

# Does Singing Improve Reading Skills?

Using unique “learn-to-sing” software with struggling middle school readers.

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# Research Abstract: Does Singing Improve Reading Skills?

## **Introduction**

Software that teaches users to sing in tune and in rhythm while providing real-time pitch-tracking was used in a study of struggling middle school readers. This software program, Carry-a-Tune™ Version 2.0 (Carry-a-Tune Technologies, 5401 Hangar Court, Tampa, Florida, [www.carryatune.com](http://www.carryatune.com)) was originally developed to improve the singing of children and adults. Carry-a-Tune (CAT) was used in this study to determine its effect on the reading fluency and comprehension of struggling readers. Students read the lyrics while learning to sing.

## **Study Methodology**

CAT was used by 24 struggling middle school readers, identified as struggling readers based on failing the reading portion of the Florida Comprehensive Assessment Test (FCAT). These students were matched with a control group of 24 peers who also had failed the reading portion of the FCAT. The Control Group did not use CAT during the study. In addition, control and treatment student pairs were matched by:

- middle school grade level (6th, 7th or 8th grade)
- reading/language arts teacher
- instructional reading level
- gender

The students in the treatment group used the music software three times per week for nine weeks. Each session lasted 30 minutes. Students used the software during their elective music period. Working with CAT did not replace the core content or reading remediation classes for the treatment students.

CAT has three levels of expertise - beginner, intermediate, and advanced. Students began using the software at the beginner level. The readability levels of the songs ranged from 2nd to 7th grade level (Fry, 1977). Students worked on songs progressing from lower to higher readability levels.

## **Reading Level Assessment**

Pretests and posttests were administered to all 48 treatment and control students. The assessment used was the Qualitative Reading Inventory (QRI), an informal reading inventory, with passages ranging from 1st to 12th grade levels. The reliability, validity, and readability levels of all passages have been investigated and are reported in the QRI technical development section of the inventory (Leslie & Caldwell, 2000). The researchers administered all pretest and posttest assessments. Both treatment and control students were assessed at the end of the 9-week period again using the QRI.

**Results After 9-Week Study**

A comparison of the pretest and posttest group average scores shows that the control group made essentially no progress while the treatment group improved an entire grade level. The average posttest score for the control group remained at a mid-4th grade reading level while the treatment group’s posttest average was 5.70, indicating a jump from 4th to 5th grade level. (See Table A and Chart A below).

**Table A**

	<b>Control Group</b>	<b>Treatment Group</b>
Average Pretest Score (for 24 students)	4.23	4.52
Average Posttest Score (for 24 students)	4.39*	5.70

\* This average is for 22 students (2 moved away during the study).

