

Impact of 'Vocal Hygiene Awareness Programme' in Professional Voice Users (Teachers)

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Abstract

Vocal hygiene education is an effective method to create awareness, reduce vocal abuse and prevent acquisition and progression of voice problems among teachers and singers (high-risk voice users). 'Vocal Hygiene Awareness Programmes (VHAPs), conducted by Sri Ramachandra Voice Clinic, Chennai at various schools, have been found to be effective in increasing knowledge of vocal hygiene among teachers. The study evaluated the impact of VHAPs based on: knowledge gained, implementation of vocal hygiene practices and concern for prevention of voice problems. A questionnaire, based on the contents of the VHAPs was completed by 32 teachers who had attended VHAPs two years back. A majority of teachers followed dietary modifications such as reducing intake of tea/coffee, sipping water frequently, regularized diet and avoiding sleeping immediately after eating. More than 50% of the teachers followed vocal tips such as monitoring loudness and avoiding throat clearing, dust, shouting, and attempts to speak when out of breath and when sick. Classroom modifications such as use of amplification devices, avoiding chalk and taking frequent periods of voice rest were not implemented as these required facilities to be provided by the school. VHAPs were effective in increasing knowledge, modifying practices and adapting a positive attitude. However, results indicated that implementation of the VHAPs was not satisfactory. The primary reasons reported for the same included time constraints, work pressures, non-availability of facilities and personal factors. The biggest limitation was implementation of certain vocal hygiene practices that were beyond the purview of teachers. This should be addressed while structuring VHAPs.

Keywords: Vocal and non-vocal habits, efficacy, high-risk voice users

Teachers are at high risk for developing voice problems due to their professional demands for excessive voice usage. Teachers report voice problems at a rate nearly three times that of members of other randomly selected professions (Smith, Gray, Dove, Kirchner & Heras, 1997). In a study conducted in India, 49% of teachers reported voice problems (Boominathan, Rajendran, Nagarajan, Seethapathy & Gnanasekar, 2008).

Prolonged voice use for verbal instruction in the presence of background noise is the primary cause of voice problems among the members of this profession (Smith, Lemke, Taylor, Kirchner & Hoffman, 1998). Other causes include improper dietary habits, medical conditions, stress, anxiety and other psychological factors. Deviant voice qualities, inability to sustain phonation, vocal fatigue, pain during phonation and throat irritation are some of the reported voice problems resulting from these causes (Yiu, 2002; Boominathan et al., 2008). Owing to professional demands, voice problems in teachers lead to reduced effectiveness at work (Sapir, Keidar & Mathers-Schmidt, 1993, as cited in Smith, Gray, Dove, Kirchner & Heras, 1997). Also, voice problems

reportedly interfered with future job options (Smith et al., 1998). However, teachers do not always seek professional help unless the impact of the voice problem worsens (Smith et al., 1998).

Vocal hygiene practices are essential for prevention of voice problems in high-risk groups and professional voice users such as teachers, singers, etc. However, due to limited knowledge of vocal hygiene practices among teachers, voice problems occur and persist. Bistrisky and Frank, (1981, as cited in Mattiske, Oates & Greenwood, 1998) found improvements in awareness of voice function and self evaluation of voice in a group of teachers who attended vocal hygiene programs. Vocal hygiene education emphasizing the importance of voice care with respect to behaviours, lifestyles and diets has been found to be an effective method to reduce vocal abuse and prevent the progression of voice problems in teachers (Chan, 1994; Roy et al., 2001). This is an effective method of learning and empowering teachers to acquire knowledge, skill and attitude to reduce vocal abuse and prevent the progression of voice problems. Though some variation may exist in vocal hygiene programmes conducted across the world, they address some

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issues in general, such as extent and type of voice usage; abusive behaviours; lifestyle and dietary practices. Roy et al. (2001) emphasized the utility of vocal hygiene programmes in establishing, carryover and maintenance of the desired behaviours that facilitate vocal health.

