

Colloquium

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THE IMPACTS OF PEER ASSISTED LEARNING ON RHYTHM COUNTING IN A MIDDLE SCHOOL STRING ORCHESTRA CLASSROOM



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*“ To **teach** is to
learn twice over ”*

– Joseph Joubert



Introduction



Rhythm is the essential and master element of all musical components (Bowers, 2007) and it is the central organizing structure of all music (Dalby, 2005; Tejada, Gil, & Perez, 2010; Thaut, Trimarchi, & Parsons, 2014)

- Rhythm is multifaceted and incorporates many different musical elements
- Within each element of rhythm, students must learn multiple levels of understanding
- Falter (2011) observed that many middle school string orchestra students have knowledge of note values, “but they had no practical sense of rhythm” (p. 28), and that “[middle school string orchestra students] thought the half note should be played on beat two because it lasted two beats” (p. 28)



Problem



- Many sixth-, seventh-, and eighth-grade string orchestra students at a suburban middle school in eastern Kansas struggle with notating correct rhythm counting
- Kansas Modal Curricular Standards for Music Standard 5 (KSDE, 2005)
- Rhythm is the musical skill that is most lacking (Bowers 2007)
- Individual learning is often overlooked because of the importance of the finished product: the performance (Bazan, 2011; Scruggs, 2009; Williams, 2007, 2011)
- Teacher-led instruction is the standard method of instruction in many music education classrooms (Williams, 2011)

The *purpose* of the current study was to implement peer assisted learning into a middle school string orchestra classroom *in order to* determine the impacts of peer assisted learning versus teacher-directed instruction on middle school string orchestra students' abilities to notate correct rhythm counting.



Significance



- Instrumental education continues to build upon a foundation of teacher-directed instruction
- A noticeable void is apparent in the area of peer assisted learning in music education, and it is specifically missing in string education research (Webb, 2012)
- Beneficial knowledge and understanding of peer assisted learning in the form of ClassWide Peer Tutoring to both music education in particular and music education research in general
- Beneficial information regarding an important and practical strategy that could allow music educators to make the transition from music conductor to becoming a music educator (Allsup & Benedict, 2008)



Literature Review

- Traditional Instrumental Music Classroom: Teacher-Directed Instruction (TDI) and Directorship versus Leadership (Allsup and Benedict, 2008)

The arrangement of an instrumental music room clearly shows who is the leader: chairs and stands in orderly rows all facing the podium . . . also know as:
“a throne for the monarch of the classroom” (Scruggs, 2009, p. 54)

- Traditional Rhythm Counting Teaching: Themed words and rhythmic syllables
- Peer assisted learning is “the acquisition of knowledge and skill through active helping and supporting among status equals or matched companions” (Topping, 2005, p. 631)
- ClassWide Peer Tutoring (CWPT)



Research Question

♪ = 1. What are the impacts of peer assisted learning on middle school string orchestra students' abilities to notate correct rhythm counting, compared to teacher-directed instruction?

H₁: There will be a difference in the impacts peer assisted learning has on middle school string orchestra students' abilities to notate correct rhythm counting when compared to teacher-directed instruction.



Research Question

$\text{♩} = 2$. How are the impacts of peer assisted learning on string orchestra students' abilities to notate correct rhythm counting different for students in grades six, seven, and eight, compared to teacher-directed instruction?

H₂: There will be a difference in the impacts peer assisted learning has on string orchestra students' abilities to notate correct rhythm counting for students in grades six, seven, and eight when compared to teacher-directed instruction.



Research Question



- ♩. = 3. How do middle school string orchestra students' levels of satisfaction towards learning correct rhythm counting differ between those students who receive peer assisted learning and those students who receive teacher-directed instruction?

H₃: There will be a difference in middle school string orchestra students' levels of satisfaction towards learning correct rhythm counting between peer assisted learning and teacher-directed instruction.



Participants

- Population
 - All sixth-, seventh-, and eighth-grade students enrolled in orchestra at a suburban middle school in eastern Kansas during the 2015 – 2016 school year
 - 142 total students
 - Sixth-grade orchestra: 59
 - Seventh-grade orchestra: 48
 - Eighth-grade orchestra: 35
- Sample
 - *Parental Consent Form and Child Assent Form* (106 returned)
 - Purposive Sampling / Random Assignment:
 - TDI: 71
 - CWPT: 71
 - *Parental Consent Form and Child Assent Form for Satisfaction Survey* (104)



Research Design and Collection

Both *quantitative* and *qualitative* methods were use in order to increase understanding more than would be possible using each method alone
(Gay, Mills, & Airasian, 2012)

