Vocal Demands in Teachers: Primary Vs Secondary Schools

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Abstract

The human voice is exposed to various loading factors in the teaching profession. Teachers form a large group of professional voice users and are thought to be at higher risk for voice problems compared to the general population. The aim of the present study was to correlate vocal demand in primary and secondary school teachers using subjective (questionnaire assessment) and objective assessment: acoustic characteristics, aerodynamics of voice and measuring existing background noise in classroom situations. Thirteen pre-school/primary teachers and fourteen secondary school teachers in the age range of 20-50 years with at least two years of teaching experience participated in the study. MDVP, Dr. Speech softwares were used to analyze voice characteristics. The most distinct result of the study was that secondary school teachers showed increased values in most of the parameters indicating greater vocal load though the same were not significant. Also, 12 out of 14 secondary school teachers had deviant voice quality, whereas 9 out of 13 primary school teachers showed deviant voice quality. The background noise levels in primary schools were found to be more than secondary schools though significant difference was not present. Since significant correlation could not be obtained between classroom noise level and teachers' teaching voice level it cannot be stated conclusively that the teaching environment is a major factor for increased vocal effort in these teachers.

Introduction

"A man is known by what he speaks and how he speaks" - Unknown

Since time immemorial speech has been given considerable importance by man. The underlying basis of speech is voice. The importance of the human voice in modern society cannot be overstated. The impact of voice dysfunction on the quality of life is difficult to appreciate as the capacity to communicate is taken for granted.

Abuse or misuse of the vocal system leads to organic changes in the system. This in turn causes loss of voice or abnormal voice. It is a well established fact that voice disorder is seen more in professional voice users. The individuals who are directly dependent on vocal communication for their livelihood are called "professional voice users" (Stemple, 1993; Murry & Rosen, 2000). They include singers, actors, teachers, attorneys, etc

The human voice is exposed to various loading factors in the teaching profession. Teachers Level II professional voice users who are highly susceptible to voice problems and a moderate vocal problem might prevent adequate job performance (Koufman and Issacson, 1991).

Teachers who work in schools with noisy classrooms must constantly raise their vocal volume in response to varying levels of background noise. Background noise levels in some workplaces have been found to be far above 50-60 dB for example, at preschools (Truchnon, Gagon & Hetu, 1998; Sodersten, Granquist, Hammerberg & Szabo (in press) and schools

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(Hay, 1995). The teachers of preschool/primary schools tend to speak more loudly as younger students are much noisier than the older ones and therefore show more severe and frequent voice problems compared to the teachers of secondary schools/colleges (Pearson, Bennett & Fidell, 1977).

Noisy ventilation systems that cycle on and off, poor insulation between classrooms that allows sound leakage, hard surfaces that reflect student noises and as such outside noise sources like traffic and airplanes cause teachers to strain their voices (Herrington-Hall, Lee, Stemple, Niemi & McHone, 1988; Rantala & Vilkman, 1999; Smith, Gray, Dove, Kirchner & Heras, 1997; Titze, Lemka & Montequin, 1997). Added to the poor acoustics of classrooms, the use of chalk and blackboard would result in an environment which assaults the vocal system of every teacher day in and day out (Harisinghani, 2000).

Primary teachers are teachers who teach classes till Vth standard. Secondary school teachers are teachers who teach from VIth to XIIth (National Policy on Education, 1992).

Need for the study

There have been various methods such as inventories, acoustic analysis, analysis of the acoustic environment, etc. to evaluate the characteristics of voice in teachers. Generally, inventories have been devised such that they focus on clients' perception, reaction and adjustment to the problem, nature and frequency of voice problem, etc. There are very few inventories that incorporate factors related to teaching environment, vocal habits and classroom conditions. Therefore, the present study was planned to inquire into the nature of voice characteristics in teachers of primary and secondary grades, using a questionnaire and objective measures. The present study aimed at the following:

- To obtain self-appraisal regarding their voice in pre primary and secondary school teachers using a questionnaire.
- Correlating vocal demand in these two groups of teachers using objective assessment–acoustic characteristics, aerodynamic and existing background noise in classroom situations.
- Correlating objective acoustic characteristics and subjective information (self-appraisal)

Method

Teachers are more susceptible to voice changes due to the demands of their profession. Hence, the present study aimed at exploring the differences in voice characteristics in pre/primary and secondary school teachers.

