

IMPROVING NOTE ACCURACY AND TONE CONSISTENCY ON MARIMBA THROUGH
THE PRACTICE OF FOUR-MALLET CHORALES

by

Kendra McLean

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As members of the Document Committee, we certify that we have read the document prepared by Kendra McLean, titled *Improving Note Accuracy and Tone Consistency on Marimba Through the Practice of Four-Mallet Chorales* and recommend that it be accepted as fulfilling the document requirement for the Degree of Doctor of Musical Arts.

Norman Weinberg Date: 4/20/2015

Brian Luce Date: 4/20/2015

Kelland Thomas Date: 4/20/2015

Final approval and acceptance of this document is contingent upon the candidate's submission of the final copies of the document to the Graduate College.

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ABSTRACT

Chorale settings for marimba can be used in conjunction with traditional pedagogical exercises to improve mallet placement precision by increasing a marimbist's kinesthetic awareness and knowledge of interval spacing and the marimba keyboard layout. These improvements will lead to greater note accuracy and consistency of tone. Chorales are an excellent tool for improving marimba performance because of their combination of repetitive vertical movement and slow horizontal movement, which gives the marimbist time to isolate and improve specific areas of technique, including mallet placement. Mallet placement precision on marimba includes striking the correct bars for note accuracy and striking a precise chosen location on each bar for tone consistency.

This document includes a guide for improving mallet placement through the focused practice of chorale excerpts from seven original compositions for marimba. Appendix A of this document lists chorales recommended for use as practicing material to improve marimba technique. This document is intended to assist intermediate and advanced marimbists in gaining a greater kinesthetic knowledge of interval spacing and the marimba keyboard layout through the practice of four-mallet chorales. The purpose of refining these areas of technique is to develop consistency in accurate, autonomic mallet placement, freeing the marimbist to focus on other elements of performance, including musical interpretation and expression.

CHAPTER 1: INTRODUCTION

The Marimba Chorale

Chorale settings for marimba can be used in conjunction with traditional pedagogical exercises to improve the precision of mallet placement by increasing the marimbist's kinesthetic awareness and knowledge of interval spacing and the marimba keyboard layout. These improvements will lead to greater note accuracy and consistency of tone. Chorales are an excellent tool for improving marimba performance because of their combination of repetitive vertical movement and slow horizontal movement, which gives the marimbist time to isolate and improve specific areas of technique, including mallet placement.

In this document, the term “chorale” refers to any two- to four-note harmonized composition or extended passage,¹ which is performed on marimba by rolling all notes.² This is consistent with the common use of the term “chorale” throughout marimba literature. Chorales are frequently included in marimba compositions and in method books for four-mallet marimba technique but, at the time of this writing, little research has been done on the pedagogical benefits of practicing marimba chorales. Significant research exists on motor skill acquisition, the importance of aural, visual and kinesthetic learning processes, and the effectiveness of repetition and other practicing methods in general music skill development. However, the

¹ Marimba chorales can also be for six or eight mallets (expanding the number of notes in the chord), but these are less common.

² A marimba roll is the rapid alternation of mallets on one or more bars of the marimba to create the illusion of a sustained sound.

application of these areas of research specifically to marimba performance and the practice of marimba chorales has yet to be explored.

Accurate Mallet Placement

Accurate mallet placement is essential for the successful interpretation of any notated composition for marimba. Mallet placement precision on marimba includes striking the correct bars for note accuracy and striking a precise chosen location on each bar for tone consistency. This document focuses on striking precise marimba bars, striking a consistent place on each bar, and the refinement of these two areas of technique through the practice of four-mallet chorales.

Tone Consistency

Marimba tone is affected by many factors including instrument construction, mallet choice, performance space, mallet angle, and the precise location where the mallet strikes the bar. The definition of a “correct” or “perfect” tone is subjective. Each marimbist should deliberately choose a tone he or she considers desirable and then be consistent in its execution on each bar with each stroke, unless variations are desired to produce special effects. Nancy Zeltsman writes of the need for mallet placement precision in maintaining tone consistency in her book *Four-Mallet Marimba Playing*:

Your goal should be to always aim for these preferred beating spots. It should become ingrained that, whenever you're going for a certain note, you're also headed for a prime, chosen beating spot. Don't be satisfied with just hitting the correct note. Consider the precision required of string players to finger a note in tune. That should inspire us to aim for a precise spot the size of a half-dollar. Achieving consistency in your beating spots is the first step toward playing with a consistent, quality tone.³

³ Nancy Zeltsman, *Four-Mallet Marimba Playing* (Milwaukee: Hal Leonard, 2003), 9.