**Chart A**

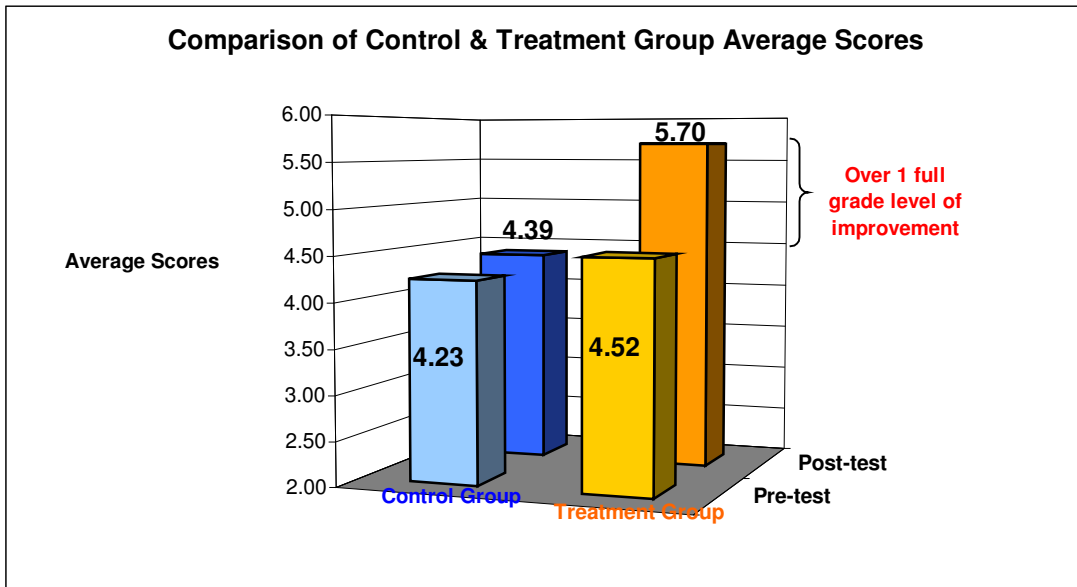


Table B shows the results for sub-groups of students within the treatment and control groups. In the control group, no student increased more than ½ a grade level during the 9 weeks of the study. However, in the treatment group 9 students improved 1 full grade level and 6 students improved by 2 or more grade levels.

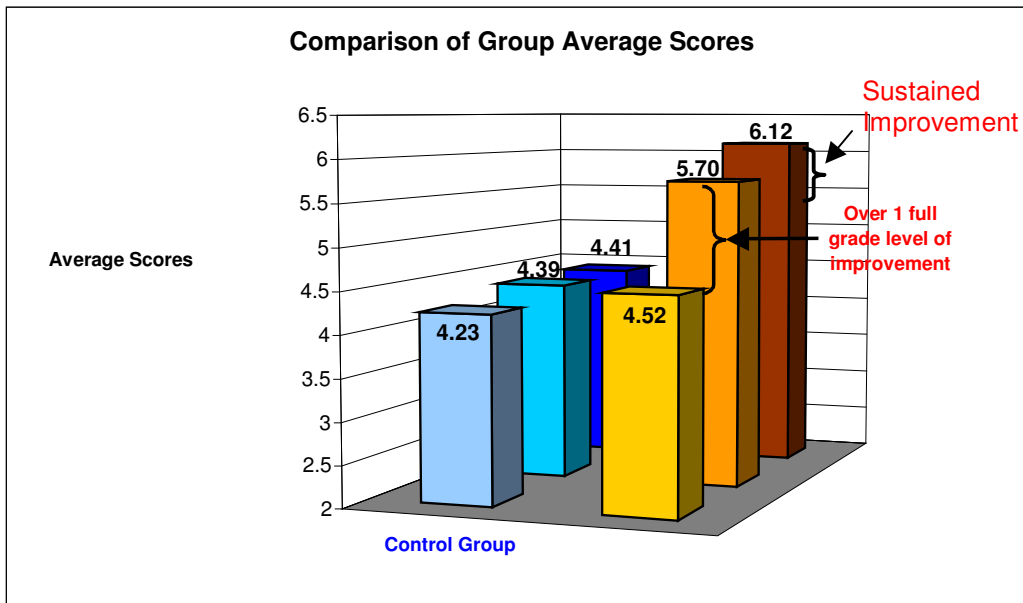
**Table B**

Students whose reading level:	<b>Control Group (24 students who did <u>not</u> use CAT)</b>		<b>Treatment Group (24 students who used CAT)</b>	
	# of students	% of group	# of students	% of group
<b>Decreased</b>	9	38%	0	0%
<b>Stayed the same</b>	4	17%	0	0%
<b>Increased by less than 1 grade</b>	9	38%	9	38%
<b>Increased by exactly 1 grade</b>	0	0%	9	38%
<b>Increased by 2 or 3 grades</b>	0	0%	6	25%

## Year End Results

Follow-up comparisons at the end of the school year involved examining the differences between treatment and control group students over 3 assessment times. A comparison of the pretest, posttest and follow-up test scores indicates that the control group made essentially no progress over the entire school year. The treatment group, as previously reported, improved over one grade level at posttest. An additional half-year gain was evidenced at follow-up testing. This gain is especially impressive since the treatment group did not receive additional CAT session beyond the initial 9-week period from October to December. The average posttest and follow-up test scores for the control group remained at a mid-4th grade reading level.

Chart B



The students using CAT increased their instructional reading level by approximately 1¾ years from October to May. The control students had no significant instructional reading level gains during the same time period. The success of the treatment group provides sustainability of the intervention over time.

## Implications

These findings strongly support the use of interactive singing software to increase reading levels of struggling middle school readers. The QRI measures word recognition, comprehension, and reading fluency. The grade level improvement on the QRI scores reflects improvement in all three of these areas of reading. The researchers believe several components of the program provided the impetus for student gains in reading. Carry-a-Tune provides for repetition and continuous self-assessment. The ability of each student to receive instant feedback through the real time pitch-tracking mechanism provides for a measure of autonomy and self-regulation. As supported in the literature (NRP, 2000, Sample, 2005), the music/singing itself was motivating and engaging for the adolescent age group.