Subjects: Thirteen pre-school/primary teachers and fourteen secondary school teachers in the age range of 20-50 years with at least two years of teaching experience participated in the study. All the teachers were bilinguals with English as their second language and were chosen from schools of Mysore city that permitted carrying out of noise measurements in their respective schools.

Procedure: The procedure of the study was divided into three phases.

I Phase: A Questionnaire (see Appendix) was devised incorporating information pertaining to (a) Classroom condition and general information (13 questions), (b) Life style (9 questions), (c) Vocal Habits (6 questions) and (d) Symptoms exhibited (13 questions).

A pilot study was conducted to check the validity of the questionnaire prior to the study. The questionnaire consisted of a total of 41 questions in which few questions required detailed answers and the remaining involved rating individual's preferences on 4-point scale. The subjects were informed about the purpose of the study, instructed appropriately and were appraised individually.

II Phase: Objective assessment

- **Voice recording:** Teachers who had completed the questionnaire were selected for voice recording. Audio recording of voice was done in quiet situation during working hours (during free time) using the SONY mini-disc (MZ R-30) digital portable tape recorder with option for external microphone. The distance between the microphone and subjects' mouth was maintained. All the subjects were instructed appropriately and the following tasks were recorded,

    - Phonation of the vowel /a/
    - Speaking for two minutes about themselves
    - Reading standard passage (Rainbow passage)

- **Recording of vital capacity:** Vital capacity was recorded using the hand-held portable Vitalograph, Model 2120. The subjects were instructed to take a deep breath and release all the inspired air into the mouthpiece of the instrument. Three trials were obtained for all the subjects. Average of the three trials of vital capacities was noted in liters.

- **Noise measurement:** Noise measurement of existing background noise levels of the classrooms were carried out when the classes were in progress. Classrooms of all the selected schools that were used by the subjects (teachers) were chosen for noise measurement and the following instrumentation was used:

- Sound Level Meter (SLM)–Bruel & Kjaer, Type 2230 with the following settings was selected for noise measurement:

    a. Detector: RMS
    b. Time weighting: Slow
    c. Display: SPL
    d. Sound Incidence: Frontal
    e. External filter: Out
    f. frequency weighting scale: 'A'

- Microphone: Bruel & Kjaer (Type- 4189) - Prepolarised free-field ½ Microphone
- Pre- amplifier: Bruel & Kjaer
- Tripod stand
- Measuring tape
- Level meter/Sprit level

The tripod stand was adjusted such that SLM was one meter above the floor. Level meter was used to ascertain that the SLM was horizontal to the floor. Existing background noise levels were noted across five points in each classroom and the average of three readings per point was noted in dB SPL.

III Phase: Analysis:

MDVP: The audio-recorded data was line fed into the CSL module using a sampling rate of 50000 Hz and conversion rates of 50 KHz for phonation and 25 KHz for speech and reading respectively. 29 parameters pertaining to the following major categories were extracted after acoustic analysis using MDVP for phonation of /a/:

I F0 information measure
II Short and long term frequency perturbation measures
III Short and long term amplitude perturbation measures
IV Voice break related measures
V Sub-harmonic related measures
VI Voice irregularity related measures
VII Noise related measures &
VIII Tremor related measures

The following 6 parameters were noted for speaking and reading:

1. Average F0 (F0)
2. Average T0 (T0)
3. Highest F0 (Fhi)
4. Lowest F0 (Flo)
5. SD of F0 (STD)
6. Degree of voice breaks (DVB)

Dr. Speech: Only the phonation samples were subjected to the quality assessment. The signals were line fed using 44100 Hz sampling rate. The quality was rated as Normal, Slight, Moderate and Extreme under each of the qualities: harsh, hoarse and breathy.

