

Counting Systems Influence on Secondary Strings Sight Reading Success

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Final paper for MUS 610: Research in Music Education, December 6, 2016.

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Abstract

This proposes a study to be conducted in a western state among high school orchestra students (N=?). Rhythmic errors are commonly prevalent among instrumentalists in sightreading, and this study aims to evaluate the use of counting systems on sight reading success of secondary string instrumentalists. Participants were given a pretest using the Watkins-Farnum Performance Test (WFPS) prior to receiving an intervention of 15 exercises using a specific counting system (Kodaly, Eastman, Gordon, Takidimi, and Orff), along with two control groups that did not receive counting system exposure. Students again were scored using the WFPS to assess growth. In addition, school instrumental directors (N=?) participated in a survey on counting systems in their classrooms.

Keywords: Rhythm, Counting Systems, Sightreading, Music, Instrumental Music

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A common discussion point in music education is the importance of sightreading (Elliot, 1982). People tend to view sight reading through the lens of their experience (Orman, Yarbrough, Neill & Whitaker, 2014), which clouds what exactly is sightreading. Definitions range from reading a part silently, to an initial read through performance, or even sequential play-through following instruction and rehearsal (Lehmann & McArthur, 2002). Orman et. al (2014) stated that educators more commonly define sight reading as an initial performance of a piece of music that reveal learned musical abilities –cognitive, aural, and technical– which will aid in detailed performance of a prepared piece. Sightreading remains an imperative aspect of serious music education (Galyen,2005; Wolf, 1976), and continues to remain a requirement at most instrumental festivals throughout the country.

Sight reading is a well-studied practice in music education, with more than 28 tested factors that have been related to sightreading accuracy (Mishra,2013). Though sightreading ability has not been shown to be an indicator of performance success for beginning students, that is not the case with advanced students (McPherson, 1994). Musical experiences such as private instrumental instruction and piano lessons have been linked to sightreading success (Alexander & Henry, 2012; Demorest & May, 1995; Henry, 2011; Zhukov, 2014). In an effort to better understand what beyond extra music exposure contributes to successful sightreading, researchers have explored such aspects as academic achievement/IQ (Cooley, 1961; Gromko 2004), eartraining (Elliott,1982; McPherson,1994), musical aptitude and knowledge (Cooley,1961;Elliott, 1982), and technical abilities (Demorest & May, 1995).

Edwin Gordon's *Advanced Measures of Musical Aptitude* address numerous musical characteristics and abilities such as literacy, timbre, harmonic and rhythmic improvisation

readiness, and audiation (Gordon,) and have been used alongside other sightreading assessments (Palmer, 1976). However, the most reliable and commonly used assessment tool for instrumental sightreading is *The Watkins-Farnum Performance Scale* (1954) or WFPS. The test uses a graduated level of excerpts in which the student performs with a metronome receiving a score by subtracting measures with errors from the total possible of measures. This assessment has been used in over twenty-five studies (Mishra, 2013). *The WFPS* was adapted for the purpose of rhythm reading by Boyle in 1968, and has been a useful tool in assessing rhythmic sightreading ability (Elliott, 1972; Alexander & Henry, 2014). Another byproduct of the WFPS was The Farnum String Scale (Farnum, 1969) which was developed specifically for strings, but the grading only allows for one mistake per measure, yielding scores of one or zero. The WFPS has been the basis for other researcher based tests (Smith, 2009), including the Vocal Sight-Reading Inventory or VSRI (Henry, 2001). The VSRI was originally a set of 28 tonal patterns increasing in difficulty, however the scoring of the patterns has ranged from each beat to each measure (Alexander&Henry, 2012).

Rhythm has been the most commonly referred to component of sightreading (Boyle,1968; Elliott, 1972; Galyen, 2005; Gromko, 2004; McPherson, 2004; Mishra, 2013; Pierce, 1992, Orman et. al 2014). Rhythm can be defined as the movement of music through time and space (Thurmond, 2000). Rhythmic precision has been found to both influence and predict successful sight reading (Boyle, 1970; Gromko,2014). In spite of the emphasis, rhythmic errors are the most commonly occurring in the sightreading process (McPherson, 1994).

Notable early studies demonstrated an improvement in sightreading when instrumentalists tap a rhythm prior to performance (Boyle,1970). However, research has not shown a change in note performance accuracy between methods such as clap, count, sizzle, and clap-count

(Pierce,1992). A study between the Kodaly based Richards system and the well-known Gordon systems' influence on fourth graders saw improvements between pre and post written and performance tests compared to students not exposed to those systems (Palmer, 1976).

