Speech and Articulation Rates of Speaking Fluency by Yemeni EFL Learners

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Abstract

This paper aims at investigating the speech and articulation rates in the speech of the Yemeni learners of English. Previous studies on speaking fluency show that there is a relationship between speech and articulation rates on one side and speaking fluency on the other; the higher the rates, the higher the fluency level (Jong & Perfetti, 2011; Kormos & Denes, 2004; Cucchiarini, et al., 2002; Riggenbach, 1991). This study was conducted at the English Language Department, Faculty of Education, Taiz University on twenty EFL learners attending the fourth year. The participants were recorded narrating the events of a short silent video immediately after watching it. Data were analyzed quantitatively. The findings showed that the learners' speech contains slow speech and articulation rates. The study recommends that the EFL teachers should intentionally give more practice on speeding in order to remove the long silent pauses and, on the other hand, the teachers should draw the learners' attention to lessen their long silent pauses and therefore improve their speech and articulation rates.

Introduction

In their language learning journey, L2 learners face difficulties in mastering the language. The difficulties of speaking a language other than the mother tongue can be summarized into four main difficulties; namely, inhibition, nothing to say, low or uneven participation and mother-tongue use (Ur, 1996). Inhibition refers to the students being afraid of making mistakes. Fearing criticism and being shy also inhibit the learners to speak the second or foreign language. This is a factor that affects speaking fluency, that is, when the learners are afraid of mistakes, they are probably more hesitant. Consequently, they speak with more pauses, and repairs become their main focus. The second difficulty, named by Ur as *nothing to say*, is related to motivation which is the motive behind speaking and participating in a speaking activity. The third difficulty, *low or uneven participation*, is related to the context where the learners have fewer chances to speak when being in large classes. Some learners get no chance to speak due to the tendency of some other learners to dominate, while others speak very little or not at all. The last difficulty is the use of the mother-tongue. Learners who share the same mother-tongue tend to use it because it is easier and because learners feel no need to use the learned language as long as they can communicate their messages in their mother tongue. In fact, all the above mentioned difficulties are possibly found in most EFL classes and in the learning context of EFL at Yemeni Universities.

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According to Bashir et al. (2011), many language learners consider the speaking ability as the measure of knowing the language being learned. Learners pay much more attention to the speaking skill and consider success in spoken communication as the measure of their accomplishment of studying that language. This is also emphasised by Khan (2010, p.23) who states that "learners of English as a foreign language are often more preoccupied with improving their speaking skills than any other language skills."

One of the models that deal with speech planning and production is the speech production model of Levelt (1989). According to Levelt's (1989) model of speech, speech is composed out of three processing components, a conceptualizer, a formulator, and an articulator. The conceptualizer is responsible for conceptualizing the message, i.e., generating the ideas or the content of the message. This is called by Levelt as Phase One. The formulator is responsible for formulating the language presentation, i.e., giving grammatical and phonological shape to the messages. This stage is called Phase Two. The third phase is called the articulator which is responsible for articulating the language, i.e., executing the message. To put it differently, it can be said that before the production of speech, the message to be communicated passes through those three successive processes. Tatham and Morton (2006) present a model of speech production that is similar to Levelt's (1989) model with a change in the terms. Their speech model includes the physical level of speech production as well as the cognitive level. They maintain that there are two plans of speech production: the static level, which refers to the knowledge base of language, where utterance plans are made, named as conceptualizer in Levelt's (1989) model, and the dynamic level, which is procedural and deals with performing of utterances. The dynamic level can be seen as the articulator phase of Levelt's (1989) model.

The term *fluency* is frequently used to describe oral language performance especially while referring to speakers of foreign and second languages, yet it is often unclearly defined. Speech rate is regarded as the best predictor in measuring speaking fluency Cucchiarini et al. (2002). In this paper, fluency is approached in terms of speech and articulation rates. Speech rate is the total number of syllables produced in a given speech sample divided by the amount of total time required to produce the speech sample in seconds, including pause time, then multiplied by sixty (Kormos and Denes, 2004). Articulation Rate is the total number of syllables produced in a given speech sample divided by the amount of time taken to produce them in seconds ,excluding pause time, then multiplied by sixty (Kormos and Denes, 2004).

Accuracy vs. Fluency

Accuracy and fluency are two important aspects of using a language either in speaking or in writing, though the term fluency is mostly attached to speaking more than to other language skills. According to Alanisi (2012, p. 56) accuracy refers to "how correct learners' use of the language system is, including their use of grammar, pronunciation and vocabulary", while fluency refers to "how well learners communicate meaning rather than how many mistakes they make in grammar, pronunciation and vocabulary". Accuracy refers to the correct use of language in terms of grammar, vocabulary and pronunciation. According to Nunan (2003, p.10) "Fluency is the extent to which speakers use the

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target language quickly and confidently with few hesitations or unnatural pauses, false starts, word searches".