Results

The present study aimed at finding the differential effects of vocal demands on voice characteristics of primary and secondary school teachers.

Questionnaire Analysis:

The questionnaire consisted of 41 questions in total. Some of the questions in the first section required detail answers and hence were not considered for estimation. Responses to questions in the last three sections were averaged and percentages obtained for both primary and secondary teachers. When both the groups were compared, the following results were observed:

I General information and Classroom conditions:

- The numbers of students were more in classes of secondary teachers than primary teachers.
- Secondary school teachers had more years of teaching experience than primary teachers but the primary school teachers taught for more number of hours when compared to secondary teachers.
- Classroom conditions were quiet according to 53.8% of primary and 78.6% secondary school teachers respectively. Remaining of the teachers opined that they taught in noisy conditions.
- 84.6% of the primary school teachers used black board compared to 100% secondary school teachers.

- 35.7% of secondary and 38.85 % of primary school teachers respectively, reported that the surrounding noise did not disturb their teaching while it disturbed the rest of the teachers.
- 35.7% of secondary school teachers and 53.8% primary teachers reported that they did not indulge in throat clearing whereas rest of the teachers indulged in throat clearing.
- Histories of URT infections were present in 61.5% primary and 71.4% secondary school teachers respectively.

II Life style:

56.4% of primary and 59.7% of secondary school teachers reported that they did not indulge in vocal abuse and excess vocal usage. But 9.4% of primary and 15.8% of secondary school teachers revealed that they indulged in such habits always.

III Vocal habits:

47.4% of primary and 63.1% secondary school teachers reported that they did not exhibit any vocally abusive behaviors as per this section. 2.5% primary and 1.1% secondary school teachers opined that they exhibited vocally abusive behaviors always, the remaining subjects reported of such behaviors either occasionally or frequently.

IV Symptoms exhibited:

55.7% primary and 64.8% secondary school teachers opined that they did not suffer from any voice related symptoms, 3.2% primary & 1.7% secondary school teachers accepted that they always exhibited such symptoms.

Objective Analysis:

I Acoustic and aerodynamic parameters:

The statistical analysis was carried out using the software, SPSS version 10. Descriptive statistics and independent sample 't' test for significance was performed. The results have been presented in tables in the subsequent paragraphs.

It can be observed from Table-1 that the mean values for fundamental frequency information related parameters- F0, STD, Fhi, Flo; Short and long term amplitude perturbation measures- ShdB, Shim, APQ, and vAm; Sub harmonic component related measures- DSH and NSH and Voice irregularity related measures- DUV and NUV were higher in secondary school male teachers but the same were not statistically significant.

Increased mean values were noticed for Short and long term frequency perturbation measures: Jita, Jitt, RAP, PPQ, and sPPQ, Noise related measures: NHR and SPI and NNE in primary school male teachers and significance was absent. Though the mean value of vital capacity was higher in secondary school male teachers, it was not significant.

Table-2 reveals that the mean values for fundamental frequency information related parameters- F0, T0 and Fhi were higher in secondary school male teachers but not statistically significant for reading. T0, Fhi, Flo and DVB had increased mean values for speaking in primary male teachers. However, a significant difference was noticed for DVB only in speaking task in primary male teachers.

Table 1: Mean, SD and 't' values for acoustic parameters & vital capacity for phonation of /a/ in male teachers.

