The "6th Grade Singing Slump": Continuation of a Longitudinal Investigation

This phase of a longitudinal study of children's singing investigated the existence of a "6th grade slump" in singing achievement. Twenty-five children from one elementary school have been participating in this study. Each subject's use of singing voice was assessed at the beginning and end of 1st, 3rd, and 5th grade. For this study, these subject's use of singing voice was also assessed at the end of sixth grade. A significant difference between the 5th and 6th grade singing performances was found with a higher mean for 5th grade, indicating a possible "6th grade slump". However, 52% of these 6th graders still exhibited full use of their singing voices. All, with the exception of one boy, had use of at least a "limited" range at the end of 6th grade. No differences by gender were found although one boy scored quite low perhaps indicating the onset of voice change.

Singing has been a basic activity of general music since music was first included in the United States public school curricula in 1838. Consequently, teaching all children to sing has been a goal of general music instruction. In fact, the first of nine content standards included in the National Standards for Music Education is, "Singing alone and with others, a varied repertoire of music" (Mahllmann, 1994, p. 26). Although numerous studies have been conducted to determine effective strategies
for helping children learn to sing (Atterbury & Silcox, 1993; Cooper, 1995; Gaiser, 1961; Goetze, 1985; Goetze & Horii, 1989; Gould, 1968; Hale [Runfola], 1977; Jersild & Bienstock, 1931, 1934; Jones, 1979; Klemish, 1974; Levinowitz, 1987; May, 1993; Phillips, 1985, 1992; Price, Yarbrough, Jones, & Moore, 1994; Richner, 1976; Roberts & Davies, 1975, 1976; Romaine, 1961; Runfola, 1981; Rutkowski, 1990a, 1991; Rutkowski & Miller, 1993, 1995; Smale, 1987; Small & McCachern, 1983; Smith, 1963; Solomon, 1994; Sterling, 1985; Whitman, 1971), "one of the most persistent problems in music education at the elementary level is the inaccurate singer" (Klemish, 1974, p. 36). Even in studies where a strategy has been shown to significantly effect children's singing ability (Rutkowski, 1990a, 1991; Rutkowski & Miller, 1993, 1999 for example), some of the children still are not able to use a singing voice. In addition, although some research has shown that singing ability improves with age (Bentley, 1968; Boardman, 1964; Davies & Roberts, 1975; Geringer, 1983; Goetze, 1985; Goetze & Horii, 1989; Petzold, 1963), more recent data indicates that this may not be the case. Levinowitz, et al. (1998) "failed to find a statistically significant difference in the use of children's singing voices in Grades 1 through 6" (p. 41) and 75% to 90% of their sample were "non-singers". Furthermore, it is not unusual to find adults who do not have use of their singing voices, although the incidence of poor singers in the adult population does not appear to have been documented.

PURPOSE OF THE STUDY

Although singing has been included in general music instruction and numerous strategies for helping children learn to sing have been identified, some children leave formal music instruction unable to sing. Perhaps it is just unrealistic to assume that all children can be taught to sing within the structure of general music classes that often meet only once a week for 30 or 40 minutes. Based on results of their 1995 study, Rutkowski & Miller recommended that a group of children be studied over a period of time to investigate their singing voice acquisition in a general music setting. Therefore, the purpose of this longitudinal study has been to investigate the feasibility of helping all students learn to use their singing voices within the traditional general music class setting.

During the first phase of this study it was found that by the end of fifth grade all children can be taught to use at least a limited singing range when given instruction in a general music setting where small group and individual strategies are employed in weekly class meetings.
Furthermore, the majority of students can be taught to use at least an initial singing range by the end of fifth grade. However, several researchers have suggested that a "singing slump" is in evidence for children in 6th grade (Gould, 1969; Green, 1990; Levinowitz, et al, 1998; Serafine, 1988). Others have found that singing achievement continues to increase with age (Wassum, 1979). In addition, there is some evidence that 5th and 6th grade boys may be entering initial stages of voice change (Coffman, 1987; Killian, 1999) which would manifest itself as a decrease in use of singing voice as measured by the "Singing Voice Development Measure" (SVDM). Since the children involved in the present longitudinal investigation had at least the use of a limited singing range at the end of 5th grade, it was of interest to see if they exhibited the so called "6th grade singing slump". Therefore, specific questions posed for this study were:

1. Will students exhibit significant gains or losses in use of singing voice, as measured by the Singing Voice Development Measure (SVDM) (Rutkowski, 1984b, 1986, 1990b), between the end of fifth grade and the end of sixth grade?
2. How many students will have use of their singing voices at the end of sixth grade?
3. If use of singing voice, as measured by SVDM, decreased for the sixth graders, were these decreases primarily males who may be entering the initial stages of voice change?

