede them. Such complexity of features of connected speech represents a significant obstacle and a real challenge for the foreign language learners in both understanding native-like speech and in producing clear comprehensible speech. This seems more pervasive when we know that some foreign language learners falsely believe that their struggle with understanding native speech is a question of their limited word store or not knowing enough words nor knowing enough about grammar. The real challenge, however, may lie as much with being able to decipher connected speech as with any other aspect of foreign language competency. Consequently, teaching pronunciation should target helping students to perceive and decode the stream of speech the same way a native speaker of the language would (Brown, 1990: 59-50; Lass, 1984: 296-298) and, second, guiding the learner to produce speech as close to the pronunciation "model" as is desirable.

Recently there has been a growing and immense interest in training students on features of connected speech as a way that has considerable potential for promoting EFL students' comprehension, oral fluency, intelligibility and accuracy among other variables (Chung, 2007; Kuo, 2009; Mohseni, 2011; Melence, 2011; Sardegna, 2011; Afshari and Oroujlou, 2012; Satio, 2013; Papachristou, 2014; Khanbeiki, 2015;). Such a line of research has convincingly demonstrated that it is possible to teach students how to improve their intelligibility, oral fluency and accuracy through explicit instruction on suprasegmental

features (Champagne-Muzar & Schneiderman, 1993; Chela-Flores, 1994; de Bot & Mailfert, 1982; de Bot, 1983; Derwing, et al., 1998; Kendrick, 1997; Kennedy & Trofimovich, 2010; MacDonald, Yule, & Powers, 1994; Muller Levis & Levis, 2012; Perlmutter, 1989; Sardegna, 2009, 2011, 2012; Sardegna & McGregor, 2013).

Indeed, we are living in an everchanging world, where, *Information and Communication Technology* is transforming the face of the world and in particular language learning and teaching as we know it. Information is only a fingertip away, thanks for computers, it is as easy as the touch of a computer button. Computer, and more particularly multimedia, holds considerable potential for exposing students who are far away from English-speaking countries to natural and authentic speech models packed with typical features of connected speech. More importantly, the opportunity to practise is, by no means, limited to the time a teacher is available, and since a computer is infinitely patient, the time on task can be increased. Therefore, computers and multimedia help overcome the limitation of not being immersed in the community of the target language on the part of EFL students. As such, there has recently been a greater focus on suprasegmental aspects in materials produced for students to use on computer platforms, which clearly reflects the importance placed on these features in pronunciation teaching text books.

The recent surge of interest in harnessing computers for teaching suprasegmentals has led to the development of a number of programmes (Kaltenboeck, 2002; Westwood & Kaufmann, 2002; Cauldwell, 2002c; Fraser, 2001a). *Stress and Rhythm, A Multimedia Pronunciation Program*, has been developed by the Sky Software House, with a focus on suprasegmentals to help students improve their ability to receive and speak English accurately and fluently. Having said that, the current study was undertaken to test the supposition that *if EFL students are explicitly trained on features of connected speech, they will perhaps not only be able to receive and comprehend a highly fleeting stretch of speech, but may also intelligibly produce it*. In effect, it sought to compare the effectiveness of explicit-perception-and-production-focused-training on features of connected speech delivered via *Stress and Rhythm: A Multimedia Pronunciation Program* versus the traditional approach in developing listening comprehension and speech clarity among EFL majors.

Context of the study

Students in the English department at the Faculty of Education, Al-Azhar University receive no training in features of connected speech and consequently listening comprehension and speech clarity and intelligibility constitute a challenge for most of them (see Attia, 2002; Attia and Salem, 2018). In Attia and Salem (2018), 84 % of the EFL majors across the four grade levels, who participated in the semi-structured interviews reported that the fear of being ridiculed due to their inaccurate and unintelligible pronunciation of sounds and stream of speech was one central trigger of their speaking apprehension. They voiced that their urgent need was pronunciation teaching with a focus that goes beyond the segmental aspects of the sound system to focus on suprasegmental aspects which might improve the intelligibility of their reception, comprehension and production of English. With this in mind, the current study empirically probes the effectiveness of explicit-perception-and-production-focused-training on features of connected speech on features of connected speech in developing EFL majoring students' listening comprehension and speech clarity.