Parameters	Teachers	Mean	SD	t
F0	Pri	120.03	20.53	1.05
	Sec	141.12	35.14	
T0	Pri	8.75	1.21	1.40
	Sec	7.36	1.63	
Fhi	Pri	117.9	14.36	1.80
	Sec	152.9	36.08	
Flo	Pri	111.4	13.10	1.18
	Sec	129.67	28.34	
STD	Pri	2.01	0.37	0.61
	Sec	2.40	1.19	
Fftr	Pri	3.34	1.67	1.09
	Sec	2.32	1.14	
Fatr	Pri	4.88	3.52	0.47
	Sec	6.25	4.14	
Jita	Pri	132.42	40.04	1.76
	Sec	82.01	44.38	
Jitt	Pri	1.36	0.8	0.58
	Sec	1.09	0.59	
RAP	Pri	1.06	0.39	1.58
	Sec	0.63	0.39	
PPQ	Pri	0.87	0.29	1.22
	Sec	0.62	0.32	
sPPQ	Pri	1.09	0.10	0.23
	Sec	1.03	0.52	
vF0	Pri	1.44	0.17	0.60
	Sec	1.70	0.85	
ShdB	Pri	0.55	0.54	1.93
	Sec	9.40	3.36	
Shim	Pri	0.88	0.59	0.73
	Sec	1.11	0.32	
APQ	Pri	0.74	0.12	0.14
	Sec	0.77	0.28	
sAPQ	Pri	1.10	0.67	0.43
	Sec	0.95	0.38	
vAm	Pri	1.56	0.81	1.09
	Sec	2.50	1.53	
NHR	Pri	0.40	0.52	0.76
	Sec	0.22	0.10	
VTI	Pri	0.30	0.49	1.04
	Sec	7.80	1.92	
SPI	Pri	6.28	1.25	2.02
	Sec	4.54	1.30	
FTRI	Pri	0.67	0.51	0.008
	Sec	0.88	0.43	
ATRI	Pri	0.86	0.88	0.58
	Sec	0.60	0.42	
DVB	Pri	0	0	-
	Sec	0	0	
DSH	Pri	0	0	0.88
	Sec	1.26	2.81	
DUV	Pri	0	0	0.88
	Sec	10.74	24.01	
NVB	Pri	0	0	-
	Sec	0	0	
NSH	Pri	0	0	0.88
	Sec	1	2.23	
NUV	Pri	0	0	0.88
	Sec	15.80	35.3	
NNE	Pri	13.36	7.48	0.29
	Sec	12.10	5.57	
Vital capacity.	Pri	2.84	1.07	0.23
	Sec	2.98	0.73	

Table 2: Mean, SD and 't' values for the acoustic parameters for reading and speaking in male teachers.

Parameters	School	Reading			Speaking		
		Mean	SD	t-Value	Mean	SD	t-Value
F0	Pri	150.07	36.01	0.26	139.05	46.49	0.58
	Sec	156.89	39.12		156.43	43.27	
T0	Pri	6.61	1.77	0.28	7.21	2.29	0.13
	Sec	6.96	1.80		7.02	1.85	
Fhi	Pri	262.71	218.04	0.83	357.73	222.75	0.01
	Sec	365.30	152.95		355.88	196.95	
Flo	Pri	113.62	22.75	0.76	106.48	24.09	2.03
	Sec	103.37	17.59		72.98	24.95	
STD	Pri	30.55	44.63	0.12	16.94	13.12	1.31
	Sec	28.08	12.71		29.94	15.79	
DVB	Pri	37.49	18.62	1.83	42.59	8.66	2.85*
	Sec	19.31	10.97		24.59	9.90	

* Depicts significance $p< 0.05$

Table 3: Mean, SD and 't' values for the acoustic parameters and vital capacity for phonation of /a/ in female teachers.

