

THE SCIENCE BEHIND THE SOUND FORMATION METHOD™

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The Sound Formation Method™ (SFM) is unique among music education pedagogy as it provides a visual-spatial format for learning, addresses the physicality of rhythm, and integrates whole brain learning while improving music literacy through the use of The Rhythm Compass™ (RC). Many readers struggle with the symbolic nature of standard music notation whereas the RC shows precise mathematically accurate distances in a visual-spatial layout. This visual-spatial format is critical to many types of learners such as those with dyslexia, children identified as 2e, and individuals who are otherwise more right brain dominant. Preliminary research has shown that after the use of the RC these types of learners are then able to read standard music notation with a new level of comfort and proficiency.

The Rhythm Compass™ inherently depicts the cyclical nature of rhythm and the discrete and emergent aspects of motor behavior that create rhythmic timing. Discrete movements have a definite beginning and end whereas emergent movements do not have such discriminable end points. Both types of movement are deliberately taught in the SFM to develop the proper rhythmic feel. The SFM directly addresses the physicality of rhythm in a scientific manner by giving precise engagement cues. These include the consideration of the biomechanics involved, proprioceptive awareness, rhythmic perception and how the rhythmic cycle and shapes from the RC correspond with human movement. The extensive use of numerous athletic-type movements in the SFM are backed up by scientific literature like the use of plyometrics which aids in the process of developing strong, responsive, and agile instrumental technique. These types of powerful, fast, and explosive movements are some of the defining characteristics of elite performers and SFM students have a large advantage in learning these movements from the onset of music instruction.

Another principle of movement incorporated in the SFM is entrainment. Entrainment is defined by a temporal locking process in which one system's motion or signal frequency entrains or matches the frequency of another system. Entrainment is a natural phenomenon that can be seen in the synchronistic movement of schools of fish, flocks of birds, crickets, fireflies, pendulum clocks and pendulum metronomes and in human beings in circadian rhythms, hormonal cycles, dancing, and speaking patterns during communication with others. The Sound Formation Method™ utilizes the natural phenomenon of entrainment by teaching the practitioner to focus on the synchronization of not just sound alone, but on the feeling of movement in oneself and with the other musicians they're playing with simultaneously. This allows musicians an accessible way to enter into the zone while increasing rhythmic accuracy and enjoyment.

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The SFM focuses on the endogenous or internal causes of music performance such as the inner ear which allows the student to hear rhythms, tones, and pitches without an external reference. This is an extremely important component for increasing creativity as well as developing the type of listening skills that can rapidly and accurately identify harmonic and rhythmic information. Neural priming and motor priming are utilized extensively in the SFM and have been shown to increase attention, focus, readiness, and accuracy of motor responses.

Rhythm and mathematics are largely related: math being the science of numbers, quantity, and space, whereas rhythm could be thought of as the musical embodiment of these aspects. The SFM curriculum uses a large variety of math including: geometric shapes and transformations, algebraic thinking, exponents, ratios and proportions, factors, operations, counting and cardinality, and arrays. These are used directly in order to enhance music comprehension of rhythmic ideas. Beyond the direct use of math in the SFM the continuous focus on extreme accuracy in rhythmic matching exercises has been proven to significantly improve mathematic achievement.

Every student studying the SFM trains on hand-percussion in order to have a complete focus on rhythm alone. Beyond the benefit of enhancing musical feel through the physicality of percussion, the therapeutic effects of playing rhythmic music on percussion is widely documented. Neurologically, drum training has been linked to brain changes such as increased cortical thickness and long-term cerebellar plasticity thus enhancing coordination.

References:

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2. Slimani M, Chamari K, Miarka B, Del Vecchio FB, Cheour F; Effects of Plyometric Training on Physical Fitness in Team Sport Athletes: A Systematic Review, J Hum Kinet, 2015; 14 (53), 231-247.
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IMPROVEMENTS

in college music students and recent alumni from a five-week Sound Formation Method™ rhythm theory training course



These are noteworthy improvements from a relatively short five-week course that entailed one hour of instruction 1X/week.



Students were evaluated exactly one week before taking the course and exactly one week after taking the course, taught by Curtis Madigan.



In the duration of the course students studied The Rhythm Compass™, concepts from mainly levels 1 and 2 of the Sound Formation Method™ and some content from levels 3 and 4 of the SFM.

Students saw a **20.86%** improvement in their **overall rhythmic proficiency**, meaning their ability to execute a variety of pragmatic rhythmic phenomena. **Rhythmic sight reading**, which is notoriously cumbersome, improved by **18.34%**. The largest improvements however took place in **rhythmic ear training**, with a **36.42%** improvement. This is do to the students' ability to begin hearing The Rhythm Compass™ shapes, which becomes an effortless process akin to perfect pitch or absolute pitch.



Initial

58.96%



53.58%



32.07%

Initial

RHYTHMIC PROFICIENCY

RHYTHMIC SIGHT READING

RHYTHMIC EAR TRAINING



Post

71.26%



63.40%



43.75%

Post