■ Quantitative

- *Rhythm Counting Pretest* and *Rhythm Counting Posttest*: researcher-developed based on rhythms presented in Essential Elements 2000 for Strings (Allen, Gillespie, & Hayes, 2004)
- *Satisfaction Survey*: researcher-developed utilizing a four-point Likert scale

■ Qualitative

- *Satisfaction Survey*: researcher-developed utilizing an open-ended question for students' written responses
- February 22, 2016 to Friday, March 25, 2016 / Monday, March 28, 2016



Limitations

*“Almost everywhere you look in experimental research there are variables that can potentially **confound** study results.”*

(Salkind, 2012, p. 240)

- The number of musical instruments a student knew how to play
- The number of years a student had been playing an instrument
- Gender representation was unequal
- Logistics
- Calendar Issues



Analytical Methods

- ♪ = 1. What are the impacts of peer assisted learning on middle school string orchestra students' abilities to notate correct rhythm counting, compared to teacher-directed instruction?

H_1 : There will be a difference in the impacts peer assisted learning has on middle school string orchestra students' abilities to notate correct rhythm counting when compared to teacher-directed instruction.

- Data

- *Rhythm Counting Pretest* and *Rhythm Counting Posttest* scores

- Analysis

- *t*-test for independent samples (four times)

Analytical Methods

♪ = 2. How are the impacts of peer assisted learning on string orchestra students' abilities to notate correct rhythm counting different for students in grades six, seven, and eight, compared to teacher-directed instruction?

H₂: There will be a difference in the impacts peer assisted learning has on string orchestra students' abilities to notate correct rhythm counting for students in grades six, seven, and eight when compared to teacher-directed instruction.

- Data

- *Rhythm Counting Pretest and Rhythm Counting Posttest* scores

- Analysis

- 2 X 3 mixed factorial ANOVA (four times)

Analytical Methods

J. = 3. How do middle school string orchestra students' levels of satisfaction towards learning correct rhythm counting differ between those students who receive peer assisted learning and those students who receive teacher-directed instruction?

H₃: There will be a difference in middle school string orchestra students' levels of satisfaction towards learning correct rhythm counting between peer assisted learning and teacher-directed instruction.

■ Data

- *Satisfaction Survey* scores
- *Satisfaction Survey* written responses

■ Analysis

- *t*-test for independent samples
- Content analysis on written response



Findings: RQ 1

■ Week 1

- not statistically significant
- $t(140) = 1.202, p > .05, d = 0.202$

■ Week 2

- not statistically significant
- $t(140) = -.132, p > .05, d = -0.022$

■ Week 3

- not statistically significant
- $t(140) = 1.362, p > .05, d = 0.229$

■ Week 4

- not statistically significant
- $t(140) = -.014, p > .05, d = -0.002$

... because there were no statistically significant differences between each weekly set of compared scores, Hypothesis 1 was *rejected* ...



Findings: RQ 1

Weeks 1 – 4 Results of t-Test for Independent Samples Comparing Pretest and Posttest Difference in Scores for each Instructional Strategy

Dependent Variable	Instructional Strategy		<i>t</i>	<i>df</i>	Sig. (2-tailed)
	TDI	CWPT			
Difference in Scores Week 1	15.563 (15.795)	12.324 (16.308)	1.202	140	.231
Difference in Scores Week 2	3.394 (6.804)	3.549 (7.228)	-.132	140	.896
Difference in Scores Week 3	5.451 (6.716)	4.070 (5.276)	1.362	140	.175
Difference in Scores Week 4	5.986 (6.060)	6.000 (6.120)	-.014	140	.989

Note. Standard deviations appear in parentheses.

$p < .05$



Findings: RQ 2

■ Week 1

- not statistically significant
- $F(2, 141) = 2.224, p > .05, \text{partial } \eta^2 = .032$

■ Week 2

- not statistically significant
- $F(2, 141) = 1.536, p > .05, \text{partial } \eta^2 = .022$

■ Week 3

- not statistically significant
- $F(2, 141) = .242, p > .05, \text{partial } \eta^2 = .004$

■ Week 4

- not statistically significant
- $F(2, 141) = 1.384, p > .05, \text{partial } \eta^2 = .020$

... because there were no statistically significant differences in scores across the grade levels for each week, Hypothesis 2 was *rejected*...



Findings: RQ 3



- *Satisfaction Survey* scores
 - not statistically significant
 - $t(102) = -.586, p > .05, d = -0.129$

... because there was no statistically significant difference between the scores,
Hypothesis 3 was *rejected*...



