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Research Article

SPEECH DISFLUENCY ANALYSIS IN MALYALAM SPEAKING RADIO JOCKEYS

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A B S T R A C T

For adult speakers most important aim is effective communication and even their ventures and occupation is dependent on it. In India, studies have been done in describing early speech disfluencies and the data provided by them are diversified and mostly concentrated on children. No much studies are done regarding the disfluency patterns of adult speaker. Only if we get a clear picture about the disfluencies, we will be able to determine the acceptable normal disfluency and unacceptable abnormal dysfluencies speech of an adult speaker. Radio jockeys whose job being depended highly on their communication effectiveness, this study aims at providing descriptive information on the fluency characteristics of radio jockeys. Hence this study might provide a clear picture on how to categorize the disfluencies of spontaneous speech in non stutterering adult speakers.

INTRODUCTION

"Good morning Kerala.. this is Harish.. talking to you from 72.9 zig fm." For most of us; our morning starts like this, if you are a hardcore music fan. This is one of communication mode through which we get to know more about our society, politics, film media, news, whether, even the traffic and lot more. As per the view of an audiologist and speech language pathologist, we deal with this as a different scenario.

Speech is the verbal output of language. Speech production involves manipulation of mouth, tongue, cheeks, and throat, along with the shaping and control of air, to produce specific vowel and consonants sounds. Speech consists of Articulation, Voice, and Fluency.

Fluency is the aspect of speech production that refers to smooth, forward-moving, unhesitant and effortless speech. Starkweather (1980) stated that fluency is the continuous effortless speech at a rapid rate of utterance. The terms •Fluent' & Fluency' ' normally refers to a general proficiency in the act of speaking & writing. The term fluency is derived from the Latin root *fluere. It refers to many things but seems to in communication, to the smooth and easy flow of utterance (Stein, 1967).

The dimensions of fluency are (Starkweather, 1981) Continuity, Rate of Speech, Effort a speaker makes in producing Speech. Starkweather (1982) again suggested a fourth category, i.e. Rhythmic Structure Speech. In these four dimensions, Continuity, rate, & rhythm are traditionally been considered aspects of Speech timing. Effort is the primary dimension of fluency (Starkweather, 1982) and timing variables are secondary simply reflection of effort. When this effortless speech becomes effortful, the speaker and the listener are faced with a challenging situation. The speech can be disfluent and dysfluent. Speech disfluency occurs in different forms in different languages. There are non-stuttered disfluency and stuttered dysfluencies. All dysfluencies can be disfluent but all disfluencies are not dysfluent.

Johnson (1959) did a study on differential frequencies of types of non fluency and found that the major portion of non fluencies of the experimental group male subjects, were sound and syllable repetitions, word repetitions and interjections. Prolonged sounds, revisions and phrase repetitions occurred to a lesser degree. In, females of the experimental group, although findings were similar, greater proportions of interjections than sound and syllable or word repetitions were found.

Carlo and Watson (2003) did a study on the disfluent speech of 32normally fluent monolingual, Spanish-speaking children. Results revealed no main effects for age or gender as well as no interactions while examining the total frequencies of speech disfluencies. Revisions, interjections, and single-syllable word repetitions were the most frequently observed speech disfluencies

Wexler and Mysak (1982) did a study on the disfluency characteristics in 36 non stuttering males aged 2, 4 and 6 yrs (12 in each age group) regarding the types of disfluency and relationships among the different types and they reported that the two most commonly occurring disfluency types at each age levels were revision-incomplete phrases and interjections. This was followed by frequency of Phrase repetitions and word

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repetitions. In Indian context few studies are done regarding the fluent speech, which depicts the study done by studied by Anjana and Savitri (2007) disfluencies in 5.1 to 6 yr old Kannada speaking children. Frequency and types of disfluencies and effect of gender on disfluencies were analyzed.

Results showed that majority of the children had almost all the disfluency types. The most prominent disfluency type was sound repetition.