'Vocal Hygiene Awareness Programmes' (VHAPs) have been conducted at various schools and colleges by the Sri Ramachandra Voice Clinic, Chennai. A questionnaire was administered prior to (pre) and immediately after (post) the awareness programmes. A program is claimed to be 'effective' when it produces a desired or intended change in the knowledge set of the concept addressed. However, 'impact' is the noticeable influence of the knowledge gained over a longer period of time. To evaluate impact of a program one needs to consider the implementation of the knowledge and effects of the same. The effectiveness of the VHAP in educating teachers on vocal hygiene was evaluated in a study published in 2008 by Boominathan, Rajendran, Nagarajan, Madraswala and Rajan (data collected in the year 2006). Important outcomes of these VHAPs included an increased awareness on the need to take voice rest, avoid throat clearing, shouting and smoking. Also, they were educated on the need for classroom modification strategies such as minimizing background noise, reducing speaker-listener distance and avoiding chalk dust. There was also increased awareness of the need for diet modifications such as drinking adequate water, avoiding spicy and deep fried food, regularizing meals and sleeping immediately after dinner (Boominathan et al., 2008). However, it is necessary to evaluate the 'impact' of such awareness in daily routines, in order to gauge success and effectiveness of VHAPs.

Data collected at the Sri Ramachandra Voice Clinic (Boominathan et al., 2008) evaluated the knowledge gained (sensitization) immediately after the VHAPs. It is however necessary to probe the extent to which these sensitized teachers remember and practice the tips provided in their daily routines. Follow-up helps in evaluating the implementation of vocal hygiene and concern towards prevention of voice problems. The 'impact' of VHAPs can be assessed on three

premises viz. knowledge, skill and attitude. Further, this data may help design and alter existing VHAPs and management of voice problems in teachers. Hence the present study was designed to evaluate the 'impact' of VHAPs conducted for teachers through Sri Ramachandra Voice Clinic based on three premises:

- (1) Knowledge gained on vocal hygiene practices (Knowledge),
- (2) Implementation of vocal hygiene tips (Skill) and
- (3) Concern for prevention of voice problems (Attitude)

Method

The current study was carried out in two phases. Phase 1 involved development of the questionnaire to assess the 'impact'. Phase 2 involved administration of the questionnaire and infer outcomes.

Phase 1: Development of the questionnaire

A questionnaire (Appendix-A) was developed based on the contents of the VHAPs conducted two years prior to the current study. The questionnaire was divided into the following sections:

- (i) Demographic data
- (ii) Section A - This section consisted of one open-ended question which required the teachers to recall the vocal hygiene tips provided at the VHAP. The main objective of this section was to evaluate knowledge retained on vocal hygiene awareness.
- (iii) Section B - This section collected information on the vocal hygiene tips practiced by the teachers. They were also required to provide reasons for the same. The objective of this section was to assess implementation of the knowledge gained following the VHAP. It consisted of open and closed-ended questions divided under the following sub-sections, classroom modifications, vocal and non-vocal practices and diet.
- (iv) Section C - Seven open-ended questions were included to evaluate effects of the tips practiced on voice, attitude towards vocal hygiene and concern for prevention of voice problems.

Phase 2 : Administration of the questionnaire

Participants: 32 (30 females & 2 males) of the 62 teachers who attended the VHAPs (conducted two years back; Boominathan et al., 2008) served as the participants for the current study. The age of the teachers (Table 1) in the current study ranged from 34 years to 75 years (Mean: 46.78, SD: 9.20). The reduction in the number of teachers in the follow-up study was due to unavailability, retirement and change of jobs. However, the reasons for change of job and current status of those teachers were not available.

Table 1. Age distribution of the teachers who participated in the study

Age range	No.of teachers
30 - 40 years	8
40 - 50 years	14
50 - 60 years	9
60 - 70 years	0
70 - 80 years	1

The teaching experience of the teachers (Table 2) ranged between two years and fifty years (Mean: 18.78, SD: 10.08). The number of classes per week ranged between six and thirty-four (Mean: 27.71, SD: 6.89) with a duration of 40 minutes per class. Except for two teachers, who took 6 classes per week, all the others had about 20-35 classes per week. Each class had approximately 26 to 40 students (Mean: 35.83, SD: 3.56). Of the 32 teachers, five reported histories of voice problems prior to the VHAP.

Procedure: Section A of the questionnaire was administered first. Once this section was completed, sections B and C of the questionnaire were completed by the teachers. The teachers took about 15 minutes to complete the questionnaire.