Factors Affecting L2 Fluency

Coming back to Levelt's (1989) model of speaking, Bosker (2014) mentions that disfluency arises form the difficulties in one or all the three processes of language production of Levelt's (1989) model. That is, a speaker might have a problem in finding out what to say, Phase One of Levelt's (1989) model, in choosing the right codes or structures to encode his ideas into language, Phase Two, or in executing the phonetic material, the articulation phase. Studies on native and non-native speech state that both L1 and L2 speakers are equal in encountering problems with the first stage of the cognitive processes of speech production. The reason, as stated by De Bot, (1992), is that some of the processes involved in the conceptualization phase are non-linguistic. Another difficulty which is related to L2 learners is assigning particular structure to the conceptualized message, (Segalowitz, 2010). Such language related difficulty is caused by two possible sources as stated by Bosker (2014); either an incomplete knowledge of the L2 or insufficient skills with which L2 knowledge is used as lexical access, speed of articulation, etc.

Segalowitz (2010) identifies four factors that broadly influence L2 fluency; namely, the speaker's cognitive system, the speaker's motivation to communicate in the L2, the nature of the interactive communicative or social context and the perceptual or and cognitive experiences resulting from communicating and from the social context. (p. 22). The first two influences, the speaker's cognitive system and the speaker's motivation, are related solely to the individual and his abilities. Increases in the exposure to the L2 environment as well as an increase in instruction bring about a change in the L2 production. On the other hand, lack of language input or lack of use of the L2 over a period of time decreases the cognitive and perceptual processing efficiency with respect to the L2speaker's fluency as suggested by Stroh (2012, p. 2).

Objectives

This paper aims at investigating and exploring two of the temporal features of speaking fluency; namely, speech and articulation rates. It, moreover, aims at answering the following two questions:

1- What is the current speech rate of the Yemeni EFL learners?
2- What is the current articulation rate of the Yemeni EFL learners?

Studies on the Temporal Features of Speaking Fluency

Researchers have showed a great interest in investigating the temporal variables that contribute to fluency measures. They have been researching the correlations between the temporal features and fluency scales, the correlations between human rated fluency and the temporal features, or finding the correlations between fluency and linguistic proficiency as well. Cucchiarini et al. (2002) quantitatively assessed second language learners' fluency. He conducted an experiment with 20 native and 60 non-native speakers of Dutch. The collected samples were rated for fluency by nine experts divided into

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three groups of raters; phoneticians, teachers of Dutch as a second language and trained speech therapists. For the quantitative measures, Cucchiarini et al. used an automatic speech recognizer to count the quantitative measures such as speech rate, articulation rate, number and length of pauses, number of disfluencies, mean length of runs, and phonation/time ratio. The results showed that all the temporal variables (Speech rate, Articulation rate, Number of pauses, Number of disfluencies, Mean length of runs, Phonation/time ratio) strongly correlate with fluency ratings except for the average length of pauses.

Kormos and Dénes (2004, pp. 151-152) proposed the following variables of speaking fluency:

1. *Speech Rate*: the total number of syllables produced in a given speech sample divided by the amount of total time required to produce the speech sample in seconds, including pause time, then multiplied by sixty.

2. *Articulation Rate*: the total number of syllables produced in a given speech sample divided by the amount of time taken to produce them in seconds, excluding pause time, then multiplied by sixty. In both speech rate and articulation rate all the semantic units are counted, including filled pauses and partial words using the criterion that partial words contain not just an initial consonant but also a vowel and thus are recognizable as words.

3. *Phonation- time ratio*: the percentage of time spent speaking as a part of the total time taken to produce the speech sample.

4. *Mean Length of runs*: the total number of syllables uttered divided by the number of runs between pauses of 0.25 seconds and above.

5. *Total number of silent pauses per minute*: the total number of silent pauses of 0.25 seconds and above divided by the total amount of time spent speaking expressed in seconds and multiplied by 60.

6. *Mean length of silent pauses*: the total length of pauses above 0.25 seconds divided by the total number of pauses above 0.25 seconds.

7. *Total number of filled pauses per minute*: the total number of filled pauses such as ah, er, mm divided by the total amount of time expressed in seconds and multiplied by 60.

8. *Total number of disfluencies per minute*: the total number of disfluencies such as repetitions, restarts and repairs divided by the total amount of time expressed in seconds and multiplied by 60.

Disfluency refers to a breakdown in normal speech while pausing. It is a commonly occurring feature of natural speech in which gaps or hesitations appear during the production of utterances (Richards & Schmidt, 2002). Temporal disfluencies can be found in speech of native speakers but in relatively stable or predictable quantities and are regarded by Hilton (2009, p. 644), as a "distinguishing characteristic of L2 production, given the lesser degree of automaticity in the processing of L2 language forms". In addition to repetitions and repairs, fillers as "ah" "um" and "er" are regarded as hesitation markers and so a part of the disfluency features.

9. *Pace:* the number of stressed words per minute.