PROCEDURES

Twenty-five children from one elementary school in Hollidaysburg, PA, who have been participating in the longitudinal investigations participated in this study. All children received music instruction from the same general music teacher once a week for 40-minutes since first grade. All general music classes consisted of large-group, small-group and individual singing activities, rhythmic/movement activities and listening activities. As in previous studies (Rutkowski, 1990a, 1991; Rutkowski & Miller, 1993, 1995, 1999) small-group singing was introduced prior to individual singing.

Test Administration

At the end of sixth grade, the Singing Voice Development Measure (SVDM), an instrument designed to measure children's use of singing voice (Rutkowski, 1984b, 1986, 1990b), was administered by the music teacher to all subjects. In preparation for administration of SVDM,
the children practiced the patterns in the large-group setting following the exact procedure that was used for individual testing (Figure 1). For individual testing, each child reported to a familiar, private room where his/her voice was tape-recorded as s/he echoed the teacher singing the SVDM patterns. Since the standardized text for SVDM seemed too juvenile for this aged child, all children sang the patterns on the neutral syllable "dum". This same procedure was followed for all administrations of SVDM. Although previous research results have been contradictory regarding the use of a neutral syllable or text for evaluating children's singing (Goetze, 1985; Levinowitz, 1987; Rutkowski, 1993; Smale, 1987), these children's singing voices had been tested in previous years with SVDM, so the children were familiar with singing these patterns on a neutral syllable as well as text. Therefore, it was determined that neutral syllable performances would be valid measures of their use of singing voice.

**Figure 1. SVDM: Procedures for Test Administrator**

1. Play the first pattern in the tone bells or piano (ex: "see the bird").

2. Sing the first pattern for the children with the syllable "bum". Do not use any accompaniment.

3. Have the children echo. Again, do not use any accompaniment.

4. Repeat steps 1-3 with each pattern.

5. Do not pause in between any of the above steps.

**PATTERNS:**

![Pattern 1](image1)

*See the bird, in the tree, see it fly, over me.*

![Pattern 2](image2)

*Look up now, in the sky, there it goes, flying by.*

**Scoring SVDM**

Two raters, who have previously used SVDM to rate children's singing voices, were employed to score SVDM for this study. Tape recordings were prepared for each rater. Sixth grade performances were
rated in the Summer of 2000 (a year after the tape recordings were made). The raters were unaware of the ages of the children who were singing on the tape, were not told that they were rating the same children they had in the past, and did not know the purpose of the study for which they were rating. The rating scale used by each rater is presented in Figure 2. The raters completed their evaluations privately; they were not together while rating the performances.

**Figure 2. SVDM: Rating Scale and Patterns**

1 "Pre-singer" does not sing but chants the song text.

1.5 "Inconsistent Speaking Range Singer" sometimes chants, sometimes sustains tones and exhibits some sensitivity to pitch but remains in the speaking voice range (usually A2 to C3).

2 "Speaking Range Singer" sustains tones and exhibits some sensitivity to pitch but remains in the speaking voice range (usually A2 to C3).

2.5 "Inconsistent Limited Range Singer" wavers between speaking and singing voice and uses a limited range when in singing voice (usually up to F3).

3 "Limited Range Singer" exhibits consistent use of limited singing range (usually D3 to F3).

3.5 "Inconsistent Initial Range Singer" sometimes only exhibits use of limited singing range, but other times exhibits use of initial singing range (usually D3 to A3).

4 "Initial Range Singer" exhibits consistent use of initial singing range (usually D3 to A3).

4.5 "Inconsistent Singer" sometimes only exhibits use of initial singing range, but other times exhibits use of extended singing range (sings beyond the register lift: B3-flat and above).

5 "Singer" exhibits use of consistent extended singing range (sings beyond the register lift: B3-flat and above).

**PATTERNS:**

![Score Example](image-url)
RESULTS

Pearson's product moment correlation coefficients have been computed for each administration of SVDM to determine inter-rater reliability. Coefficients, ranging from .738 to .956 (all significant at \( p < .0001 \)), have indicated that the raters used the SVDM similarly when rating the children's singing voice performances in 1st through 5th grade. Inter-rater reliability coefficients for the 6th grade ratings was \( r = .776 \) (\( p < .000 \)). It appears that the raters were not as consistent with each other when rating the 6th grade performances. However, this coefficient represents an acceptable reliability.