Table 2. Years of teaching experience of the teachers who participated in the study

Teaching experience	No. of teachers
0-5 years	3
5-10 years	3
10-15 years	6
15-20 years	9
20-25 years	5
25-30 years	2
30-35 years	3
35-40 years	0
40-45 years	0
45-50 years	1

Statistical Analyses

Chi square test of significance was used to compare the percentage of teachers in the study by Boominathan et al. (2008) and the current study, with respect to knowledge of vocal hygiene awareness tips. Percentage analysis was done to evaluate the extent to which the tips provided were implemented.

Results and Discussion

The results are discussed under three sections, namely, Knowledge gained on vocal hygiene practices, implementation of the vocal hygiene tips by the teachers (Skill), and the concern for the prevention of voice problems (Attitude).

Knowledge gained on vocal hygiene practices

An analysis of the data obtained from section A revealed that more than half the number of teachers recalled vocal hygiene tips such as avoiding screaming/shouting (68.75 %), drinking frequent sips of water (65.63 %) and taking adequate voice rest (65.63 %), even after two years from the time the VHAPs were conducted.

Other vocal hygiene tips such as avoid talking without breath support, talking in presence of background noise, throat clearing, intake of spicy/fast food, excessive amounts of coffee/tea, too cold/hot beverages were recalled by less than 25% of the teachers (Table 3). Tips such as reduced tension in facial structures while speaking, intake of fruit juices and avoiding singing and mimicry, exertion when sick and

Table 3. Comparison of percentage of teachers who recalled the vocal hygiene tips immediately after the vocal hygiene awareness programme and two years later

Voice care tips	Percentage of teachers	
	Boominathan et al. (2008)	Current study
Frequent voice rest	100	65.63
Not to talk without breath support	100	9.38
Not to shout / scream	100	68.75
No throat clearing	26.6	6.25
No smoking / alcohol	100	3.13
Not speaking in presence of background noise	95	9.38
Intake of more quantity and frequent sips of water	96.66	65.63
Not to eat deep fried / spicy	98.66	18.75
No whispering	65	21.88
Staying away from dust	76	15.62
Avoid too hot or too cold beverages	35	25
Intake of healthy food	5	3.13
Reduce intake of coffee/tea	93.3	18.75

sleeping immediately after dinner were not recalled by the teachers. 21.88% of the teachers recalled the importance of breathing exercises for voice care.

The chi-square test revealed that calculated value (140.783) is higher than the table value (36.415) for 95% confidence level [χ^2 (2, N=100) = 36.415, $p < 0.05$]; hence, there is a significant difference between results reported by Boominathan et al. (2008) study and the current study. The significant drop in the average scores (knowledge) in the current study when compared to the former study reflected that only tips which were consistently practiced were recalled. The reason for this difference could be attributed to the open ended-format of the question in section A. Also, teachers possibly would not have considered these tips as specifically being addressed for vocal hygiene. However, the reduced scores in the current study highlight the need to conduct VHAPs on a more regular basis.

Implementation of the vocal hygiene tips by the teachers (Skill)

Most of the teachers who practiced the tips

provided at the VHAP did so in order to prevent voice problems and their complications. However, a significant number of teachers were not able to implement these tips consistently due to various environmental and personal reasons.

The vocal hygiene tips practiced are discussed under the subheadings, classroom modification, vocal and non-vocal habits and dietary modifications

Classroom modification : A majority of the teachers did not practice four (use of amplification, avoiding chalk dust, avoiding voice raise, taking intermittent voice rests) out of five classroom modifications (Figure 1) provided by the VHAP. Approximately 70% of the teachers practiced moving closer to students while teaching. This provided better audibility and control over the class. More than half the teachers (59.4%) were unable to avoid raising their voice while teaching. The reasons provided for the same included excessive background noise over which the teachers spoke louder to be audible. They also reported a necessity to raise their voice in order to control students and get attention.