10. *Space:* the proportion of stressed words to the total number of words.

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Another similar quantitative model for the assessment of speaking fluency was suggested by Cucchiarini et al. (2002) which measures variables like: Speech rate, Articulation rate, Number and length of pauses, Number of disfluencies, Mean length of runs, Phonation/time ratio. Deshmukh et al. (2009) also suggested another model for spoken fluency evaluation that measures two kinds of variables; lexical and prosodic. The prosodic features are: Average number of filled-pauses per second, Average duration of a filled-pause, Average distance between filled-pauses, Length of the longest filled pause, Fraction of silence, Average duration of contiguous silence, Average duration of continuous speech and Average distance between silences. As for the lexical features, Deshmukh's et al. model measures features like: Count of most frequent word, Total words, Total unique words, Count of filled-pauses, Count of dictionary words, Total repeated similar trigrams, Number of closely occurring unigrams and Number of closely occurring similar trigrams. By trigram, Deshmukh et al. (2009) mean an utterance.

In addition to those suggested variables of fluency, Inoue (2010) investigated the aspects of fluency that relate to L2 linguistic knowledge and processing skills and found that the only sensitive measure of fluency that correlates with the proficiency level was Speech Rate. Bhat, Mark and Sproat (2010) researched the correlations between human rated fluency and the temporal features of fluency and found that the Articulation Rate, the Speech Rate and the Phonation-Time Ratio correlate positively with the fluency scores whereas the Silent Pauses per Second, the Mean Length of Silent Pauses and the Number of Filled Pauses per Second correlate negatively with the fluency scores.

Riggenbach (1991) studied the speaking fluency of six Chinese university students of English in the United States. The participants were recorded having a dialogue with a native speaker. He analyzed speaking fluency focusing on temporal variables as hesitation phenomena, repair phenomena, rate and amount of speech, interactive phenomena and interactive features. Filled pauses and partial words were counted. With respect to the speech rate, quantitative analysis showed no significant difference between amount of speech produced between subjects rated as highly fluent and those rated as having low fluency. However, judges gave high importance to unfilled pause frequency as an important discriminator between highly fluent subjects and less fluent ones. Riggenbach's (1991) study of total pause number and frequencies over time, as two main temporal features of speech, lead to a conclusion that unfilled pause frequency was an important discriminator between subjects who are rated as highly fluent and those rated as less fluent by judges.

In the Arab countries, including Yemen, studies on speaking fluency are generally very few. In the Arab EFL context, studies that are concerned with the speaking skill mainly focus on the difficulties of speaking the learned language.

Aljumah (2011) investigated the problems that make the EFL/ESL university students unwilling to speak and take part in class discussions. According to Aljumah (2011), the Saudi students at the university level find it inappropriate to speak in class. Data were collected through classroom observations, written and oral questionnaires, and discussions with both the students and the professors. Moreover, his study has proposed an integrative approach in order to improve the students'

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oral skills. The integrative approach incorporated the four language skills: listening, speaking, reading, and writing in addition to the sociolinguistic factor. Aljumah's longitudinal study has been carried out over five years from 2006 onwards at the Department of English Language and Translation at Qassim University, KSA. The results showed that students were reluctant to speak because of "their fear to be seen as verbally challenging their teachers' views openly and publicly" (p. 84). In addition, through using the integrative approach, the students exhibited a considerable improvement in the oral skills.

Al-Jamal and Al-Jamal (2013) described the difficulties that may be encountered at an EFL setting. Their sample was stratified random taken from six Jordanian public universities. Survey questionnaires as well as semi-structured interviews were constructed. Sixty-four students were interviewed out of 566 students who responded to a survey questionnaire. The findings of their study exposed a perceived failure of EFL students' speaking skill in English .The results showed a low level of speaking proficiency among EFL undergraduates along with negligible instruction of the speaking skill at the university level. Moreover, their study highlighted that communication in L1, large classes, and lack of time are amongst the most important factors affecting the speaking skill of the EFL learners.

A similar study was done by Alyan (2013) on the oral communication problems encountering English major students. Data were collected through semi-structured interviews with twenty students and six teachers from a large Palestinian university in Gaza. For the 20 students, the interviews were about participants' experience of oral communication problems, and the teachers' interviews were centred on their experience of the students' problems in L2 oral communication. Alyan's study revealed that the main oral communication problems the students experienced were incorrect pronunciation, limited vocabulary, lack of exposure to the target language, and L1 interference.

In the Yemeni EFL context, studies on the speaking skills were concerned with the factors that affect speaking proficiency of Yemeni student-teachers in speaking English, the EFL in-service Yemeni teachers' practices, or on the EFL in-service Yemeni teachers' perceptions of the importance of teaching stress and intonation as supra-segmental features of speech.