Additional studies to replicate these results at the middle school level as well as new studies at the elementary and high school levels are needed to provide additional support for these findings.

For the 2005-2006 school year, a larger, more in-depth study involving three school districts is underway. The current study provides for SingingCoach (the newly entitled upgraded version of CAT) use with struggling readers at the intermediate, middle, and high school levels.

### **Appendix**

The appendix contains summary data for each student (by matched pair) in the control and treatment groups.

**Appendix – Summary Data for Matched Pairs of Students**

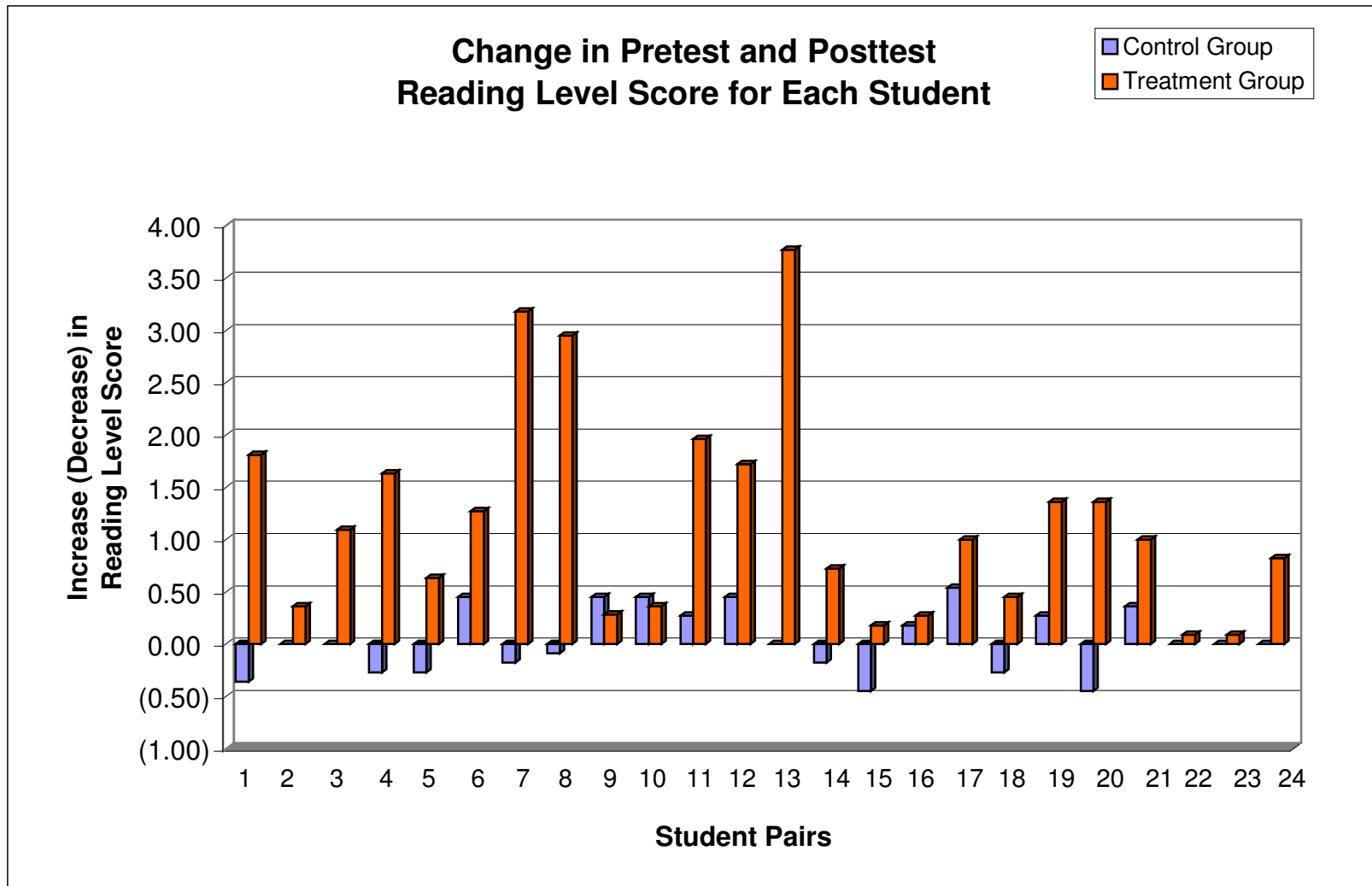
Table C

Control Group										Treatment Group									
Pretest					Posttest					Pretest					Posttest				
Student	Reading Grade Level	# Correct	% Correct	Extrapolated Grade Level	Reading Grade Level	# Correct	% Correct	Extrapolated Grade Level	Change	Student	Reading Grade Level	# Correct	% Correct	Extrapolated Grade Level	Reading Grade Level	# Correct	% Correct	Extrapolated Grade Level	Change
1	5	26	52%	5.54	5	22	44%	5.18	-0.36	1	5	20	40%	5.00	6	29	58%	6.81	1.81
2	5	25	50%	5.45	5	25	50%	5.45	0.00	2	4	21	42%	4.09	4	25	50%	4.45	0.36
3	5	22	44%	5.18	5	22	44%	5.18	0.00	3	4	23	46%	4.27	5	24	48%	5.36	1.09
4	4	29	58%	4.81	4	26	52%	4.54	-0.27	4	5	23	46%	5.27	6	36	72%	6.90	1.63
5	5	23	46%	5.27	5	20	40%	5.00	-0.27	5	4	20	40%	4.00	4	27	54%	4.63	0.63
6	5	20	40%	5.00	5	25	50%	5.45	0.45	6	3	25	50%	3.45	4	28	56%	4.72	1.27
