Comparison of 2007 NECAP Results
Music Students and Students Not in Music Classes

The Harris Poll replication of countless studies demonstrating instrumental music student advantages over other students was announced and seemed to fade rather quickly. Perhaps the fact that SAT scores, as they are dropped from many college's admissions requirements, have lost some of their intrinsic value for measuring student achievement. Everyone in Rhode Island seems to be fixated on the state test scores known as NECAP. Now that the test scores are linked to each student, even greater value and opportunities for further study may be available for measuring student achievement levels from year to year. In the study below, I recorded the Achievement Level Scores for the students in a middle school music classes comparing the current members in the spring to the rest of the student body. The consistently higher proficiency rates and average scores among band members provides striking evidence that participation in band may impact NECAP proficiency.

	Proficient		Not Proficient			% pro-	% not					
Sample	4	3	2	1	n	ficient	prof.	%4	%3	%2	%1	Ave. Score
6th Grade Reading												
Band	16	26	0	1	43	**98%**	**2%**	37%	60%	0%	2%	**3.33**
Non-Band*	13	27	6	4	50	**80%**	**20%**	13%	27%	6%	4%	**2.98**
6th Grade Math												
Band	21	17	3	2	43	**90%**	**12%**	49%	40%	7%	5%	**3.33**
Non-Band*	14	21	5	10	50	**71%**	**29%**	28%	42%	10%	20%	**2.78**
7th Grade Reading												
Band	13	28	1	1	43	**95%**	**5%**	30%	65%	2%	2%	**3.23**
Non-Band*	10	33	8	3	54	**80%**	**20%**	19%	61%	15%	6%	**2.93**
7th Grade Math												
Band	19	21	3	0	45	**93%**	**7%**	42%	47%	7%	0%	**3.22**
Non-Band*	12	26	9	10	57	**67%**	**33%**	21%	46%	16%	18%	**2.70**
8th Grade Reading												
Band	17	22	0	1	40	**97.5%**	**2.5%**	43%	55%	0%	3%	**3.36**
Non-Band*	13	35	11	4	63	**76%**	**24%**	21%	56%	17%	6%	**2.92**
8th Grade Math												
Band	19	20	0	1	40	**97.5%**	**2.5%**	48%	50%	0%	3%	**3.41**
Non-Band*	16	28	9	10	64	**69%**	**30%**	25%	44%	16%	16%	**2.81**

*Band is just under 1/3 of each class. N normalized by identifying every other non-member then choosing the sample that was closer to the overall non-band member average for proficient/not proficient.

In a second study, I obtained the 7th and 8th grade student's scores from the previous year (2006) to investigate whether band had any impact on improvement in NECAP results from year to year. I also divided three groups: Instrumental (Band and Strings), Chorus, and Students not enrolled in a music course. This was done to investigate the myth of "smart kids tend to be in music". The purpose of this study was to begin an investigation of whether participation in music contributed to student achievement.

8th Grade Reading

	4	3	2	1	N	%prof	%not prof.	up (since 2006)	down	%up	%dn.	Avg. Score
	Proficient		Not-Proficient									
Band/String	21	27	0	1	49	**98%**	**2%**	15	3	31%	6%	**3.39**
Chorus	16	32	4	4	56	**86%**	**14%**	12	7	21%	13%	**3.07**
No Music	9	36	20	2	67	**67%**	**33%**	10	11	15%	16%	**2.78**

8th Grade Math

	4	3	2	1	N	%prof	%not prof.	up (since 2006)	down	%up	%dn.	Avg. Score
	Proficient		Not-Proficient									
Band/String	25	25	0	2	52	**96%**	**4%**	12	3	23%	6%	**3.40**
Chorus	19	26	8	5	58	**78%**	**22%**	10	5	17%	9%	**3.02**
No Music	14	33	9	11	67	**70%**	**30%**	8	8	12%	12%	**2.75**

In the first phase of the study, I identified students as current members of band and string classes as group 1, current members of chorus classes as group 2 and the students not enrolled in any music classes as the No Music group 3. The achievement scores were tallied for each group. The total number of members of each group were also tallied. The achievement levels of 3 and 4 were combined to calculate the percentage of each group that was proficient. Likewise, the achievement levels of 1 and 2 were combined to calculate the percentage of each group that did not meet proficiency.