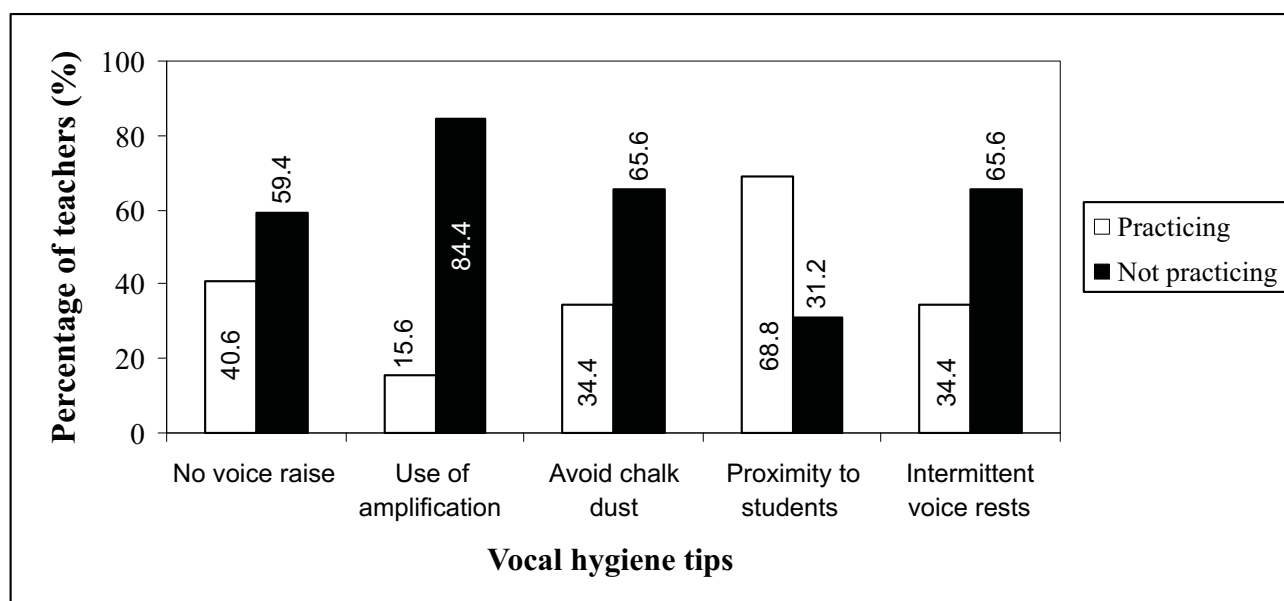


Fig. 1. Classroom modification strategies practiced by the teachers

A substantial number of teachers (84.4%) did not use amplification devices as the facility was not available at their schools. Also, some teachers reportedly did not require amplification as they believed they were loud enough and were able to control their classes. Most teachers (65.6%) were unable to avoid chalk dust as the use of chalk and board provided better visual representation and enhanced learning. A majority of teachers (65.6%) did not take frequent periods of voice rest between classes as their schedules did not provide time for the same owing to work pressure to complete the syllabus within a term of the academic year. Noisy environments, teacher's anxiety and stress levels could also result in inability to practice vocal hygiene tips consistently (Smith et al., 1997). In India, the inability to practice these vocal hygiene tips is also influenced by various factors such as noise and dust pollution, teacher to student ratio, number of classes taught without breaks and facilities provided by the school (Boominathan et al., 2008).

Vocal and non-vocal habits: Almost all the vocal hygiene tips were followed by most of the teachers (Figure 2). 50% of the teachers avoided straining their voices. However, the remaining 50% required to shout to control students. A majority (75%) monitored their loudness level while speaking to avoid straining the voice. More

than half the teachers (53.1%) were unable to practice voice rest due to time constraints. The remaining 49%, who practiced voice rest after school hours, did so to avoid vocal strain and reported voice rest to be highly beneficial. Very few of the teachers (21.9%) continued to talk when sick in order to complete school lessons. The remaining majority (78.1%) avoided speaking when sick to prevent vocal strain. Most of the teachers (87.5%) did not speak when out of breath.

An important outcome of the VHAP was that a substantial number of teachers avoided throat clearing. Also, a majority of them (65.7%) made attempts to avoid dust, as it reportedly affected their voice and general health. The remaining 31.3% of the teachers were unable to avoid environmental dust and chalk dust as it was a part of their work and home environment. None of the teachers smoked or drank alcohol.

Dietary modifications : Among the vocal hygiene tips provided, diet modifications (Figure 3) were implemented effectively. The majority of the teachers reduced tea/coffee intake (75%) and took frequent sips of water and regularized diet timings (84.4%). Nearly 87% of the teachers avoided sleeping immediately after meals. Approximately 60% of the teachers avoided spicy food as it affected their general health.