Fluency is mainly of interest because it is related to communicative effectiveness (Bygate 2009). Speaking a language fluently is frequently the ultimate goal to be attained in mastering a language.

We all experience speech disfluencies from time to time. For example it is not uncommon that hearing people using the sounds umm, ahh, like athu (Malayalam), ena (Tamil) etc while speaking.

For adult speakers most important aim is effective communication and even their ventures and occupation is dependent on it. In India, studies have been done in describing early speech disfluencies and the data provided by them are diversified and mostly concentrated on children. No much study is done regarding the disfluency patterns of adult speaker. Only if we get a clear picture about the disfluencies, we will be able to determine the acceptable normal disfluency and unacceptable abnormal dysfluencies speech of an adult speaker. Radio jockeys whose job being depended highly on their communication effectiveness, this study aims at providing descriptive information on the fluency characteristics of radio jockeys. Hence this study might provide a clear picture on how to categorize the disfluencies of spontaneous speech in non stutterering adult speakers.

Broen (2013) in his study 40 college adults who were asked to speak in each of three situations. Spontaneous speech sitting alone in a room, alone in front of a TV camera and lights, or as if to an audience(Audience-T'Y situation), casual conversation with the experimenter. After the last session, the subjects filled out a brief questionnaire in which they rated each situation according to their judgment of the need to speak carefully and of their estimated disfluency in the situation. The most significant finding is that subjects were most disfluent in those situations they rated as least important. Contrary to usual observations, the greatest frequency of disfluencies occurred in the Conversation rather than the Audience-TV situation. It appeared that as subjects became more concerned about their speech, they monitored it more carefully and thus became more fluent.

Natke, Sandrieser, Pietrowsky and Kalveram (2006) studied the speech disfluencies of 24 German-speaking preschool children who stutter and 24 gender and age matched comparison children who do not stuttered phrase. Speech samples were transcribed orthographically and analyzed using the computer program Five types of disfluencies were noted: prolongation, blocks and repetitions of sounds and syllables both

In stuttered and normal population. Holanda (2004) investigated topic familiarity and disfluencies during oral descriptive discourse of adult speakers. Results revealed that participants expressed more attributes when the topic was familiar than it was unfamiliar. Fillers and lexical pauses were the most common disfluencies noted. Repetitions, hesitation pauses and prolongations were shown to have the same role, which was distinct from the role of fillers.

Moon-Ja and Sook-Ja (2003) carried out a study on speech rate, fluency and the type of disfluencies observed in normal adults of age range 17-36 years to provide basic information on normal speaking.

The rate was measured as syllable per unit (SPM).The speech rates in reading ranged between 273-426 with a mean of 348 SPM and in speaking ranges 118-409 (mean=265). The average of their fluencies was99.1% in reading and 96.9% in speaking. The disfluency types were also analyzed from 150 disfluency episodes. Syllable repetition and word interjections were the most common disfluencies observed in the study.

Mysak and Duchin (2002) studied the disfluency and rate characteristics across adults. They grouped the adults into five separate groups according to their corresponding age as young adult (21-30years), two groups of middle aged (45-54 years and 55-64 years) and two groups of older males (65-74 years and 75-91 years). The primary objective was to determine whether there was any significant difference among Blonds " or Fate and disfluency measures during three tasks namely: oral reading, picture description and conversational speech.

The results revealed that speech rate during each of the speaking asks differed significantly among three age groups and it differed significantly in decreasing order, for oral reading, conversation and picture description irrespective of the age group. Levels of disfluency did not appear to ditter among the various age groups.

Bortfeld, Leon, and Bloom (2002) examined disfluency rates in a corpus of task-oriented conversations with variables that might affect fluency rates. These factors included were speakers' ages (young, middle-aged, and older), task roles (director vs. matcher in a referential communication task), difficulty of topic domain (abstract geometric figures vs. photographs of children), relationships between speakers (married vs. strangers), and gender (each pair consisted of a man and a woman). Older speakers produced only slightly higher disfluency rates than young and middle-aged speakers. Overall, disfluency rates were higher both when speakers acted as directors and when they discussed abstract figures, confirming that disfluencies are associated with an increase in planning difficulty. However, fillers (such as uh) were distributed somewhat differently than repeats or restarts, sup porting the idea that fillers may be a resource for or a consequence of inter-pensonal coordination.