Parameters	Teachers	/a/		
		Mean	SD	t-
F0	Pri	234.28	21.79	4.24*
	Sec	189.87	22.54	
T0	Pri	4.15	0.63	3.58*
	Sec	5.26	0.68	
Fhi	Pri	253.68	27.84	0.31
	Sec	246.87	57.88	
Flo	Pri	222.29	20.86	3.51*
	Sec	159.81	49.14	
STD	Pri	3.77	1.66	1.24
	Sec	6.23	5.68	
Fftr	Pri	4.80	4.34	0.80
	Sec	3.26	1.78	
Fatr	Pri	4.83	2.06	0.41
	Sec	6.27	6.67	
Jita	Pri	53.79	32.68	1.59
	Sec	125.25	130.23	
Jitt	Pri	1.21	0.79	1.29
	Sec	2.26	2.31	
RAP	Pri	.74	0.46	1.19
	Sec	1.30	1.33	
PPQ	Pri	0.72	0.45	1.28
	Sec	1.37	1.47	
sPPQ	Pri	0.90	0.38	1.40
	Sec	1.53	1.29	
vF0	Pri	1.60	0.72	1.63
	Sec	3.37	3.18	
ShdB	Pri	0.23	0.24	0.56
	Sec	0.30	0.29	
Shim	Pri	1.76	1.08	1.21
	Sec	3.11	3.16	
APQ	Pri	1.27	0.79	1.24

	Sec	2.30	2.33	
sAPQ	Pri	1.54	0.92	1.34
	Sec	3.62	4.56	
vAm	Pri	3.51	3.19	1.74
	Sec	9.63	10.03	
NHR	Pri	0.14	6.30	1.04
	Sec	1.07	2.67	
VTI	Pri	7.11	4.75	0.57
	Sec	6.11	2.14	
SPI	Pri	6.95	6.32	9.37
	Sec	11.00	11.3	
FTRI	Pri	0.39	0.35	1.55
	Sec	0.82	0.74	
ATRI	Pri	0.68	0.79	0.76
	Sec	1.43	2.52	
DVB	Pri	0	0	1.42
	Sec	0.93	1.96	
DSH	Pri	0.34	1.04	1.12
	Sec	1.40	2.61	
DUV	Pri	0	0	2.01
	Sec	10.51	15.63	
NVB	Pri	0	0	1.51
	Sec	0.22	0.44	
NSH	Pri	0.11	0.33	1.65
	Sec	1.22	1.98	
NUV	Pri	0	0	1.79
	Sec	11.66	19.45	
NNE	Pri	14.11	4.66	2.09
	Sec	8.8	5.98	
Vital capacity	Pri	2.58	0.47	1.95
	Sec	2.00	0.76	

* Depicts significance $p < 0.05$

The mean values for fundamental frequency information related parameters- F0, Fhi, and Flo were higher in primary school female teachers but statistical significance was present for F0 and Flo. A significantly higher mean T0 was noticed in secondary school female teachers, as shown in Table-3.

Short and long term amplitude perturbation measures - ShdB, Shim, APQ, and vAm; Sub harmonic component related measures - DSH and NSH and voice irregularity related measures - DUV and NUV were higher in secondary school female teachers but the same were not statistically significant.

Increased mean values were noticed for Short and long term frequency perturbation measures: Jita, Jitt, RAP, PPQ, and sPPQ. Noise related measures-NHR and SPI in secondary school female teachers and significance was absent. The mean values for vital capacity was more in primary school teachers but was not significant.

Table 4: Mean, SD and 't' values for the acoustic parameters for reading and speaking in females.

Parameters	School	Reading			Speaking		
		Mean	SD	t-Value	Mean	SD	t-Value
F0	Pri	237.57	23.13	3.88*	244.54	19.91	3.62*
	Sec	200.49	16.84		185.94	44.28	
T0	Pri	4.56	1.12	1.50	4.59	1.26	1.44
	Sec	5.17	0.49		5.50	1.41	
Fhi	Pri	409.60	103.58	0.88	386.21	189.65	0.66
	Sec	353.43	159.39		339.47	95.18	
Flo	Pri	150.45	36.79	0.24*	164.52	68.27	1.26
	Sec	109.13	41.22		131.89	36.75	
STD	Pri	32.47	14.28	0.86	61.04	83.78	1.17
	Sec	38.89	16.96		27.81	14.81	
DVB	Pri	38.63	15.71	0.61	46.12	21.17	1.09
	Sec	34.07	15.59		34.83	22.67	

* Depicts significance $p < 0.05$

Table- 4 depicts the mean values for fundamental frequency information related parameters - F0, Fhi, Flo and DVB which were higher in primary school female teachers and F0 and Flo were statistically significant for reading. F0, Fhi, Flo, and STD were higher in primary school female teachers although statistical significance was noticed only for F0.