7	3	29	58%	3.81	3	27	54%	3.63	-0.18	7	3	26	52%	3.54	6	28	56%	6.72	3.18
8	4	23	46%	4.27	4	22	44%	4.18	-0.09	8	5	21	42%	5.09	7.5	26	52%	8.04	2.95
9	4	20	40%	4.00	4	25	50%	4.45	0.45	9	3	31	62%	3.90	4	22	44%	4.18	0.28
10	4	20	40%	4.00	4	25	50%	4.45	0.45	10	5	25	50%	5.45	5	29	58%	5.81	0.36
11	4	20	40%	4.00	4	23	46%	4.27	0.27	11	5	31	62%	5.90	7.5	24	48%	7.86	1.96
12	4	21	42%	4.09	4	26	52%	4.54	0.45	12	3	20	40%	3.00	4	28	56%	4.72	1.72
13	4	20	40%	4.00	4	20	40%	4.00	0.00	13	4	25	50%	4.45	7.5	28	56%	8.22	3.77
14	3	30	60%	3.90	3	28	56%	3.72	-0.18	14	4	21	42%	4.09	4	29	58%	4.81	0.72
15	3	28	56%	3.72	3	23	46%	3.27	-0.45	15	5	24	48%	5.36	5	26	52%	5.54	0.18
16	4	20	40%	4.00	4	22	44%	4.18	0.18	16	6	23	46%	6.27	6	26	52%	6.54	0.27
17	4	22	44%	4.18	4	28	56%	4.72	0.54	17	4	25	50%	4.45	5	25	50%	5.45	1.00
18	4	25	50%	4.45	4	22	44%	4.18	-0.27	18	4	23	46%	4.27	4	28	56%	4.72	0.45
19	5	20	40%	5.00	5	23	46%	5.27	0.27	19	5	22	44%	5.18	6	26	52%	6.54	1.36
20	3	30	60%	3.90	3	25	50%	3.45	-0.45	20	5	26	52%	5.54	6	34	68%	6.90	1.36
21	4	20	40%	4.00	4	24	48%	4.36	0.36	21	3	23	46%	3.27	4	23	46%	4.27	1.00
22	3	20	40%	3.00	3	20	40%	3.00	0.00	22	4	23	46%	4.27	4	24	48%	4.36	0.09
23	3	20	40%	3.00	moved					23	5	22	44%	5.18	5	23	46%	5.27	0.09
24	3	20	40%	3.00	moved					24	3	22	44%	3.18	4	20	40%	4.00	0.82

Group Average:                      4.23    4.39   0.16    4.52    5.70   1.18

(Note: the complete data is available on request from the researchers.)

Chart C



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