Ezrati, Vinacour, and Yairi (2001) aimed at studying the development of awareness of stuttering-like disfluency in normally fluent preschool and first-grade children using responses to video speech samples. A total of 79 children in five different age groups were asked to discriminate between the speech (fluent and disfluent) of two puppets, identify with the one who speaks like them, and evaluate the disfluentand fluent speech of the puppets. It was found that from age 3, children show evidence of awareness of the disfluency used in the study, but most children reached full awareness at age 5. Also, negative evaluation of dis fluent speech is observed from age 4.

McClowry and Max (1997) investigated age related effects on speech disfluency. They compared disfluencies of a 105 year

old woman to the means of several geriatric groups whose average wages were more than 20 years younger. Overall frequencies and types were similar. Thus aging speaker's fluency does not appear to be more susceptible to break downs than that of younger speakers, although there is some evidence that elderly speakers become much more disfluent than younger speakers under stressful conditions.

Misono (1986), did a study and found out that, on the combination of pauses occur more frequently in a lecture-style speech when compared to reading. DeJoy and Gregory (1985) identified and studied nine types of disfluency, in 60 non stuttering males aged 3.5 and 5 years of age.

The results indicated that certain disfluencies commonly associated with young children's speech (i.e., repetitions, incomplete phrases and dis-rhythmic phonations) declined significantly. They also found that interjections and ungrammatical pauses did not decline significantly across the ages, suggesting that these are disfluencies that may characterize more of adult like speech. Yairi (1981) found, in his thirty three 2 year old normal subjects that there were two clusters of common disfluency types. One cluster involved repetitions of speech segments of one syllable or less (one-syllable word or parts of words were repeated). The second cluster consisted of interjections and revisions.

Yairi (1982) found that children between 2 and 31/2 years showed an increase in revisions and phrase repetitions, but a decrease in part-word repetitions and interjections. Moreover, the increase of part- word repetitions as a child is observed longitudinally is a sign that may warrant concern. The conclusions from these studies states that Revisions are a common disfluency type in normal children and may continue to account for a major portion of their disfluency as they grow Older. Interjections are also common, but usually decline after age 3 years. Repetitions may also be a frequent type of disfluency, especially single- syllable word repetitions with fewer than two extra units around age 2 to 3 years. Repetitions are more likely to involve longer segments as child grow older.

Henderson, Goldman Eistoc and Starbek (1965) did a study and suggests that when people read out, they pause less often, their pauses are synchronized with their breathing and the pauses occur at major boundaries when the same people speak spontaneously, they pause more often and some of the pauses are located intra .causally and not synchronized with breathing (Henderson, Goldman Eistoc & Starbek, 1965).

Johnson and associates (1959) found that interjections, revisions, and word repetitions were the most common disfluency types among his68 non stuttering males who ranged in age from 21/2 years to 8 years of age.

Prathmesh, Jomie and Jisna (2015) demonstrated that the normal speakers in the age range 18-20 years demonstrate a large number of disfluencies, notably pauses, repetitions and other distluencies such as interjections, revision etc. The percentage of the distluency increases marginally from conversation to monologue; revealing highest percentile of disfluencies in the monologue task. Rathika, Kanaka, Sunila and Rajashekhar (2012) analyzed the disfluencies in 48 Typically Developing Tamil Speaking Children between 4 - 8 Years (with 12 children in each age group. A total of seven types of disfluencies were identified. It includes filled pauses (pauses filled with sounds like "mm".."um" etc); unfilled pauses (silent pauses having duration greater than 300 ms); repetition (repetition of sounds, syllable repetition (repetition of syllable), part word repetition, whole word repetition, phrase repetition, parenthetical remark, false starts, audible inspiration, and prolongation. Total percentage of disfluencies and percentage of individual disfluency types were calculated. The results indicated pauses to have highest percentage of disfluencies in all the age groups.