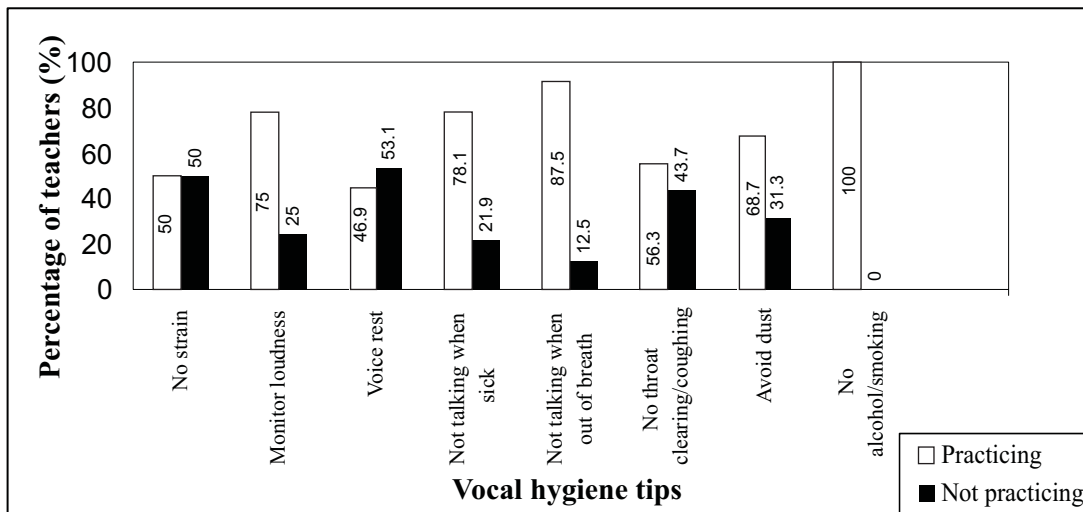


Fig. 2. Vocal and non-vocal tips practiced by the teachers

The remaining teachers (40.6%) continued to eat spicy food as it was their personal preference. An important finding was that even the teachers who were unable to practice these diet modifications reported to have attempted to do so. 'Work pressures', as reported by teachers, influenced the consistent implementation of vocal hygiene tips.

Concern for the prevention of voice problems (Attitude) : All teachers reported that the VHAP was useful. Most of the tips provided helped prevent vocal strain and voice problems. However, most of the teachers were unable to incorporate all the vocal hygiene tips into their daily routine. Some teachers reported difficulty

practicing a few of the tips like avoiding chalk dust, avoiding spicy food consistently. The teachers found that taking frequent sips of water, voice rest, avoiding vocal strain and throat clearing were particularly useful tips. Bistrisky and Frank (1981, as cited in Mattiske, & Oates Greenwood, 1998) reported a reduction in voice related symptoms by teachers who were educated on vocal hygiene tips. Teachers reported substantial changes in their voice such as reduced strain, throat pain, hoarseness and voice breaks. They also reported to be more aware of the impact of their daily practices on their voice. Most of the teachers (94%) found the tips to be applicable for improving their vocal hygiene. Only one teacher reported that staying away from