In a second phase of the study, I obtained the 7th and 8th grade student's scores from the previous year (2006) to investigate whether band had any impact on improvement in NECAP results from year to year. I also divided three groups: Instrumental (Band and Strings), Chorus, and Students not enrolled in a music course. This was done to investigate the myth of "smart kids tend to be in music". The purpose of this study was to begin an investigation of whether participation in music contributed to student achievement. In the future, it will be possible to track each student's progress more closely to control for the relationship of participation in the music courses and achievement as related to proficiency. Because 2006 was the first year that individual scores student scores were reported, this is only possible for the 2006 and 2007 test results.

Procedure:
Step 1: I wrote the Achievement level score for each student from the 2006-2007 list next to the Achievement level score from that same student in the 2007-2008 list. If both scores were not present, that student's scores were not included in the study. Missing scores from 2006 or 2007 account for the different N's between Reading and Math test results within the same grade level.
Step 2: I notated scores that changed (a "+" for scores that went up one or more achievement levels and a "-" for scores that went down one or more achievement levels)
Step 3: I tallied the number of changed scores for the three groups already established from the previous investigation: Current band/string members, current chorus members, and students not enrolled in music class.
Step 4: I calculated the percentage of changed scores by dividing the number changed in each cell by the n for that group.

7th grade NECAP Reading test 2007 results compared to 2006 results:

Group	Higher Achievement Score	Lower Achievement Score
Band	30%	8%
Non-Band	17%	15%

7th grade NECAP Math test 2007 results compared to 2006 results:

Group	Higher Achievement Score	Lower Achievement Score
Band	18%	5%
Non-Band	19%	10%

Initial results indicate that in both the Reading and Math tests, there were significantly more non-band members scoring at a lower achievement level than in the 6th grade measure. In Reading, significantly more band members scored at a higher achievement level than non-band members.

Conclusion

The unique simultaneous demands on multiple domains placed on the band members while reading and performing music may have positive effects on NECAP results for a higher percentage of band members than non-band members especially in the reading measure. This conclusion is in agreement with the many studies that have consistently revealed higher scores for students that participate in instrumental music for at least four years on SAT tests. The most recent study of this type was recently released by the Harris Poll.

Reflection

Every time a music student performs a note, a hierarchy of decisions and actions need to take place. Visual identification of the notation must result in the student translating this information into: the correct fingering on the instrument for pitch, rhythmic duration, articulation (slur, accent, short/long), and tone color. However, further hierarchical levels need to be addressed for acceptable performance levels. These include relating every note to it's place within a musical phrase (beginning, peak, ending), as well as relating that phrase to the context of it's characteristic role within the piece and the style of the genre being performed. Additionally, the performer must use interactive skills with the surrounding musicians and respond to concerns of maintaining balance and blend within the section potentially under changing baselines as overall dynamic levels rise and fall. The balance and blend data needs to be correlated to a knowledge of whether the role of the note to be performed is the lead, accompaniment, counter-melody, or how it fits into the gestalt of the music occurring at that point. All of these hierarchies of decision making are under the umbrella of the performer's emotional involvement at that moment in the performance. Finally, the performer must consider the practical considerations of maintaining an efficient performance technique and level of emotion that will lead to sufficient physical resources to complete the musical piece while shaping the intended aesthetic contour of the performance. All of this data and these decisions are required of the performer for every pitch to be performed. However, the most remarkable attribute of this process is that every note requires a similar set of decisions. The amount of time allotted for each of these decisions and actions is dictated by the speed of the tempo and the specific rhythmic relationship of each note to that tempo. The resources of problem solving and higher order thinking skills required to perform music even at a rudimentary level are more wholistic and demanding than the typical paper and pencil experiences students have during their school day.

As in all cognitive challenges, the familiarity of the material being read can greatly affect the difficulty of the task. Additionally, for pieces that have been thoroughly rehearsed, the resources of muscle memory for lower order skill functions and clear expectations about the anticipated interpretation may lighten the higher order thought processes. However, arriving at these levels of comfort for a musical performance require extraordinary skills for managing an enormous hierarchy of data and the higher order thinking skills that manage the requisite decision making process. While there will always be those who question the role of music in student's lives, the evidence continues to mount that supports the claim that performing instrumental school music makes kids smarter and better students, not just that the smart kids tend to hang out in the bandroom.