II Dr. Speech: Out of the 14 secondary school teachers 12 teachers were found to have deviant quality, that is, either combination of hoarse/harsh/breathy or all the three. In primary school teachers 9 out of 13 showed deviant voice quality.

III Noise measurements

Table 5: Range of background noise levels in primary and secondary school classrooms.

School	Minimum noise level	Maximum noise level
Primary	78.6 dBSPL	88.7 dBSPL
Secondary	75.2 dBSPL	82.3 dBSPL

The existing background noise levels in the primary grade classrooms ranged from 78.6 dBSPL to 88.7 dBSPL and in secondary grades the existing noise range was 75.2 dBSPL to 82.3 dBSPL (Table 5). Though the noise levels in primary grade classes were higher than the secondary grade classes, there was no significant difference noticed.

Discussion

The results in general revealed that the secondary school teachers showed increased values for most of the voice parameters, especially F0 related and frequency perturbation measures. When subjective information was correlated with objective measures, it could be speculated that the secondary school teachers experienced excess vocal loading. The following factors could have contributed to increased vocal load or demand.

- Majority of secondary school teachers were disturbed by surrounding noise while teaching in the class
- Most of the secondary school teachers suffered from URTI
- They also indulged in frequent throat clearing

- They had longer duration of teaching experience
- Also the number of students were reported to be higher in secondary school teachers' classrooms, thus increasing the vocal effort of the teacher in being heard by students
- Most of the secondary teachers were in their middle ages. Calas, Lecoq, Dalleas & Seihean (1989) reported that 67% of the teachers with voice problems were aged between 31 and 50 years.

Stample, Stanley &Lee (as cited in Rantala, Vilkman & Bloigu, 2002) reported that weakness of the thyroarytenoid muscle consequent to vocal loading causes increased mean F0. When the muscular layer of the thyroarytenoid slacken resulting in stiffness of the cover and transition layers of the vocal folds, it leads to an increase in F0. According to Rantala, Vilkman & Bloigu (2002) the compensatory reactions of the speakers alter the mucosa resulting in increased vocal fold vibration and glottal adductory forces (hyperfunction). Stemple, Stanley and Lee (as cited in Rantala, Vilkman & Bloigu, 2002) stated that even two hour of voice loading resulted in increased F0. These studies lend support to the findings of the present study wherein majority of frequency and its related parameters showed increased values.

Further, primary school teachers were younger, had few years of teaching experience, less number of students in their classes and these factors could have lessened the vocal load inspite of teaching for more number of hours per day in a relatively high background noise levels.

The findings of the present study cannot be generalized to all teachers because some individuals are neither sensitive to symptoms of vocal fatigue nor familiar with describing them. Therefore more number of subjects need to be assessed to confirm the findings.

Conclusion

Researchers have found that voice is exposed to various loading factors in teaching profession and teachers are found to be at high risk for voice problems. The main purpose of the present study was to open up new perspective towards the phenomenon of voice loading and fatigue and differences in voice characteristics in primary and secondary school teachers. The other purpose of the study was to understand the relationship between existing background noise in classrooms and teachers' teaching voice level and also provide the data about the relationship of noise and teachers' vocal problems.

The nature of the present study was explorative rather than confirmative. The present study was a combination of a self-appraisal (questionnaire) and objective (aerodynamic, acoustic, noise measurement) methods. A questionnaire was devised assessing subjective opinions of teachers. A total of 27 teachers in the age range of 20 to 50 years from different schools of Mysore city with a minimum of 2 years of teaching experience were selected. Acoustic analysis was done using MDVP and Dr. Speech software and noise measurement was carried out in the respective classes of the subjects.