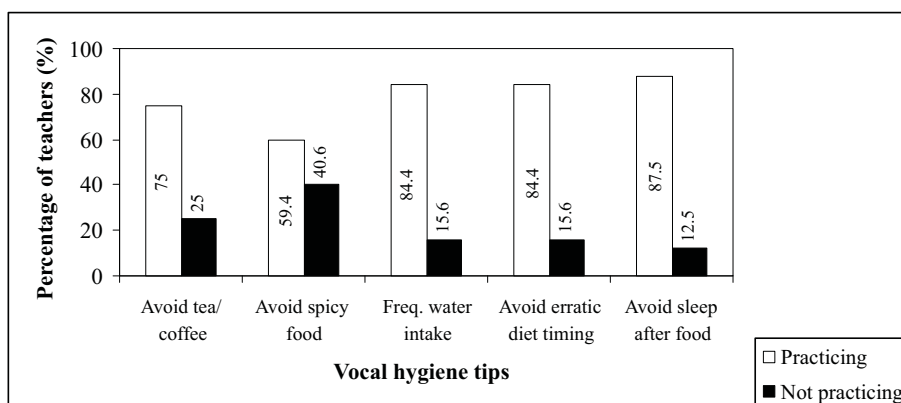


Fig. 3. Dietary modifications practiced by the teachers

dust did not help take care of the voice. A substantial number of teachers (93.75%) realized the need to consult an ENT or SLP in the case of a voice problem to prevent further deterioration. An important finding was that about 97% of the teachers reported that the vocal hygiene tips were useful and recommended these to their colleagues. This may help spread awareness about vocal hygiene practices. Also, a majority of the teachers felt it was very important for all teachers to attend VHAPs. The teachers requested that such programmes be conducted more regularly. This kind of educational approach is an effective method for prevention of voice problems among professional voice users. However, the extent of appropriateness, effectiveness and specific nature of these vocal hygiene tips are yet to be determined (Yiu, 2002).

Conclusion

The results of the current study are encouraging as the VHAPs were effective in ensuring increased knowledge of vocal hygiene practices. Importantly, these programmes resulted in an increased awareness of the need for preventive measures for voice care. These findings further reinforce the need for VHAPs on a regular basis at schools. However, implementation of the tips was not satisfactory. The principal reasons reported for the same included time constraints, work pressure, unavailability of certain facilities at schools and personal factors. The results of the current study also highlight the need for continued support from the managements of schools to effectively implement and cultivate the culture of 'voice care' among teachers. These factors should be addressed while structuring further VHAPs in order to ensure successful implementation. The applications of the study have to be viewed cautiously considering factors related to the age and gender of the teachers and their teaching experience.

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Appendix

Questionnaire

- Name:
- Age/Gender:
- Address:
- Name of the school:
- Qualification:
- Classes taught:
- No. of years of teaching:
- No. of students per class:
- Duration of each class:
- No. of classes taken per week:
- Any history/treatment for voice problem:

SECTION - A

Kindly write down the tips that were recommended during the Voice Care programme

Name:

Age/Gender:

Note: Kindly answer all the questions with Yes/No respectively and give appropriate reason(s) for the 'How' & /or 'Why' questions wherever mentioned.

This will be used to analyse and improvise the effectiveness of the Voice Care Programme, in practice.

SECTION - B

Class Room

1. Do you raise your voice to be audible over the background noise? Yes/No. Why?
2. Do you use amplification (mic & speaker) to be heard loud while teaching? Yes/No. Why?
3. Do you use chalk and board very frequently? Yes/No. Why?
4. Do you stay near the board while talking to students? Yes/No. Why?
5. Do you take frequent breaks between classes? Yes/No. Why? How?

Vocal and Non-Vocal

1. Do you speak without straining? Yes/No. Why? How?
2. Do you monitor your loudness while speaking? Yes/No. Why? How?
3. Do you take frequent breaks of voice rest? Yes/No. Why? How?
4. Do you consciously reduce or avoid throat clearing and coughing? Yes/No. Why? How?
5. Do you continue talking in the same way even when you are sick? Yes/No. Why?
6. Do you speak till you run out of breath? Yes/No. Why?
7. Do you stay away from dust? Yes/No. Why?
8. Do you smoke or consume alcohol? Yes/No. If yes, how much? Has it reduced? Why?

Diet

1. Do you drink more than 2 cups of tea or coffee a day? Yes/No. If yes, how much? Has it reduced? Why?
2. Do you frequently eat spicy food? Yes/No. Why?
3. Do you drink 8-10 glasses of water? Yes/No. Why?
4. Do you have erratic diet timings or do you skip meals? Yes/No. Why?
5. Do you sleep immediately after dinner? Yes/No. Why?

SECTION - C

1. Did you find the tips provided by the Speech Language Pathologist (therapist) regarding vocal hygiene, useful? How?
2. Which of the tips provided did you find particularly useful? Why?
3. Which of the tips weren't useful? Why?
4. What are the changes observed in your voice after using the tips described above?
5. Would you recommend these tips to your colleagues?
6. How important is Voice Care for teachers?
7. Would you consult an ENT specialist or Speech Therapist when you have difficulty in head and neck region? Yes/No. Why?