A Voice Screening and Vocal Health Education Program for Student Teachers

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Very Brief Background

Research has recently focused on teachers as an occupational group with very high vocal demands and significant risks for voice problems (e.g., Bovo, Galceran, Petruccelli, & Hatzopoulous, 2007; Gillivan-Murphy, Drinan, O’Dwyer, Ridha & Carding, 2006; Roy, N., 2005. Roy, Merrill, Thibeault, Gray & Smith, 2004a; Roy, Merrill, Thibeault, Parsa, Gray & Smith, 2004b, Tavares & Martins, 2007 and Verdolini and Ramig, 2001).

Recently, investigators have studied voice problems in individuals preparing to be teachers (e.g., Berit-Schneider, Enne, Cecon, Diendorfer-Radner, Wittels, Bigenzahn & Johannes, 2005; Duffy & Hazlett, 2004; Kovacic, 2005; Simberg, Sala, Tuomainen, Sellman & Ronnemaa, 2006; and Thomas, Kooijmann, Donders, Cremers & DeJong, 2007).
Purpose of this Project

This project investigated a semester-long voice screening and vocal health education program with student teachers in special education/early childhood education at The College of Saint Rose in Albany, NY.

The project was designed to:

• establish a voice screening program for student teachers
• evaluate the perceived effectiveness of vocal health education
• study change in voice and vocal health
The Participants

The project included 34, senior-level student teachers studying in a dual degree program in special education and childhood education (early childhood or elementary).

- Gender = 33 females, 1 male
- Mean age = 21.44; Range = 21-25 years
- Each participant was involved in a 14-week student teaching experience which included 2, 7 week sessions in 2 different classrooms
- Participants were screened and received vocal health education during a student teaching seminar
Components of the Project

The project had 4 components:

• A voice screening (administered by graduate students in CSD trained as part of a voice disorders course) prior to student teaching:
  – A survey of vocal, health, and social history
  – The CAPE-V
  – The Voice Handicap Index (VHI)

• Vocal health education
  – Information shared during the semester
  – A 30-minute presentation at mid-semester

• A voice screening at the end of student teaching

• A phone interview 9 months later
Vocal Health Education

• Information provided during the semester
  – A do’s and don’ts list for vocal health
  – Websites related to vocal health and voice problems
  – Information about warming up the voice
  – Referral information in case of voice problems
  – A book mark

• The 30-minute mid-semester presentation
  – Information about voice problems in teachers
  – A video clip of normal voice
  – Pictures of voice disorders seen in teachers
  – Information to prevent a voice problem
  – Information in case a voice problem occurs
Participants failed the screening when they exhibited one or more abnormal results on the CAPE-V and one or more reported symptoms of voice problems (survey questions 1-3).

Participants with reported acute conditions who failed were re-screened. They were not counted as failed if they passed the re-screening (this happened on 2 occasions).

Three student teachers failed both screenings. Six failed the pre-student teaching screening and passed the post screening. Three passed the pre-student teaching screening and failed the post screening.

<table>
<thead>
<tr>
<th></th>
<th>Pre-Student Teaching</th>
<th>Post-Student Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passed</td>
<td>25 (73.5%)</td>
<td>28 (82.4%)</td>
</tr>
<tr>
<td>Failed</td>
<td>9 (26.5%)</td>
<td>6 (17.6%)</td>
</tr>
</tbody>
</table>
A history of tired voice (survey question 3) suggested an interesting distinction between those who passed and those who failed the screenings. In addition to the data above, 4 student teachers reported a history of tired voice pre-student teaching and no tired voice post-student teaching; all 4 failed the 1st screening. Seven student teachers changed their report from a history of no tired voice to tired voice. Of the 7, 5 passed both screenings and 2 failed the screening post-student teaching.

<table>
<thead>
<tr>
<th></th>
<th>Pre-Student Teaching</th>
<th>Post-Student Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reported a tired voice and failed the screening</td>
<td>7 (78% of failed screenings)</td>
<td>5 (83% of failed screenings)</td>
</tr>
<tr>
<td>Reported tired voice and passed the screening</td>
<td>5 (20% of passed screenings)</td>
<td>10 (36 % of passed screenings)</td>
</tr>
<tr>
<td>Reported no tired voice and failed the screening</td>
<td>2 (22% of failed screenings)</td>
<td>1 (17% of failed screenings)</td>
</tr>
<tr>
<td>Reported no tired voice and passed the screening</td>
<td>20 (80% of passed screenings)</td>
<td>18 (64% of passed screenings)</td>
</tr>
</tbody>
</table>
VHI Results: Pre- and Post Student Teaching

**Paired Samples Correlations**

<table>
<thead>
<tr>
<th>Pair</th>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preach &amp; Post teach</td>
<td>34</td>
<td>0.733</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Paired Samples Statistics**