Statement of the Problem

Most of the English Department Students at the Faculty of Education, Al-Azhar University lack the pronunciation skills needed for teachers of English. The traditional approach of teaching and the course text book that focus mainly on the segmentals proved to be ineffective in terms of failing to provide students with the training necessary for making sense of aural authentic message or producing intelligible and clear speech. In a word, EFL majoring students struggle with listening to and producing stream of speech intelligibly and comprehensibly. They, indeed, are at a loss when hearing even utterances of familiar lexis or grammar in simultaneous spoken discourse. Conversely, they perhaps speak in a manner so choppy or unnatural as to leave the listener staring clueless. Such a state can have detrimental, frustrating, demotivating and amotivating impact on the part of the EFL students especially if they have repeated experiences when communication breaks down because of problems with their English pronunciation. This is, by greater reason, more prevalent and truer for those students who have a

good command of other aspects of language such as vocabulary and grammar.

This problem is perhaps due to the lack of training EFL students on features of connected speech; they lack the needed skills, strategies and tools to cope with the how sounds are organized in connected speech. As such, they are left to sink or swim with an extremely messy product, namely, suprasegmentals of spoken English which has a greater impact not only on students' speech reception but also on the comprehensibility of their language production and oral fluency. EFL majoring students need to be aware of the differences between *citation forms* (i.e., clear pronunciation of a word when stressed or pronounced in isolation, out of context) and the *messy product in simultaneous and natural spoken English* (i.e., contracted, elided, reduced, assimilated, or linked pronunciation that occur between syllables or words) so that they know what to expect when listening to simultaneous stream of speech and can produce it, *not at a native-like style*, but *intelligibly*. Training EFL students on features of connected speech can help them comprehend authentic natural speech by native speakers, let alone knowing how to produce such features makes the students' feel more confident and their speech becomes more comprehensible and natural.

Methodology

Research Design

A pre-post design was adopted to assess and compare the effectiveness of explicit-perception-and- production-focused-training on features of connected speech delivered via multimedia versus the traditional approach in developing listening comprehension and speech clarity among EFL majors. Within pretest–posttest research designs, the effect of a treatment is determined by calculating the difference between the first assessment of the dependent variable (i.e., the pretest) and the second assessment of the dependent variable (i.e., the posttest).

Research Questions
1- What is the effectiveness of explicit reception-production-focused training program on features of connected speech delivered via multimedia versus the tradition approach in developing EFL majors listening comprehension as measured by the listening test?

2- **What is the effectiveness of explicit reception-production-focused training program on features of connected speech delivered via multimedia versus the tradition approach in developing EFL majors speech clarity as measured by the speaking test?**

Hypotheses of the Study

The study mainly sought to test the following null hypotheses:

1. **There will be no statistically significant difference at 0.05 level between the mean scores of the experimental group (received the training on features of connected speech via the multimedia program) and those of the control group (those who received no training and left to their own approach) in *listening comprehension before* and after the treatment as measured by the listening comprehension test.**

2. **There will be no statistically significant difference at 0.05 level between the mean scores of the experimental group (received the training on features of connected speech via the multimedia program) and those of the control group (those who received no training and left to their own approach) in *speech clarity before* and after the treatment as measured by the speaking test.**

Participants

The investigation reported in the current study was carried out with 64 second graders of the English Department, Faculty of Education, Al-Azhar University, Cairo. They were randomly assigned into two groups; the experimental group students (no. 32) - who received the explicit- focused-reception-and production-training in features of connected speech delivered via multimedia and the control group students (no. 32) – who were left to use their own approach be it whatever. All the 64 students were native male speakers of Arabic language. In their first year of college, all students completed a course in phonetics which mainly focused on segmental aspects of pronunciation (e.g., organs of speech, consonants and vowels, place of articulation and manner of articulation). Even after one year of instruction on sound articulation, most students were poor in articulation at the beginning of the second year. More importantly, most students

were poor in oral English and speaking at the beginning of the second-year phonetics course classes. Their actual level of English proficiency would be best characterized as ranging from beginner high to intermediate low, as estimated by observations.

Instruments

Two instruments were used to collect data in the current study, namely, 1) the Listening Test and 2) the Speaking Test. Below is a detailed description of the instruments

1. The Listening Test

The listening test was a 60-item test with *seven subtests*:

1. "*The sentence-stress-listening subtest* items consisted of 10 items, where students were asked to listen to ten sentences and underline the words, they think are most stressed".

2. "*The contrastive-shifting-stress listening subtest* items, comprised 10 items, where students are asked to listen to dialogues and asked to show how the stressed words move in the dialogue. to demonstrate new information".