Alanisi (2012) investigated the factors that affect speaking proficiency of Yemeni student-teachers in speaking English in three colleges of Education; College of Education-Thamar, College of Education- Rada'a and College of Education- AlBaida. He analysed the teaching methods, the syllabuses, and the textbooks used in teaching the speaking skill at those colleges. Data were collected through classroom observation, interviews with student-teachers, and interviews with teachers. He found out significant results that establish the causes of the low level of speaking proficiency amongst the Yemeni student-teachers. Those factors were the teaching methods and the materials used in teaching the Spoken courses. Alanisi found out that the speaking skill is not adequately dealt with both at school level and at college level. Alanisi adds that "speaking is a neglected skill in teaching as well as in testing. The learners do not have adequate opportunities to use the language even in the classroom due to the traditional methods used in teaching speaking by the Yemeni teachers. Most of the learners do not have intrinsic motivation to speak the language and they study English only for a short term goal" (p.171). What is of great concern is Alanisi's remark that in the investigated colleges, the

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emphasis is given to accuracy rather than to fluency and that "the learners are scared of committing mistakes at which the teachers might laugh. They are also afraid of being subjects to the teachers' negative feedback" (p. 172).

Alshamiry and Alduais (2013) made a survey study on the EFL in-service Yemeni teachers in Ibb, Yemen, and said that the teachers were not fluent. Their study was focused on the EFL in-service Yemeni teachers' perceptions of the importance of teaching stress and intonation as supra-segmental features of speech to the process of comprehension. Forty EFL in-service teachers participated in their survey-study in both public and private schools at Ibb city, Yemen. Results showed that a large number of the in-service teachers are incompetent in the supra-segmental features of speech, and demonstrated negative attitudes towards the importance of using and applying such features. The responsible factors behind the failure of practice of these features, according to Alshamiry and Alduais' study, are syllabus' update, motivation and fluency and overall qualification of the teachers.

The previously mentioned studies on the temporal features of speaking fluency were done in the EFL teaching-Learning contexts other than the Yemeni context. The studies done in the Yemeni EFL context do not focus on the temporal aspect of speaking fluency. Thus, the present work differs from the previous studies in terms of the context. That is to say, the present study investigates two of the speaking fluency temporal features of the Yemeni EFL learners, which are speech and articulation rates.

Methodology
Data collection

The population of the present study is all the Yemeni EFL learners. Studies on fluency usually involve a few participants because they investigate the temporal features in speech production. The sample of this study were 20 participants selected from one of the Yemeni Universities, Taiz University, in their fourth level of study at the Department of English Language, Faculty of Education. They were chosen systematically from level four of the second semester of the academic year 2014-2015.

The Speaking Task

Previous studies on speaking fluency usually gather the data using a speech elicitation task. The speech elicitation tasks in the literature are of three categories as classified by Segaliwitz (2010). The first category is a reading task in which the participants read a text. The second category is picture description task in which the participants are asked to make a story based on a sequence of photos without words or on silent films. The third category is a story retelling task in which the participants read or listen to a story first and then retell it. The best task type that matches the present study is the second task, the making of a story based on a silent film or on a sequence of pictures. The researcher selected a silent video that was easy to be talked about. The story of the video is of two people, a man and a woman, waiting for the train. A thief comes out of a sudden and steals the lady's bag. The man who is sitting next to her runs after the thief and brings the bag back to the lady. She feels happy and gives him a big hug. The man gets surprised at the hug. Then the train comes, and the lady gets on while the man happily waves 'Goodbye' to her. However, in the train, the lady smiles and checks a

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wallet in her hand. She finds money in it because when she hugged the man she actually stole his wallet from his bag. As the topic of the video is easy to grasp and has an unexpected end, all the participants were able to talk naturally about it.

After the participants had watched the video, they went into the recording room and were given a paper that contained the same story of the video in consequent pictures so as not to lose the events (see Appendix A). An excerpt of two minutes was taken from each subject. The participants' speeches were transcribed and named as (Speaker 1, Speaker 2, …etc). The silent pauses were examined through a software program called Samplitude.

The data were transcribed manually. Utterances were transcribed including parts of words and complete words articulated by each speaker identified by close listening for several times to each sample member. The data were transcribed again for a second time by the researcher after a period of time so as to avoid missing anything. Moreover, the Samplitude waveform spectrograms of each sample made it easier to make sure of the transcriptions as it shows each 10 seconds separately and the spectrograms clearly showed the words, the silent pauses and the duration of pauses in milliseconds. In the transcript, the researcher used parentheses (   ) for the silent pauses showing the duration of the pause in milliseconds inside the parentheses.