Elementary students showed success recalling rhythms using the counting systems of Gordon and Orff over the use of Kodaly (Colley, 1987). Students have claimed that a counting system is not consistently part of their daily rehearsal (Brittin,2001), which has been echoed by researchers that there is a need to implement regular use of rhythm reading systems with regards to secondary ensembles (Henry, 2011, Orman et. al, 2014). It is possible that one of the greatest contributing factors to sightreading success is the use of an effective counting system.

Edwin Gordon states in his book *Learning Sequences in Music: A Contemporary Music Learning Theory* “[...] rhythm cannot be forced into music by arithmetic, counting, or notation.” This has not deterred educators from developing strategies for learning rhythm which have included aural learning prior to learning to read (Chosky, 1981; Gerber,2016; Jacobi, 2012), extensive use of movement (Dalcroze,1921; Dell, 2010; Thompson & Lehman, 2004), creative activity such as composing, and listening (Hodges,1992), and modern approaches such as computer assisted instruction which have not been shown to improve rhythmic sightreading ability (Smith, 2009). Educators tend to use a mix of rhythmic approaches when teaching rhythm, however those teaching in secondary schools tend to prefer the use of a counting system (Esther, Scheib & Inks, 2006). Some counting systems such as Kodaly, Gordon, and Takidimi use syllables that are beat oriented to guide rhythmic reading, though the function of the syllables differs between systems. Other syllable based methods such as Orff-Schulwerk use the syllables of words to have students experience the rhythm (Colley, 1987; Ester et al.,2006). In addition to syllabic systems exists the traditional number system (1,2, 3 & 4e&a) as well as the Eastman

system (1, 2, 3 te, 4tateta). While syllable systems may work better for elementary students (Brittin, 2001; Colley, 1987; Palmer, 1976), there is still discrepancy as to which may pedagogically be advantageous for secondary instrumentalists.

A large portion of sightreading research has been focused on the performance of vocalists as well as wind and brass instrumentalists. An important investigation of pitch in sightreading for string players (Alexander & Henry, 2012) concluded in a hierarchy of difficulty between various keys and types of melodies such as higher success rates in the key of D compared to the key of E. In a follow up study, Alexander and Henry (2014) worked to develop a hierarchy of rhythm for string players using only separate detache bow strokes. For both of these studies the researchers used a rhythm specific modification of the VSRI.

The purpose of this study is to (a) Determine if using a consistent counting system improves sight reading ability for secondary string players, (b) Assess the difference in the sight reading success of students using the Eastman Counting System, Takadimi Syllables, Kodaly, Orff, and Gordon methods, (c) Observe habits of successful string sight-readers, (d) Discuss preferred counting systems among secondary string educators.

Method

A survey [was sent] to instrumental directors in a western state asking them the following questions, along with if they would be willing to participate in the study:

1. How often do you address a counting in your ensembles?
2. Do you believe that a counting system is important for students to know?
3. Who do you believe is responsible for teaching a counting system?
4. Do you teach a consistent counting system to your students?
 - If yes, which counting system do you prefer?

From the survey orchestra classes from 8 western states high schools grades 9-12 from rural, suburban, and urban schools participated. The study took place over five 50 class periods at the beginning of the year/semester, in which the study took up fifteen minutes of each class period. Students were individually pulled out of class as part of their normal seating test and given a pretest of the Watkins-Farnum Rhythm Adaptation test in which they first counted the rhythm aloud using their preferred counting system, followed by performance of the rhythm on a pitch of their choice. The audio recorded and later scored by three trained judges (two educators and one college professor) using the prescribed method of the test.

Two high school orchestras served as the control group and received no explicit instruction on counting systems during the next two class periods. The other four schools were each given a rhythm study of five exercises per-day in which they received explicit instruction on the counting systems of Gordon, traditional numbers, Eastman, Kodaly, Orff, and Takidimi respectively.

The rhythm study began with whole notes and worked through meters of 4/4, cut time, 6/8, and $\frac{3}{4}$. Students were first shown how to use the specific counting method, followed by clapping and saying the rhythms aloud, and then concluding with playing the rhythms on teacher directed pitches. To ensure that bowing did not interrupt the study, all rhythms were in separate detache bows.

At the conclusion of the 15 rhythmic exercises, students participated in a post-test in which they were asked to count aloud using the counting method they used in class and then performing the rhythm on a pitch of their choice. The post-test was also recorded and scored by the same judges as in the pretest. Students were asked if they enjoyed the counting system at the conclusion of the post-test.

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