3. "*The making sounds weaker subtest* items included 5 items, where students are asked to listen to 5 sentences and circle the schwa sound they hear".

4. "*The deemphasizing with contraction and reduction listening subtest* items, covered 5 items, where students are asked to listen to 5 sentences twice and write the missing words in the blank.

5. "*The linking of words together subtest* items encompassed 10 items, where students are asked to listen to 10 expressions and asked to put the phrases or sentences into one of four columns, *linking consonant to vowel, linking ee (y) sounds, linking oo (w) sounds* or *linking r*".

6." *The making sounds disappear subtest* items involved 10 items, where the students are asked to listen to 10 phrases or sentences that have words ending in /d/ or /t/ sounds or two identical consonants. elision focus identification"

7. "*The thought groups subtest* items contained 10 items, where students are asked to hear sentences, and identify (1)

the most likely thought group boundaries and (2) the focus word in each thought group.

2. The Speaking Test

The speaking test, in the current study was based on Gilbert's Clear Speech speaking test (1993). It consisted of two parts:

1. One part was a dialogue that students read aloud onto a tape for the teacher to rate. The dialogue contained 22 lines comprising a conversation between an airline reservation agent and a customer. One student was to read for the parts of both characters aloud (Gilbert. 1993:62).

2. The second part of the speaking test was a photocopiable four-page form in the teacher's manual that listed possible speaking errors students could make on the dialogue, broken down into eight categories: *number of syllables*; *sounds*; *linking*; *reduced vowels*; *reduced words*; *stressed syllables*; *emphasizing words* and *question intonation*.

Teachers while listening to students' tapes, were advised to indicate which words students had failed to say correctly. All the eight categories of the speaking test analysis, with the exception of the question intonation were used for the purpose of analyzing the recorded data.

Treatment Material

The students in the experimental group received explicit-focused-reception-and-production training on features of connected speech delivered via the interactive multimedia program *Stress and Rhythm: A Multimedia Pronunciation Program*, a program developed by the Sky Software. All classroom instruction was based on it.

This interactive program, containing over 600 sound items, introduces learners to the features of connected speech including: the rules governing sentence stress, weak forms, linking, elision, assimilation and contraction. The program takes the form of a step-by-stop tutorial with test-as-you-learn features and *extensive practice in the focus areas*. It also contains a *recording tool*, which

allows learners to record their voices and they can listen back by clicking on a button. It also contains a *back-chaining facility*, which is a valuable method of practicing spoken language. The learner hears sentences cut up into chunks, starting at the end of the sentence and building towards the beginning of the sentence. The learner may also choose to see the text as they practice repeating through back-chaining. This technique is used extensively throughout the program. The program is based on Received Pronunciation (RP) accent and utilizes *nursery rhymes*. The program provides extended samples of natural speech, presenting phonological features within authentic communicative contexts. Below is the main menu page of the program, from which learners may access the different parts of the program.

Below is the main menu, from which EFL majoring students may access the different parts of the program. The screenshots shown below for *Stress and Rhythm* only represent a tiny proportion of the program itself, which has 75 pages. The interactive multimedia programs, as it is clear from the figure below, gives the participant the choice to work through the program step- by- step in the sequence and scope proposed by the developer or to select an area of interest to work through. It might be worth mentioning, at the onset, that the step-by-step- scope proposed by the developer was followed as it makes sense. The program was designed to assist the learner to identify, understand the importance of, and be able to produce the suprasegmental features of spoken English.

The program is developed, as shown above, in the form of 6 building units that target the articulatory phenomenon in which words are not pronounced in isolation but run together. Basic rules of stress are the title of the first unit which covers issues such as stressed-timed languages, content and function words, strong and weak forms, primary and secondary stress, basic rules of stress, making sounds weaker, moving stress, shifting stress and contrastive stress.