Means and standard deviations for the end of 5th grade and end of 6th grade performances are presented in Table 1. These scores are the sum of both raters' scores; therefore, a mean of "8" reflects a singing voice level of "4" on SVDM. When performing on a neutral syllable, the average child at the end of 5th grade was an "inconsistent singer", while the average 6th grader was an "initial range singer". A \( t \)-test revealed that these mean differences were significant. Seventy-six percent of the 5th graders and 52% of the 6th graders were "singers" at the end of the year when performing on a neutral syllable. The standard deviations indicate a more homogeneous group in 5th grade than in 6th grade regarding use of singing voice.

| Test (n=25) | Mean (X) | SD | T-value | p ≤  \\
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Post 5th Grade</td>
<td>9.620</td>
<td>0.794</td>
<td>2.37</td>
<td>.026</td>
</tr>
<tr>
<td>Post 6th Grade</td>
<td>8.980</td>
<td>1.544</td>
<td></td>
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</tbody>
</table>

Also of interest was whether gender differences existed, since the loss in use of singing voice evidenced by the 6th graders may have been due to males entering initial stages of voice change. Means and standard deviations by gender for 5th and 6th grade performances are shown in Table 2. At both grade levels, the boys had slightly higher means. However, ANOVA analysis indicated that these differences were not significant. Therefore, gender does not seem to be a factor.
Table 2. Means, Standard Deviations and ANOVA Results for SVDM by Gender

<table>
<thead>
<tr>
<th>Test (n=25)</th>
<th>X</th>
<th>SD</th>
<th>F-value</th>
<th>p ≤</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post 5&lt;sup&gt;th&lt;/sup&gt; Grade</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Girls</td>
<td>9.458</td>
<td>0.964</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>9.769</td>
<td>0.599</td>
<td>0.95</td>
<td>.339</td>
</tr>
<tr>
<td>Post 6&lt;sup&gt;th&lt;/sup&gt; Grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Girls</td>
<td>8.917</td>
<td>1.443</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>9.038</td>
<td>1.689</td>
<td>0.040</td>
<td>.849</td>
</tr>
</tbody>
</table>

However, by examining the number of students at each scoring level for each testing period it can be seen that the lowest 6th grade score (4.5) was for a male singer. It is likely that this 6th grader is entering voice change (see Table 3). Again, these scores reflect the sum of both rater's scores.

Table 3. Number of Students for Each Total SVDM Score

<table>
<thead>
<tr>
<th>Score</th>
<th>Post 5&lt;sup&gt;th&lt;/sup&gt;</th>
<th>Post 6&lt;sup&gt;th&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Girls (n=12)</td>
<td>Boys (n=13)</td>
</tr>
<tr>
<td>10</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>9.5</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>9.0</td>
<td>1</td>
<td>1</td>
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<tr>
<td>8.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8.0</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>7.5</td>
<td>2</td>
<td>-</td>
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<tr>
<td>7.0</td>
<td>-</td>
<td>-</td>
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<tr>
<td>6.5</td>
<td>-</td>
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<tr>
<td>6.0</td>
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<tr>
<td>5.5</td>
<td>-</td>
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</tr>
<tr>
<td>5.0</td>
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<td>-</td>
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<tr>
<td>4.5</td>
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CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this study, it was concluded that a slight singing "slump" does appear to exist for some 6th graders; that 52% of the 6th graders were "singers"; and that gender differences were not significant. A large number of 6th graders in this study were still "singers" (52%), and all but one of the sample of twenty-five still had use of at least
a "limited" range at the end of 6th grade. These results were very different from those of Levinowitz, et al. (1998) in which only 6.2% of their sixth grade sample were "singers". These comparisons confirm previous research that suggested small group and individual strategies employed in weekly class meetings significantly contribute to children's acquisition of use of singing voice (Rutkowski, 1990a, 1990b, 1991; Rutkowski & Miller, 1993, 1995, 1999).

As suggested by Levinowitz, et al (1998), the SVDM may not be a valid measure of use of singing voice for 6th graders. The onset of voice change for some males at this age would result in a low score on this measure, not reflective at all of the singing achievement of that boy. The one boy who scored a 4.5 (sum of two raters' scores) may perhaps be a prime example. Perhaps at this age, performance criteria that allow for measurement of a larger singing range would be most appropriate, such as those used by Barresi & Bless (1984), Cooksey (1984), Groom (1984), and Killian (1999). However, it is interesting to note that most of these boys, at the end of 6th grade, still exhibited ease of use of a treble range. These findings are not consistent with those of others (Killian, 1999; Rutkowski, 1981, 1984a) who have suggested that boys' voices are changing as early as 5th grade. Perhaps boys who learn to use a singing voice in the elementary grades are able to maintain use of a treble range for a longer period of time. Or, perhaps 5th and 6th grade boys' singing performances are often thought to be indicative of changing voice when in fact those boys might just be using a speaking range voice.

It is recommended that this longitudinal study be continued through the 12th grade to determine the use of singing voice exhibited by these children as they progress through their public school years. In addition, since SVDM measures use of singing voice for elementary children, a different means of measuring these children's voices through their secondary school years is recommended.

It appears that all children can be taught to use at least a limited range singing voice within the general music instructional setting particularly if small group/individual strategies are employed. A sixth grade "singing slump" does appear to exist for some children, but the majority of children in this study still had use of at least an "initial singing range" by the end of 6th grade.
REFERENCES