Findings: RQ 3

Results of t-Test for Independent Samples Comparing Satisfaction Survey Scores for each Instructional Strategy

Dependent Variable	Instructional Strategy		<i>t</i>	<i>df</i>	Sig. (2-tailed)
	TDI	CWPT			
Satisfaction Survey Scores	21.667 (2.496)	22.042 (3.262)	-.586	102	.559

Note. Standard deviations appear in parentheses.

$p < .05$



Findings: RQ 3



- *Satisfaction Survey* written responses
- TDI (33 student-responses)
 - Two main themes:
 - Teacher versus Student Knowledge (12 occurrences)
 - Classmate Example (6 occurrences)
- CWPT (71 student-responses)
 - Three main themes:
 - Fun and Interactive (24 occurrences)
 - Less Stressful and More Comfortable (14 occurrences)
 - Sidetracking (10 occurrences)



Findings: RQ 3

Content Analysis of Students' Responses to Open-ended Question on Satisfaction Survey for Students Who Received TDI (n = 33)

Themes	# of Occurrences	Related Repeating Responses
Teacher versus Student Knowledge	12	If you mess up, the teacher is there to help you.
		The teacher can explain things better and more thoroughly than a student.
		The teacher can answer any and all questions more frequently.
		If you need more help, the teacher can help you.
		When the teacher is present, it is easier to know it is right than guessing with a partner.
		Students may not always know the correct answer.
		The teacher knew what they were talking about.

Content Analysis of Students' Responses to Open-ended Question on Satisfaction Survey for Students Who Received CWPT (n = 71)

Themes	# of Occurrences	Related Repeating Responses
Fun and Interactive	24	It gave you the chance to interact with other classmates.
		You get to be with your friends, which makes learning more fun.
		It is fun and not boring.
		You get to know more of your classmates.
		It is fun to be independent.
Less Stressful and More Comfortable	14	Instead of just sitting there doing nothing, we are actively doing something.
		I don't like raising my hand in front of the class.
		It is easier to talk to someone who thinks like me.



Conclusions

- ♪ = 1. What are the impacts of peer assisted learning on middle school string orchestra students' abilities to notate correct rhythm counting, compared to teacher-directed instruction?

H_1 : There will be a difference in the impacts peer assisted learning has on middle school string orchestra students' abilities to notate correct rhythm counting when compared to teacher-directed instruction.

- Peer assisted learning had the same impact on student learning as TDI
- No statistically significant difference between the two instructional strategies when it came to middle school string orchestra students' abilities to notate correct rhythm counting
- Does not support the findings of Johnson (2011)



Conclusions

♪ = 2. How are the impacts of peer assisted learning on string orchestra students' abilities to notate correct rhythm counting different for students in grades six, seven, and eight, compared to teacher-directed instruction?

H₂: There will be a difference in the impacts peer assisted learning has on string orchestra students' abilities to notate correct rhythm counting for students in grades six, seven, and eight when compared to teacher-directed instruction.

- Peer assisted learning had the same impact on student learning as TDI for students in grade six, seven, and eight
- When it came to middle school string orchestra students' abilities to notate correct rhythm counting, there was no statistically significant difference between grade levels, regardless of instructional strategy



Conclusions

- ♩. = 3. How do middle school string orchestra students' levels of satisfaction towards learning correct rhythm counting differ between those students who receive peer assisted learning and those students who receive teacher-directed instruction?

H_3 : There will be a difference in middle school string orchestra students' levels of satisfaction towards learning correct rhythm counting between peer assisted learning and teacher-directed instruction.

- No statistically significant difference in students' satisfaction levels for students who received CWPT and those students who received TDI



Implications



- For music educators hoping to find strategies to increase student learning, the researcher cannot say with certainty that CWPT is the superior strategy
- Both instructional strategies were proven to increase students' scores from the *Rhythm Counting Pretest* to the *Rhythm Counting Posttest* and both instructional strategies reported equal satisfaction on the *Satisfaction Survey*
- The researcher can state with certainty that CWPT is a *useful tool* for music educators
- CWPT is a tool that can be added to a teachers' repertoire of teaching strategies as a supplemental strategy to traditional TDI in order to increase rhythm knowledge and students' abilities to notate correct rhythm counting



Recommendations



- Limit the participants of the study to those who are novices on an instrument
- Account for gender representation by using an equal number of females and males as participants
- Implement new strategies at the beginning of the school year as opposed to the middle of a school year
- Utilize the iPad, or similar technology
- Schedule study during a complete four-week window

The significance of the study, if nothing else, is the fact that the researcher embraced a *change* in traditional instrumental music education.

Just as Scruggs (2009), Webb (2012), and Johnson (2013) served as inspiration, the researcher hopes to *inspire* others to make the transition from music conductor to music educator (Allsup & Benedict, 2008) by researching alternate teaching strategies.



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Questions?