The Effectiveness of Explicit Focused-Training Multimedia Program on Features of
Connected Speech in Developing Listening Comprehension and Speech Clarity
Dr. Attia Essayed Attia

Figure 1: Main menu for stress and rhythm program
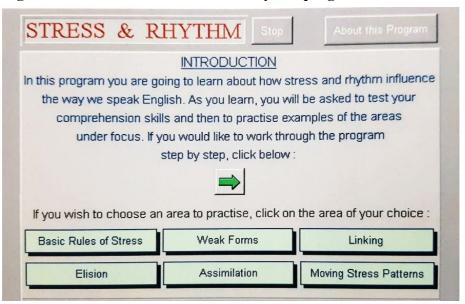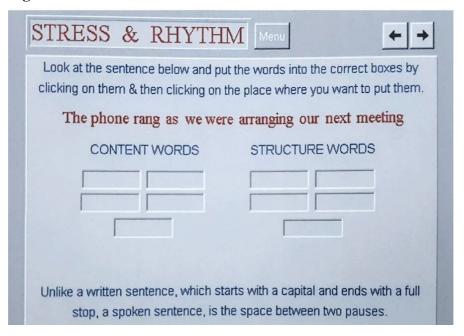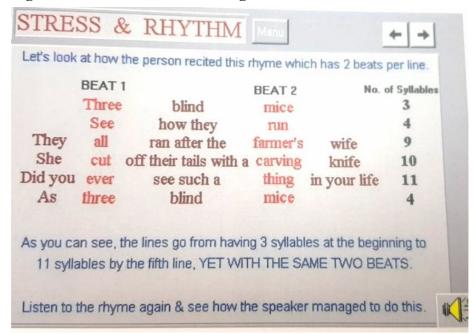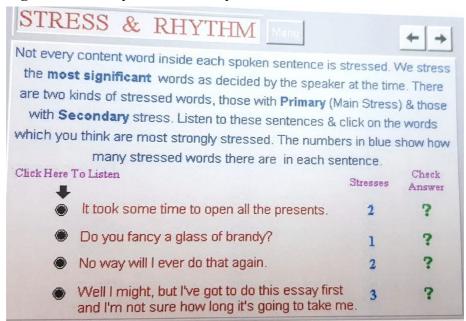

Figure 2: Basic rules of stress

In effect the program helps the EFL majoring students to recognize, and to appreciate what a stressed-time language entails by highlighting a number of basic concepts such as the rules governing sentence stress, weak forms and shifting/corrective/moving/contrastive stress.

Figure 3: Weak forms and shifting

In addition, it gives the opportunity to practise producing such features in a supportive and motivating environment. Here the learner is able to see how a regular rhythm is achieved by listening to the *nursery rhyme* Three Blind Mice. The learner is then made aware of the fact that there are only two beats (stresses) in each line even though the lines lengthen, and is thereby introduced to the concept of compressing unstressed words.
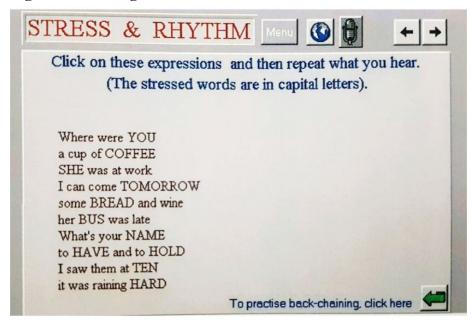
Figure 4: Primary and secondary sentence stress

The figure above is a typical page from the program. The learner has just learnt about content and structure words and has been tested on them. This page introduces the learner to primary and secondary sentence stress. The following pages give more practice in locating stressed words in sentences.

The page below forms a template, which is extensively repeated throughout the *Stress and Rhythm Program*. It gives the students practice in listening to sentences/phrases, seeing the target subject focused (here it is weak forms), recording and comparing with the models and two kinds of back-chaining repetition drills. See next screenshot. By clicking on the Globe at the top, the learner can hear all the sentences one-by-one with enough space in between for him to repeat what has been said. Back-chaining is a valuable method of practising spoken language. The learner hears sentences cut up into chunks, starting at the end of the sentence and building towards the beginning of the sentence. You may also choose to see the text as you practise repeating through back-chaining. This template is used extensively throughout the program. This then leads on to the second area of connected speech; linking.
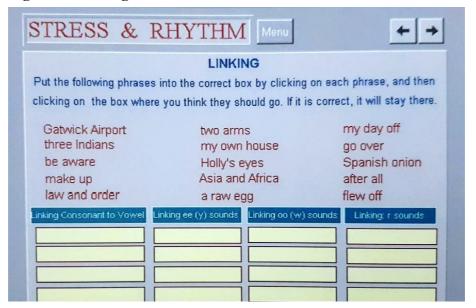
Figure 5: Locating stressed words in sentences