Jocine, Fernandis and Subba Rao (2009) studied disfluencies in 4-5year old normal bilingual children and concluded that the type of disfluencies present in English speaking Indian children are filled pauses, interjections, word repetitions, prolongations and phrase repetitions.

Chacko (2008) did a preliminary study on the speech disfluencies in English speaking Indian adult. The main aim of the study was to assess the common disfluencies observed in 22-25 year old Indian adults who use spoken English. Speech samples were collected for 2 minutes, each for 3 different conditions; reading, monologue and general conversation.

In conclusion, there were mainly five types of disfluencies that were observed in them- pauses, repetitions, interjections, revision and prolongations; which do not affect the speech considerably but are present since an increased planning time is required for the rapid flow of speech. She concluded that type of disfluencies present in adults is quite normal and do not affect speech considerably.

Anjana and Savitri (2007) did a study on disfluencies in 5.1 to 6 yr old Kannada speaking children by frequency and types of disfluencies and effect of gender on disfluencies. Results showed that majority of the children had almost all the disfluency types. The most prominent disfluency type was sound repetition.

Mathuranath, Cherian and Sarma (2003) studied the effects of age, education and gender on verbal fluency in cognitively unimpaired older individuals. Categorical and letter fluency tasks were given in their native language, Malayalam. Results revealed that level of education but not age or gender significantly influences letter fluency. Level of education and in the elderly subjects, age affects categorical fluency. Age but not education has a differential effect on the tasks of verbal fluency, influencing categorical fluency more than letter fluency.

Need of Study

For adult speakers most important aim is effective communication and even their ventures and occupation is dependent on it. In India, studies have been done in describing early speech disfluencies and the data provided by them are diversified and mostly concentrated on children. No much studies are done regarding the disfluency patterns of adult speaker. Only if we get a clear picture about the disfluencies, we will be able to determine the acceptable normal disfluency and unacceptable abnormal dysfluencies speech of an adult speaker. Radio jockeys whose job being depended highly on their communication effectiveness, this study aims at providing descriptive information on the fluency characteristics of radio jockeys. Hence this study might provide a clear picture on how to categorize the disfluencies of spontaneous speech in non stutterering adult speakers.

Aim of the Study

To analyze the speech disfluencies of radio jockeys during spontaneous conversations

METHODOLOGY

Subjects

Thirty Malayalam speaking radio jockeys in the age range of 20-27yrs were selected for the study. Fifteen male subjects and 15 female subjects were selected. All subjects were screened for the structural and functional integrity of the oral speech mechanism and only those with adequately functioning oral speech mechanism were considered for the study.

Test Environment

The speech was recorded individually, in recording studio using smart phone which is placed on the adjacent table next to were the radio jockeys were seated.

Procedure

Speech samples were recorded using smart phone Moto G [2nd Generation] android version 6.0 and was transcribed later by listening through headphone. Repetitions, prolongations, silent pauses, audible Pauses, hesitations, interjections and revisions were the distluencies Checked and are numbered while transcribing. The mean median and standard deviation were calculated for the overall disfluencies observed in the sample for each subject. Later the scores were subjected to a non parametric statistical analysis and results were computed in a tabular form as well as in figurative form.

RESULTS AND DISCUSSION

From the study the number of disfluencies noted was repetitions, prolongations, silent pauses, audible pauses, hesitations, interjections and revisions. Each of the disfluencies were observed and marked during radio conversation. The result of statistical analysis is discussed below. The statistical analysis is done comparatively for males and females and the significance of type of disfluencies are compared.

Using the Friedman test, the mean, median and standard deviation was calculated for each disfluency to check for the maximum number of disfluency. The values were compared using the Wilcoxon signed rank test to check if there was significant difference between the disfluencies noted. Below are the values in a tabular form.