Tools of Analysis
Samplitude 11.03
Samplitude is a computer program made by MAGIX Company (2010), available for free online at (http://www.samplitude.com/). Samplitude is used for recording, editing, mixing, mastering and outputting audio files. In this study, the Version 11.03 (2010) of the Samplitude was used. Samplitude 11.03 provides acoustic measures of the pauses providing the researcher with a numerical score for the pausing length.
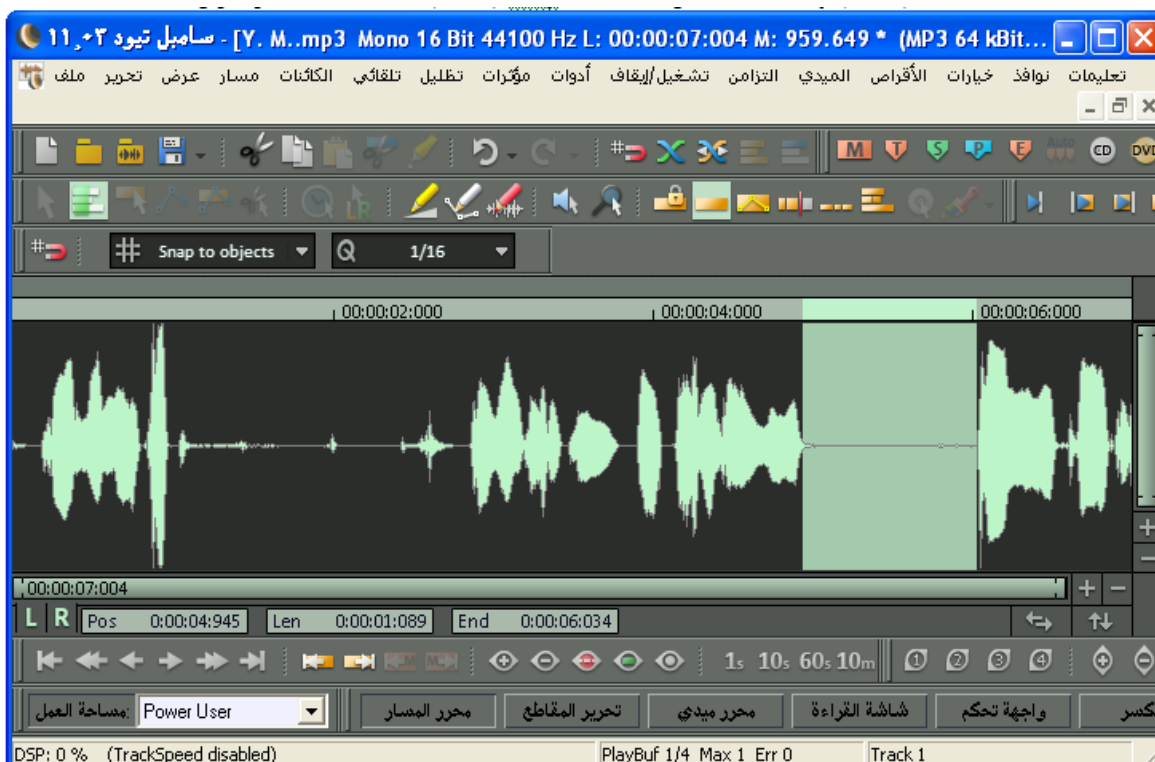
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Samplitude 11.03

Figure 1 illustrates a Samplitude window picture of a sound file of the utterance "feel relaxed. (1.764) They were sitting, but suddenly (1.081) a man came to." (Speaker 2). The higher part of the picture represents the presence or absence of speech. The lower part shows the duration of the speech sample and the duration of the selected silent pauses. A silent pause can be observed as a segment with no significant amplitude. In the above picture, there are 2 silent pauses, and the length of the second silent pause , selected light green one , is (1.089 seconds).

Procedures
Exploring the Speech Rate
Speech rate measures the speed of delivery of the words produced by the speakers per minute or per second. To get the speech rate for each member in the sample of the present study, the number of syllables was divided by the total time taken to produce the sample, and then it was multiplied by 60 to get the syllable per minute. It is worth mentioning here that speech rate is also calculated, by researchers other than Kormos and Denes, in a slightly different way. They calculate the number of syllables in non repeated words per minute of speech, which means excluding hesitations, repetitions and fillers. Such measures take what is called *pruned syllables* in calculating speech rate. In this paper, following Kormos and Denes' (2004) framework, the researcher measured speech and articulation rates in terms of syllables per minute not pruned syllables.

The syllables were counted manually based on the definition of a syllable by McMahon (2002) that states that a syllable consists of an onset and a rhyme. The rhyme consists of a nucleus and a coda.

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The only compulsory part of the syllable is the nucleus which generally contains a vowel or a syllabic consonant. A syllabic consonant refers to the consonants that function as a vowel in the structure of the syllable as the consonants [l], [m], [n] and [r]. The English words *bottle*, *bottom*, *button* and *butter* have two syllables each. The onset and the coda, which are peripheral elements of the syllable, might contain a consonant sound or a consonant cluster (more than one consonant). For example, there are 6 syllables in the following utterance by Speaker (12) "So, she stoops to conquer".