> STRESS & RHYTHM Menu
>
> Click on these expressions and then repeat what you hear.
> (The stressed words are in capital letters).
>
> Where were YOU
> a cup of COFFEE
> SHE was at work
> I can come TOMORROW
> some BREAD and wine
> her BUS was late
> What's your NAME
> to HAVE and to HOLD
> I saw them at TEN
> it was raining HARD
>
> To practise back-chaining, click here

When speaking at a natural, simultaneous speech, words tend to link together in some way. *LINKING*, which refers to connecting of the final sound of a word or syllable to the initial sound of the next, is the target of the second unit (Figure below). Linking occurs between vowels and vowels (e.g., blue ink, two apples and three ants), Consonant and vowel (e.g., great art, stand up and five apples) and linking -r (far away, the door is open and the car is mine).
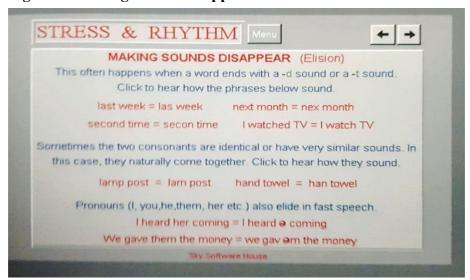
The figure below comes near the end of the *LINKING* section in the *Stress and Rhythm Program*. The EFL majoring student has learnt about the different kinds of linking (vowel to vowel, vowel to consonant and the linking R) and is here tested on his knowledge by having to move the items into the correct column.

Figure 6: Linking exercises

Elision or making sounds disappear, often happens when a word ends with a -*d* or a -*t* sound was the theme of the third unit

Figure 7: Making sounds disappear

Stress and Rhythm finishes with a set of repetition practice activities centering *on nursery rhymes*, *poems* and *limericks*. Here the learner listens and repeats the poem, which is cut up into easy-to-say chunks.

Procedure

All 64 participants of the current study were administered the listening and speaking tests at the beginning and again at the end of the experiment. For the speaking pre-test, the student recorded the dialogue using the Microsoft Windows built-in-sound recorder. For the post-test, he recorded the dialogue onto the other side of the same tape. Each sound record was then assigned two numerical codes, one for the pre and one for the post. The researcher, thus, did not know which voice record he was rating (pretest/posttest), nor did he know the names of the students. Each sound record passage was rated in random order. Items on the speaking test rating form that students were thought to say correctly, were given a"1" score and items that were thought to say incorrectly were given a "0" score; a dichotomous scale. It might be worth mentioning at this point that the researcher did not resort to the interval scale (i.e., 0 = inappropriate, 1 = somewhat appropriate, 2 = appropriate) for it was too problematic and demanding to judge students' utterances. It is impossible to specify the difference between "somewhat appropriate" and "appropriate" with any degree of consistency within and across samples. More importantly, it was extremely difficult to rate students' pronunciation on multiple points embedded within continuous speech using an interval scale.

The reliability was checked using inter-coder and intra-coder reliability. Inter-coder reliability is the average agreement between the external coder (a PhD student) and the researcher himself, whereas, the intra-coder reliability refers to the level of agreement between analyses of the same data by the researcher himself, in two different occasions (Hatch and Lazaraton, 1991:534); the researcher rated all of the recordings again after 2 months, again in random order. To calculate the inter-coder and intra-coder reliability coefficient, the formula provided by Young, 1996) was used. Applying the formula of the intra-coder reliability, it was found to be 0.91. With regard to the inter-coder reliability the overall consistency between the two coders was 0.88. Therefore, the intra-coder and inter-coder reliability were sought to be satisfactory.

Data Analysis

The study used *t-test* for independent samples to find the differences between the mean scores of both groups, the experimental and the control in listening and speech clarity. Furthermore, since the researcher was interested in uncovering how much variance in the dependent variables (listening and speech clarity) was a result of the independent variable (the program), Eta squared (η^2), was used to compute the effect size. The upcoming section is devoted to sketching the results of the analysis of the data obtained.

Findings

The driving aim of the current study was to investigate the effectiveness of explicit focused reception-and-production-training program on features of connected speech delivered via multimedia in developing listening comprehension and speech clarity among EFL majoring students at the Faculty of Education, Al-Azhar University. Before starting the intervention and to verify the homogeneity of the study groups in general and in listening and speech clarity in particular (Table 1 and 2 respectively), the difference between the mean scores of the pre-tests of the two groups was computed using *t*-test for two independent samples.