<table>
<thead>
<tr>
<th>Pair</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preach</td>
<td>11.2059</td>
<td>34</td>
<td>8.94352</td>
<td>1.53380</td>
</tr>
<tr>
<td>Post teach</td>
<td>6.6765</td>
<td>34</td>
<td>7.61068</td>
<td>1.30522</td>
</tr>
</tbody>
</table>

**Paired Samples Test**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>95% Conf. Interval Upper</th>
<th>95% Conf. Interval Lower</th>
<th>t</th>
<th>df</th>
<th>Signif. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preach-Post teach</td>
<td>4.52941</td>
<td>6.17048</td>
<td>1.05823</td>
<td>2.37643</td>
<td>6.68240</td>
<td>4.280</td>
<td>33</td>
<td>0.000</td>
</tr>
</tbody>
</table>
A Closer Look at the VHI Scores

On the VHI, those who passed scored an average of 12.10; the number rose to 16.47 for those who failed.

Only 4 student teachers recorded an increase in the VHI post-student teaching (2 passed the screening and 2 failed).

The highest VHI score (34) was recorded for a student teacher who passed the screening.

Of the 7 participants who scored 20 or higher on the VHI, 4 failed the screening and 3 passed.

<table>
<thead>
<tr>
<th>VHI Scores from 0-9</th>
<th>Pre-Student Teaching</th>
<th>Post-Student Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17</td>
<td>22</td>
</tr>
<tr>
<td>VHI Scores from 10-19</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>VHI Scores 20 and higher</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>
Measuring Change

Change was measured by comparing results of the two screenings and the follow up questionnaire. Generally, reported change did not correspond with screening results. Nonetheless, some data were interesting:

<table>
<thead>
<tr>
<th>Change in Health</th>
<th>Change in Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 31 student teachers reported no change in health over the semester</td>
<td>• 9 student teachers reported a positive change in their environment over the semester (less noisy or dusty); 3 failed</td>
</tr>
<tr>
<td>• 2 reported a negative change in health; both failed both screenings</td>
<td>• 4 student teachers reported a negative change in environment; 2 failed</td>
</tr>
<tr>
<td>• 1 reported a positive change in health; she passed both screenings</td>
<td></td>
</tr>
</tbody>
</table>

Generally, reported change did not correspond with screening results. Nonetheless, some data were interesting.
## Hydration and Exposure to Smoke

### Hydration

Among the 34 student teachers:

- 13 reported fair-poor hydration (4 or fewer glasses of “water” per day).

- Of these 13, 7 failed the screening. Interestingly, a reported increase or decrease in hydration did not seem to impact the screening results for these student teachers.

- 21 reported adequate daily hydration (5 glasses or higher).

### Exposure to Smoke

Among the 34 student teachers:

- 12 were exposed to cigarette smoke (either directly or second hand).

- Among these participants, 3 failed the screening once (2 pre-student teaching, 1 post).

- 22 reported no exposure to cigarette smoke.
Reported Satisfaction

- **Response to the survey question: Was the program helpful?**
  - 5 Strongly agree
  - 22 Agree
  - 6 Neutral

- All but one gave permission to be contacted during their first year of teaching.

*Students were asked to provide their names, which may have biased their responses.
Phone Interview: Nine Months after the Project

• Only 11/34 participants responded to the phone interviews.
• Of the 11 interviewed, 5 reported present or recent voice problems, which included: vocal fatigue, sore throat, raspy voice quality, hoarseness.
• Four of these five people passed at least one of their screenings as a student teacher.
• The other 6 interviewees reported no voice problems and said they were applying the following strategies: resting their voice after work, increasing hydration, producing a softer voice after work.
Concluding Thoughts

- The VHI indicated positive, self-reported change in this group of student teachers. VHI data did not consistently correspond to changes in performance during the pre- and post-student teaching screenings.
- Vocal health education may have helped reduce voice problems in some student teachers in this project, although the results should be interpreted cautiously.
- Vocal fatigue (a tired voice) appeared to be a good indicator of voice problems in these student teachers.
- Patterns of change in health, environment, and hydration did not emerge as a result of this project.
- Follow up (after a failed screening and in regard to phone interviews) was poor, making it difficult to compare voice problems during the student teaching experience with voice change during the first year of teaching.
Thoughts for Future Research

• Include a control group of student teachers
• Include acoustic, aerodynamic, and/or physiologic measures to evaluate change over time
• Use correlational research methods to investigate the relationship between clinician and student teacher perception of voice and voice change
• Reduce (or organize differently) questions that can evaluate change in health, environmental, and/or social history
• Include observation of student teachers in the classroom
• Investigate incentives for student teachers that will improve follow up after voice problems occur
References