Exploring Articulation Rate

The second important variable to measure speech fluency is the articulation rate which excludes the pausing time from calculations. Articulation rate was measured as the number of syllables per minute of speech. Unlike the speech rate, in calculating articulation rate, pauses were excluded. The silent pauses that lasted above 0.25 seconds were firstly measured in milliseconds and then subtracted from the whole time taken to produce the speech sample. After that, the number of syllables was divided by the time that resulted after subtracting the silent pause durations. Then, the resulted figure was multiplied by 60 to get the number of syllables per minute.

Measuring the articulation rate gives an indication of the speed at which speech is being produced. According to Jong and Perfetti (2011), articulation rate is considered a measure of speed, unrelated to proceduralization. Proceduralization, according to them, means that the learners are able to produce speech without taking much time for planning; that is, they have less silent and/or filled pauses. It is noteworthy here to mention that, like previous studies, including Kormos and Denes' (2004) the fillers as well as disfluencies were counted amongst the overall syllables of the speech delivery.

Analysis
Speech Rate of Speaking Fluency by Yemeni EFL Learners

In order to get the speech rate for each participant of the present study, the number of syllables was divided by the total time taken to produce the sample, and then multiplied by 60 to get the number of syllables per minute. Speech rate is regarded as a good predictor of speaking fluency. Fluent production is characterized by a speaking rate of between 130 to 200 words per minute (2-3 words per second); about one third of production time is spent pausing (Hilton, 2009). Figure 2 below shows the speech rate of the samples of the EFL learners at the Department of English, Faculty of Education Taiz University.

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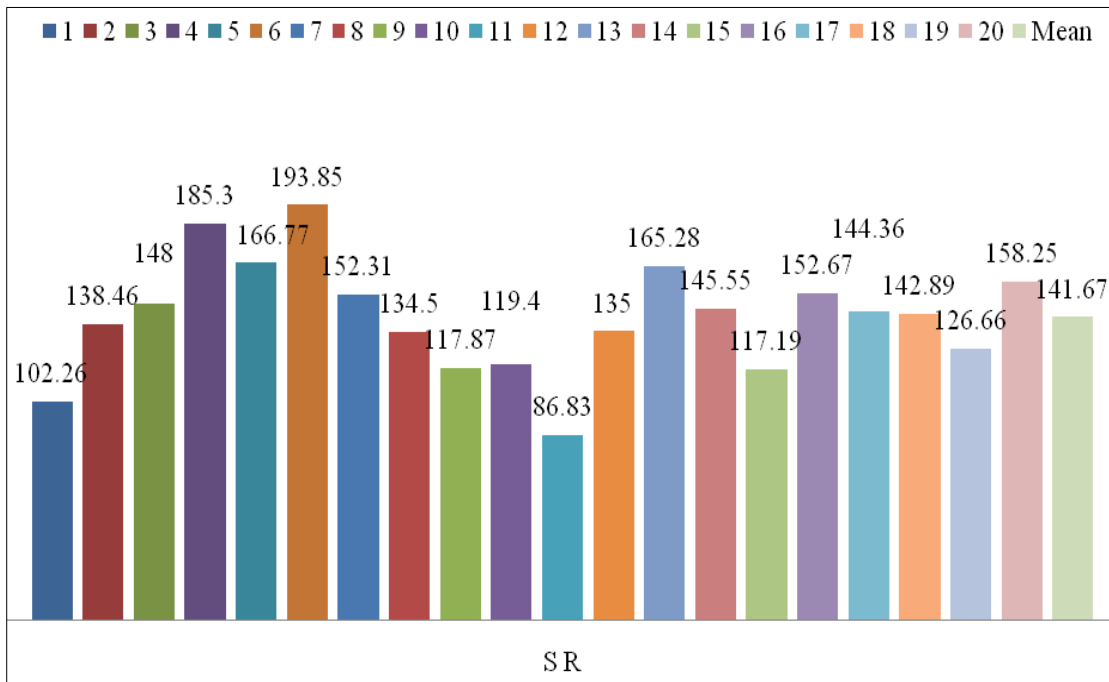Speech and Articulation Rates of Speaking Fluency by Yemeni EFL Learners   10

The Participants' Speech Rate

     As shown in Figure 2, the average speech rate was 141.67 syllables per minute (2.36 syllable per second). In Kormos and Dénes' (2004) study, who investigated speech samples collected from 16 Hungarian L2 learners of low-intermediate and advanced students, the average speech rate of the advanced students was 181.19 syllables per minute. This is a relatively higher rate than in the present study (141.67). Though the participants of the present study were regarded as advanced students, since they were in their last year of study, only two participants (10%), Speaker 4 and Speaker 6, exceeded the level of 181.19 syllables per minute while the rest of the participants (90%) got less than 181.19 syllables per minute. Different results of speech rate of EFL learners were found in the literature. For instance, in Horga and Pozgaj (2004) the investigated speech rate of EFL learners was 3.8 syllables per second (228 syllables per minute). The study by Wu, (2008, p. 216) shows the importance of speech rate in the investigation of speaking fluency saying that "rate of speech appears to be the best predictor for fluency rating because it incorporates the rate at which the speakers articulate the sounds and the number of pauses they make". Wu (2008) found that non-native speakers usually utter less than 188.4 syllables per minute while the native speakers usually utter more than 188.4 syllables per minute.