Table 1:

Results of t-test analysis for the pre-test of listening comprehension for the two study groups (Training Program versus Prevalent Approach) (df=58)

Listening Subset	Group	N	Mean	Std. Deviation	t	DF	Sig
The sentence-stress-listening subtest	Exp.	32	3.0625	1.13415	1.81	62	0.74
	Cont.	32	2.6250	.75134			
The contrastive-shifting-stress listening subtest	Exp.	32	1.9688	.82244	0.433	62	0.659
	Cont.	32	1.8750	.87067			
The making sounds weaker listening subtest	Exp.	32	1.8125	.64446	0.928	62	0.357
	Cont.	32	1.6563	.70066			
The contraction and reduction listening subtest	Exp.	32	1.8750	.70711	1.41	62	0.167
	Cont.	32	1.6250	.70711			
The linking of words together listening subtest	Exp.	32	1.5938	.66524	0.361	62	0.719
	Cont.	32	1.5313	.71772			
The making sounds disappear listening subtest	Exp.	32	1.3125	.69270	0.169	62	0.867
	Cont.	32	1.3438	.78738			
The thought groups subtest	Exp.	32	1.1875	.39656	1.331	62	0.188
	Cont.	32	1.0625	.35355			
Total	Exp.	32	12.8125	2.76426	1.618	62	0.111
	Cont.	32	11.7188	2.64251			

The results of the two groups, as shown in table 1 above, showed not to be significantly different at 0.05 level, which means that the two groups have started in listening comprehension at

almost the same level and any change in EFL majoring students' listening comprehension could be attributed to the intervention.

Table 2:

Results of t-test analysis for the pre-test of speech clarity for the two study groups (Training Program versus Prevalent Approach) (df=58)

Speech Clarity subtest	Groups	N	Mean	Std. Deviation	t	DF	Sig.
Read-Aloud Pre	Exp.	32	7.0313	1.12119	0.613	62	0.542
	Cont.	32	6.8750	.90696			
Speaking Errors Pre	Exp.	32	7.0313	1.14960	1.36	62	0.177
	Cont.	32	7.4063	1.04293			
Total pre	Exp.	32	14.0625	1.34254	0.644	62	0.522
	Cont.	32	14.2813	1.37335			

Again, the results of the two groups, as shown in table 2 above, showed not to be significantly different at 0.05 level, which means that the two groups have started, in speech clarity, at almost the same level and any change in EFL majoring students' speech clarity could be attributed to the intervention.

Treatment effect

Effects of Focused Reception-Production Training versus Ttraditional Prevalent Approach on Listening Comprehension

An independent sample *t*-test was conducted to determine whether there were differences in the scores of the two groups in terms of listening comprehension. Put simply, *t* test was carried out compare the effect of the focused reception-production training program delivered via multimedia versus the traditional prevalent approach on listening comprehension (table 3 below).

Table 3:

Results of t-test analysis for the post-test of listening comprehension based on the teaching approach (Focused Reception-Production Training versus Traditional Prevalent Approach) (df=62)

Listening Subset	Group	N	Mean	Std. Deviation	*t*	DF	Sig.	(η 2)
The sentence-stress-listening subtest	Exp.	32	7.3438	1.06587	15.417	62	0.00	.793
	Cont.	32	3.1875	1.09065				
The contrastive-shifting stress listening subtest	Exp.	32	6.3125	1.35450	14.185	62	0.00	.764
	Cont.	32	2.4688	.71772				
The making sounds weaker listening subtest	Exp.	32	6.1250	1.28891	12.998	62	0.00	.732
	Cont.	32	2.5938	.83702				
The contraction and reduction listening subtest	Exp.	32	6.3125	1.35450	11.547	62	0.00	.683
	Cont.	32	2.9375	.94826				
The linking of words together listening subtest	Exp.	32	5.6563	1.35859	10.081	62	0.00	.621
	Cont.	32	2.7813	.87009				
The making sounds disappear listening subtest	Exp.	32	5.8125	1.25563	9.309	62	0.00	.583
	Cont.	32	3.2813	.88843				
The thought groups subtest	Exp.	32	5.8125	1.25563	12.814	62	0.00	.726
	Cont.	32	2.5938	.66524				
Total	Exp.	32	43.3750	5.44622	22.493	62	0.00	.891
	Cont.	32	19.8438	2.31558				

The results of the *t*-test, table 3 above, demonstrated that there was a statistically significant difference at both the sub-levels and the total level of the subtests of listening comprehension between the mean score of the experimental group (*M = 43.37, SD = 5.44*) and those of the control group (M =19.84, SD = 2.31); t (62) = 22.49, p = 0.00 in favor of the highest mean scores, that is

the training program. This means that different treatment used in the two study groups (experimental vs control) do have different effects on the overall listening comprehension. Put simply, the focused reception-production training program delivered via multimedia was more effective than the traditional prevalent approach in enhancing EFL majoring students' overall listening comprehension.