Sex	N	Mean	Std deviation	Median	Friedman test	
					value	p
Male						
Repetition	15	0.067	0.258	0(0-0)		
Prolongation	15	0.133	0.352	0(0-0)		
Silent pauses	15	0.133	1.014	0(0-0)		
Audible pauses	15	0.800	0.743	0(0-2)	14.678	0.023 sig
Hesitations	15	.533	0.352	0(0-1)		
Interjections	15	.133	0.816	0(0-0)		
revisions	15	.667	0.578	0(0-1)		
Female						
Repetition	15	0.000	0.000	0(0-0)		
Prolongation	15	0.067	0.258	0(0-0)		
Silent pauses	15	0.067	0.258	0(0-0)		
Audible pauses	15	0.867	0.915	0(0-2)	34.070	0.000 HS
Hesitations	15	0.267	0.458	0(0-1)		
Interjections	15	0.333	0.617	0(0-1)		
revisions	15	0.799	0.799	0(0-1)		

Table 1 showing the mean, median and standard deviation values of disfluencies in thirty subjects, fifteen men and 15 women. From the figure it's clearly identified that mean value of revisions for women were found to be more which is followed by audible pauses, interjections, hesitations, silent pauses and prolongations and the mean value is found to be highly significant. For men it's clearly identified as audible pauses were found to be more which is followed by revisions, hesitations, interjections, silent pauses, prolongations and repetitions and mean value is found to be significant.

DISCUSSION

Studies of disfluencies in normal speakers are important because only if we get a clear picture about the disfluencies, we will be able to determine the acceptable normal disfluency and unacceptable abnormal dysfluencies speech of an adult speaker. The present study has demonstrated that the adults, age ranging from 22-27 years demonstrate a large number of disfluency, notably revisions for women were found to be more and for men it's clearly identified as audible pauses were found to be more.

Johnson (1959) did a study on differential frequencies of types of nonfluency and found that the major portion of nonfluencies of the experimental group male subjects, were sound and syllable repetitions, word repetitions and interjections. Prolonged sounds, revisions and phrase repetitions occurred to a lesser degree. In, females of the experimental group, although findings were similar, greater proportions of interjections than sound and syllable or word repetitions were found.

Carlo and Watson (2003) did a study on the disfluent speech of 32 Results Normally fluent monolingual, Spanish-speaking children. revealed no main effects for age or gender as well as no interactions While examining the total frequencies of speech distluencies, Revisions, interjections, and single-syllable word repetitions were the most frequently observed speech disfluencies.

From the study it is clear that revisions were found more in women and audible pauses were found in men. Combindly audible pauses were found to be more which is followed by revisions, hesitations, interjections, silent pauses, prolongations and repetitions.

SUMMARY AND CONCLUSION

The present study aimed to analyze the common disfluencies that occur in spontaneous adult conversations. A total of 30 Malayalam speaking radio jockeys in the age range of 20.27yrs were selected for the study. The analysis was done separately for men and women and combined analysis is also done.

The speech was recorded individually, and the disfluencies repetitions, prolongations, silent pauses, audible pauses, hesitations, interjections and revisions were the disfluencies checked and are numbered while transcribing.

The study reveals that for women, revisions were found to be more which was followed by audible pauses, interjections, hesitations, silent pauses and prolongations and the mean value is found to be Highly significant. For men it's clearly identified as audible pauses were found to be more which was followed by revisions, hesitations, interjections silent pauses, prolongations and repetitions and mean value is found to be

significant. And in combined analysis it is found that audible pauses were more which is followed by revisions, hesitations, interjection, silent pauses, prolongations and repetitions, the mean value is found to be highly significant.

This study provides description about the normal disfluencies occurring in adults. This study gives a clear picture about the disfluencies that helps to determine the acceptable normal disfluency and unacceptable abnormal dysfluencies speech of an adult speaker. So from this study, we can get a clear picture on how to categorize the disfluencies of spontaneous speech in non stutterering adult speakers.

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