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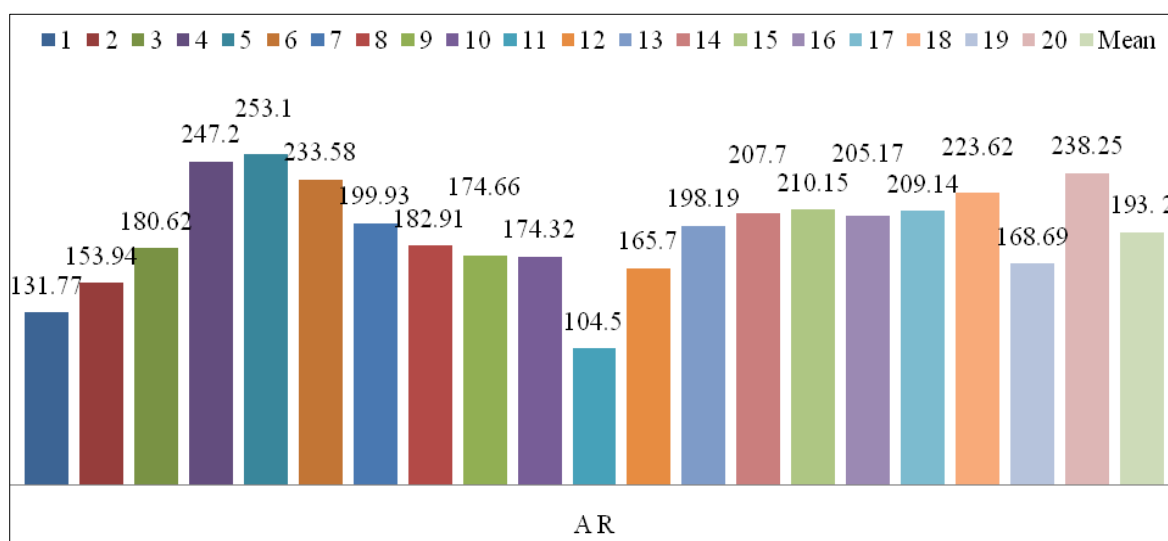
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Participants' Articulation Rate

Taiz University EFL learners' articulation rate, as shown in *Figure* 3 above, was an average of 193.2 syllables per minute excluding pause time. Only nine of twenty participants' got articulation rates between 205 and 253 syllables per minute, the rest of the participants' got fewer rates and thus they are regarded as slow speakers. Kormos and Dénes' (2004) sample got an average articulation rate as 241.99 syllables per minute, which is a higher articulation rate than the participants of this study.

Due to excluding the pause time from calculating the articulation rates, participants who got lesser speech rate got higher articulation rate. If we examine Figures 2 and 3, comparing the speech and the articulation rates of the twenty speakers, we can find that all the speakers had articulation rates higher than their speech rates.

In addition, the pausing variable is related to the speech and articulation rates, and therefore affects the speaking fluency as a whole. As put by Stockdale, (2009. p. 2) "If a speaker pauses appropriately talks at a reasonable rate, and forms sentences clearly, they [he/she] are likely to be perceived as more fluent than a speaker who does not."

Findings

This study revealed valuable insights into the understanding of speech and articulation rates. The findings showed that the Yemeni EFL learners produced a mean speech rate of 141.67 syllables per minute. This is a relatively low number in comparison to the EFL learners in other EFL contexts. The articulation rate, which excludes pauses from calculation, was 193.2 syllables per minute. It is significant to mention here that, while calculating the speech rate in this study, a number of the produced syllables belonged to the disfluencies.

Conclusion

This paper is an attempt to investigate two temporal variables of speaking fluency which are highly related to the speaking fluency assessment. The speech rate as well as the articulation rate of

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the EFL learners at Taiz University is low. The quantitative analysis of the speech and articulation rates has showed a reflexive relationship between speech and articulation rates from one hand and the silent pauses from the other. Such correlation paves the way for a remedial work that would aim to improve the fluency level of the EFL learners. If one wants to increase the speech rate, one can focus on decreasing the pausing time. Similarly, if the focus is to decrease the silent pauses, one would focus on increasing the speech and articulation rates.

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References

Alanisi, M. (2012). *Developing Yemeni student-teachers' proficiency in speaking English at the university level.* (Doctoral Dissertation). EFL University, Hyderabad, India.

Al-Jamal, D. & Al-Jamal, G. (2013). An investigation of the difficulties faced by EFL undergraduates in speaking skills. Canadian Center of Science and Education. *English Language Teaching Journal*; (7). Pp. 19-21. Retrieved from: www.ccsenet.org/elt. October, 2014.