Furthermore, Eta squared (η^2), was used to compute the effect size at the total, overall listening comprehension to uncover how much variance in listening was a result of the program. Table 4 above indicates that the is a large effect size at the total level (.891) to the effect of focused reception-production training program delivered via multimedia on listening comprehension. This means that the first null hypothesis of the study, H01, stating: *"there will be no statistically significant difference at 0.05 level between the mean scores of the experimental group (received the training on features of connected speech via the multimedia program) and those of the control group (those who received no training and left to their own approach) in listening comprehension before and after the treatment as measured by the listening comprehension test"* was rejected and in effect, the change in EFL majoring students' listening attainment on the listening test can be, by large attributed to the effect of the multimedia training program in features of connected speech

Effects of Focused Reception-Production Training versus Ttraditional Prevalent Approach on Speech Clarity

An independent sample *t*-test was conducted to determine whether there were differences in the scores of the two groups in terms of speech clarity. Put simply, *t* test was carried out compare the effect of the focused reception-production training program delivered via multimedia versus the traditional prevalent approach on speech clarity (table 4 below).

The results of the *t*-test, table 4 below, demonstrated that there was a statistically significant difference at both the sub-levels of the speaking test, read-aloud and speaking errors, and the total level of the subtests between the total mean score of the experimental group (*M = 30.53, SD = 3.25*) and those of the control group (*M = 18.78, SD = 1.28; t (62) = 18.99, p = 0.00*) in favor of the highest mean scores, that is the training program.

This means that different treatment used in the two study groups (experimental vs control) do have different effects on the overall speech clarity as measured by the speaking test. Put simply, the focused reception-production training program delivered via multimedia was more effective than the traditional prevalent approach in enhancing EFL majoring students' overall speech clarity.

Table 4:

Results of t-test analysis for the post-test of speech clarity based on the teaching approach (Focused Reception-Production Training versus Traditional Prevalent Approach) (df=62)

Speaking Subtests	Group	N	Mean	Std. Deviation	t	DF	Sig.	(η 2)
Read-aloud	Exp. l	32	14.3438	1.78902	16.15	62	0.00	.808
	Cont.	32	8.2813	1.14256				
Speaking Errors	Exp. l	32	16.1875	2.65716	11.007	62	0.00	.661
	Cont.	32	10.5000	1.21814				
Total	Exp. l	32	30.5313	3.25264	18.99	62	0.00	.853
	Cont.	32	18.7813	1.28852				

Furthermore, Eta squared ($η^2$), was used to compute the effect size at the total, overall speech clarity to uncover how much variance in listening was a result of the program. Table 5 above also indicates that the is a large effect size at the total level (.853) to the effect of focused reception-production training program delivered via multimedia on speech clarity. This means that the null hypothesis, H02, stating: *"There will be no statistically significant difference at 0.05 level between the mean scores of the experimental group (received the training on features of connected speech via the multimedia program) and those of the control group (those who received no training and left to their own approach) in speech clarity before and after the treatment as measured by the speaking test"* was rejected and in effect, the change in EFL majoring students' speech clarity attainment on the speaking test

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can be, by large attributed to the effect of the multimedia training program in features of connected speech

DISCUSSION

The related literature made it clear that, perhaps more than any other features of English pronunciation, connected speech posits a real and significant challenge to intelligibility, both the intelligibility of native speech for non-native listeners and the intelligibility of non-native speech for native listeners. In natural, simultaneous spoken language, frustrating misunderstandings in communication may arise because native-speakers do not pronounce English the way foreign language learners are taught in the classroom. Foreign language learners' inability to decipher streams of speech comes from the fact that they develop their listening skills based on the scripted and adapted English speaking style they experience in the EFL classrooms. More importantly, EFL learners are often unaware of the difference between citation and dictionary forms and messy products in connected speech, in which, one word runs into the next seamlessly; there are no little silence between spoken words the way there are white spaces between written words.