The most distinct result of the study was that secondary school teachers showed increased values in most of the parameters indicating greater vocal load though the same were not significant. Also 12 out of 14 secondary school teachers had deviant voice quality, whereas 9 out of 13 primary school teachers showed deviant voice quality. The background noise levels in primary schools were found to be more than secondary schools though significant difference was not present. Since significant correlation could not be obtained between classroom noise level and teachers' teaching voice level it cannot be stated

conclusively that the teaching environment is a major factor for increased vocal effort in these teachers.

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APPENDIX

Department of Speech-Language Sciences

Name: Education:

Age/sex: Marital status: Married/ Unmarried

Family setup: Joint / Nuclear

Address:

Personal: School:

Instruction:

Section A: Answer in detail to the question no. 1 to 10.

Section B, C, and D: Indicate your choice by () ticking against the numbers. Each of the numbers refers to:

0: No 1: Occasionally 2: Frequently 3: Always

SECTION A: Classroom condition & General information

1. How many students are there in your class?
2. Do you teach primary or secondary grade classes?
3. Where is your school located—Noisy environment / Quite environment?
4. Since how long you are working as a teacher?
5. Mention the subjects you teach?
6. Did you change your teaching subjects?
7. What is the maximum number of hours you teach regularly?
8. What is the minimum number of hours you teach regularly?
9. Do you have history of ear infections or hearing problem?
10. Do you use black board or white board? Specify.
11. Do you suffer from frequent upper respiratory infections? 1 2 3 4
12. Does surrounding noise disturb you during teaching? 1 2 3 4
13. Do you clear your throat while teaching? 1 2 3 4

SECTION B: Life style

14. Do you indulge in long continuous chat? 1 2 3 4
15. Do you eat spicy or hot food? 1 2 3 4
16. Do you live in noisy environment? 1 2 3 4
17. Do you live in dusty environment? 1 2 3 4
18. Do you smoke? 1 2 3 4
19. Do you consume alcohol? 1 2 3 4
20. Do you take tuition or teach your own children? 1 2 3 4

    If yes, for how many hours -

21. Do you indulge in any of the following – 1 2 3 4

    Indicate the number of hours against your choice/s.

    - Lecturing - Chanting
    - Announcement - Singing

22. Do you use voice to discipline children at home? 1 2 3 4

SECTION C: Vocal habits	1	2	3	4
23. Doyou indulge in loud talking	1	2	3	4
24. Do you indulge in screaming or shouting in classroom?	1	2	3	4
25. Do you indulge inscreaming or shouting at home?	1	2	3	4
26. Do you clear your throat frequently?	1	2	3	4
27. Do you have habit of singing loudly?	1	2	3	4
28. Do you practice any vocal exercises to project/improve your voice? Specify......................	1	2	3	4

SECTION D: Symptoms exhibited

29. Does your voice tire very soon?	0	1	2	3
30. Do you perceive roughness in your voice?	0	1	2	3
31. Do you experience sensations like pain, soreness/irritation or lump in throat?	0	1	2	3
32. Do you use any solutions, salt water, mint, etc. to relieve your throat? Specify..	0	1	2	3
33. Do you feel that you have better voice in the mornings or evenings? Specify...	0	1	2	3
34. Do you feel difficulty in raising your voice (increase the loudness)?	0	1	2	3
35. Do you experience episodes of loss of voice/voice breaks while speaking?	0	1	2	3
36. Have you under gone any of the following operations-?	0	1	2	3

- Thyroidectomy
- Adenoidectomy
- Tonsillectomy
- Others

If yes, did you notice any voice change after the operation?

37. Do you have sensation of dryness in your throat?	0	1	2	3
38. Are you allergic to A/C, dust/medicine? Specify-	0	1	2	3
39. Do you feel that your voice is influenced by any of the following medical problems and or subsequent medication? (a) Diabetes (b) High blood pressure (c) Others	0	1	2	3
40. Do you suffer from anxiety, mental tension or stress?	0	1	2	3

41. Comments about yourself:... ... ...
... ...