Aljumah, F. (2011). *Developing Saudi EFL students' oral skills: An integrative approach.* (Ph.D. Thesis). College of Arabic and Social Studies, Qassim University. *Canadian Center of Science and Education.* (*4*) 84-89. Retrived from: www.ccsenet.org/elt 19-3-2014

Al-Shamiry, R. & Alduais, A. (2013*). EFL In-service Yemeni Teachers' Perceptions and Perspectives on the Importance of Teaching Stress and Intonation as Supra-segmental Features of Speech and Sound attributes to the Process of Comprehension: A Survey-Study*. International Journal of Social Science Research. *(1)*. Retrieved from: http://dx.doi.org/10.5296/ijssr.v1i1.3631.

Alyan, A. (2013). *Oral communication problems encountering English major students: Perspectives of learners and teachers in Palestinian EFL university context*. The Islamic University of Gaza Palestine. *Arab World English Journal. International peer reviewed journal.(4)* Pp. 226-238. Retrieved from: (www.awej.org).

Bashir, M. , Azeem, M. & Dogar, A (2011). Factors effecting students' English speaking skills. *British Journal of Arts and Social Sciences* (2) No.1. 34-50. ©BritishJournal Publishing, Inc. 2011. Retrievd from: http://www.bjournal.co.uk/BJASS.aspx 34

Bosker, H. (2014). *The processing and evaluation of fluency in native and non-native speech*. University of Nijmegen, The Netherlands: Max Planck Institute for Psycholinguistics.

Cucchiarini, C., Strik, H. & Boves, L. (2002). *Quantitative assessment of second language learners' fluency by means of automatic speech recognition technology*. Art Department of Language and Speech, University of Nijmegen, P.O. Box 9103, 6500HD Nijmege:The Netherlands .

De Bot, K. (1992). *A bilingual production model: Levelt's speaking model adapted*. Applied Linguistics, 13(1). In Bosker, H. (2014). *The processing and evaluation of fluency in native and non-native speech*. Nijmegen, The Netherlands: Max Planck Institute for Psycholinguistics

Horga, D.& Pozgaj, V. (2004) *Govorna fluentnost u stranom jeziku: hrvatski i slovenski*. In: Bulc, T.; Hadzi, V. & Horga, D. (2010). Speech fluency, a result of oral language proficiency? University of Ljubljana. 87-100

Jong, D. & Perfetti, C. (2011). Fluency training in the ESL classroom: An experimental study of fluency development and proceduralization. *A Journal of Research in Language studies.(61).*

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Language in India www.languageinindia.com**ISSN 1930-2940 19:2 February 2019**
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Speech and Articulation Rates of Speaking Fluency by Yemeni EFL Learners   13

Khan, S. (2010). *Strategies and spoken production on three oral communication tasks: A study of high and low proficiency EFL learners*. Doctoral Thesis. Autonoma de Barcelona University.

Kormos, J. & Dénes, M. (2004). *Exploring measures and perceptions of fluency in the speech of second language learners.* An International Journal of Educational Technology and Applied Linguistics. Eötvös Loránd University, Budapest System (32). 145–164

Kormos, J. (2006). *Speech production and second language acquisition*. Mahwah, New Jersey: Lawrence Erlbaum.

Levelt, W. J. M. (1989). *Speaking: From intention to articulation*. Cambridge, MA: MIT Press.

MAGIX. (2010). Samplitude 11.03. [A computer software]. http://www.samplitude.com/

McMahon, A. (2002). *An Introduction to English phonology*. Edinburgh University Press. Edinburgh.

Murphy, J. (2003). Task-based learning: the interaction between tasks and learners. *ELT Journal. (57).* Oxford University Press

Riggenbach, H. (1991). Toward an understanding of fluency: A microanalysis of nonnative speaker conversations. *Discourse Processes, 14,* 423–441.

Segalowitz, N. (2010). *Cognitive bases of second language fluency.* New York: Routledge.

Stockdale, A. (2009). *Comparing perception of oral fluency to objective measures in the EFL classroom*. An MA thesis in Teaching English as a Foreign or Second Language (TEFL/TESL). Centre for English Language Studies. Department of English. University of Birmingham. Edgbaston, Birmingham. United Kingdom.

Stroh, E. (2012). The effect of repeated reading aloud on the speaking fluency of Russian language learners. (Master thesis). Brigham Young University. *All Theses and Dissertations.* Retrieved from http://scholarsarchive.byu.edu/etd.

Ur, P. (1996). A *course in language teaching.Cambridge*: Cambridge University Press.

Wu, C. (2008). *Filled pauses in L2 chinese: A comparison of native and non-native speakers* a paper in the Proced. (1).Ohio: The Ohio State University. Pages 213-227.

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Language in India www.languageinindia.com**ISSN 1930-2940 19:2 February 2019**
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Appendix A : A Picture Story

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