With this in mind and to remind the reader, the current study sought to test the supposition that *"if EFL majoring students are explicitly trained on features of connected speech via a multimedia platform, they will perhaps not only be able to receive and comprehend a highly fleeting stretch of speech, but may also intelligibly produce it"*. Findings of the study demonstrated that the explicit-perception-and–production-focused training on features of connected speech delivered via multimedia, incorporating extensive practice at both receptive and productive levels to ensure that the listening comprehension and speaking skills become habitual, effortless and automated, *led* to measurable improvements in students' listening and speech clarity as measured by the listening and speaking tests. In effect, the study has shown that that the experimental group students, who received the explicit-focused-reception-and-perception training on features of connected speech delivered via multimedia, outperformed those in the control group, who were left to their own approaches, and made significant gains in intelligible listening and clarity of speech after the instruction of connected

speech using *Stress and Rhythm Multimedia* for 48 hours over 12 weeks. Furthermore, the results of the study indicated that there is a large effect size at the total level in both listening (.891) and speech clarity (.853) which mean the variance in listening and speech clarity can, by and large, be attributed to the intervention; *the explicit-focused-reception-and-perception training on features of connected speech delivered via Stress and Rhythm Multimedia.*

Several interpretations could be given for the superiority of the explicit focused reception-and-perception training on features of connected speech delivered via multimedia over the traditional prevalent approach. An interpretation may lie in the delivery mode of the program; the fact that the training program was delivered via a multimedia platform might have attended to the students' needs and interests. The EFL Majoring students who participated in the current study students belong to generation 'Z', who are by default visual learners and are addicted to screens and smart-e-devices. Those students do not know a time before the computer and the internet, which has implications for schools, colleges and families. Having delivered the program via computer helped students maintain their level of motivation, a pre-requisite for any success or achievement.

Closely related is the multimedia interactive program itself, *Stress and Rhythm*, which takes the form of step-by-step tutorial with test-as-you-learn features and extensive practice in the focus areas. This program applied the principles of the skill acquisition theory and went through the three phases of a skill acquisition, *cognitive, associative* and *automaticity*. As such, the design of the multimedia program provided the EFL majoring students with opportunities to *know* about the skill (presentation stage), *practice* extensively at both receptive and productive levels, which was aided by the recording tool that allowed students to record their voices and listen back by clicking on the ear button, to a level where the focus area or skill became *habitual* and *automatic*. More importantly, the *back-chaining facility* in the program, which is a valuable method of practising spoken language. The EFL majoring students would hear sentences cut up into chucks, starting t the end of the sentence and building towards the beginning of a sentence. In addition, the students can use the shadowing facility, which is used extensively through the program as it enables them to see the text as they practice repeating through back chaining. Finally, the nursery rhymes used through the program provided extended samples of natural speech, presenting phonological features within authentic

communicative contexts and served as mnemonics that helped students receive and produce the features intelligibly.

In short, one of our responsibilities as teacher preparation programs educators is to make teachers aware of the existence of connected speech and the problems it causes learners if not made aware of. It is really unfair to expect learners to comprehend listening materials without directing their attention to connected speech. As such, we should equip prospective teachers with the knowledge, tools and skills that will enable them to help learners recognize connected speech and offer practice to help them grow accustomed to recognizing connected speech when it occurs, particularly for EFL learners.

Furthermore, there is a need on the part of curriculum and material developers to further develop resources for teaching features of connected speech using a multimedia as a platform. there is also an urgent need for teaching education/training programs to address the gap in teaching features of connected speech and how to integrate them with teaching oracy skills. Lastly, there is a need to encourage more collaborations between software developers and educational technology specialists and language researchers and instructors for the benefit of EFL students. Multimedia was shown to be effective in enhancing learners' listening comprehension and speech clarity as it is motivating, by default, and creates a relaxed and enjoyable learning environment atmosphere.

Conclusion

Given the data in the current study and the instruments used to evaluate it, it would appear that after 12 weeks, 48 hours of reception-production focused training program delivered via multimedia on features of connected speech, the EFL majoring students' listening comprehension and speech clarity were improved. with this in mind, teaching features of connected speech should be an inevitable component in EFL teacher education programs. Prospective teachers of English should be explicitly and systematically taught what is happening in natural, simultaneous spoken English which might improve their reception and production of English and lessen their level of apprehension and frustration when not being able to figure out what is said by native speakers.

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