One marimba bar can produce a variety of sounds, depending on where it is struck. Most marimbists choose to strike the marimba bars of the lower manual⁴ either directly in the center of each bar, which is directly over the center of the resonator, or slightly off-center. Either of these options can result in a full, resonant tone, but will have different acoustical properties such as the strength of the fundamental frequency and overtones produced. These acoustic properties will also vary on instruments made by different manufactures and when playing in different ranges of the same instrument.⁵ As long as the marimbist strikes the bar equidistant from the center, the sound should be nearly the same for “near off-center” between the marimbist and the center of the resonator, or for “far off-center” on the opposite side of the same bar.

The node is the point at which the string runs through the bar to suspend it above the resonator.⁶ The nodes can be intentionally struck to produce special effects, but are generally avoided due to their lack of resonance.

⁴ Throughout this document the entire collection of bars that correspond with the black keys on a piano (often called the “accidentals”) will be referred to as the “upper manual” and the entire collection of bars that correspond with the white keys on a piano (often called the “naturals”) will be referred to as the “lower manual.”

⁵ For a more thorough explanation of bar and resonator acoustics, see Thomas D. Rossing’s *Science of Percussion Instruments* and Tomas D. Rossing’s “Acoustics of Percussion Instruments: An Update” in *Acoustical Science and Technology*.

⁶ There are two nodes on each marimba bar, which are equidistant from the center of the bar.



Figure 1. Tone locations on the marimba

Although some marimbists choose the same center or off-center striking location on each bar for both the upper and lower manual of the keyboard, the edges of the bars on the upper manual are often struck in the execution of fast or awkward passages. Striking the edges of the bars produces a tone similar to the tone produced by striking slightly off-center, but is physically easier to reach when playing fast passages or when playing intervals that can cause awkward body positioning. Regardless of which location on the bar a marimbist chooses to strike, mallet placement should be intentionally chosen based on the sound produced, and the tone should remain consistent across the entire instrument.

Note Accuracy

Along with rhythmic accuracy, note accuracy is perhaps the most fundamental element of accurately performing a notated composition on any instrument. In an interview, composer

David Maslanka explained:

Performers that I have worked with almost invariably approach *My Lady White* with tension bordering on anxiety. Nothing good can come of this. The first requirement for a good performance is an absolute command of the notes. Once the notes are in place, there is freedom to move the music as it wants to move.⁷

Note accuracy involves the accurate cognitive recognition of music notation, or the accurate recollection of those notes and rhythms when playing from memory, and the proper execution of those notes on the instrument. Executing the correct notes on marimba involves accuracy in the initial mallet positioning on the keyboard, the movement of each mallet from one bar to the next, and the interval spacing between all four mallets at any given time.

Interval Relationships in Four-Mallet Technique

There are three types of interval spacing relationships in four-mallet marimba technique: intervals between two mallets held in separate hands, intervals between two mallets held in the same hand which will be referred to as “held intervals,” and intervals created as each individual mallet moves horizontally across the keyboard from one note to the next, which will be referred to as “horizontal movement.” Advanced four-mallet marimba literature often requires fast,

⁷ Darren Duerden, “The Unaccompanied Marimba Literature of David Maslanka,” *Percussive Notes* 36, no. 3 (June 1998): 41.

accurate interval changes of all three types simultaneously, along with other challenges such as rhythmic complexity, sticking patterns, dynamic variation, and changes in articulation.

Intervals between two mallets held in separate hands include those occurring between mallets 1 and 3, 1 and 4, 2 and 3, and 2 and 4.⁸ When this type of interval is discussed in this document, it will be in reference to the interval between mallets 2 and 3.⁹ The size of the interval between mallets 2 and 3 does not affect the difficulty of a passage unless the interval exceeds an octave. At this point it becomes more difficult to keep track of all four notes by sight due to the distance between the two hands.

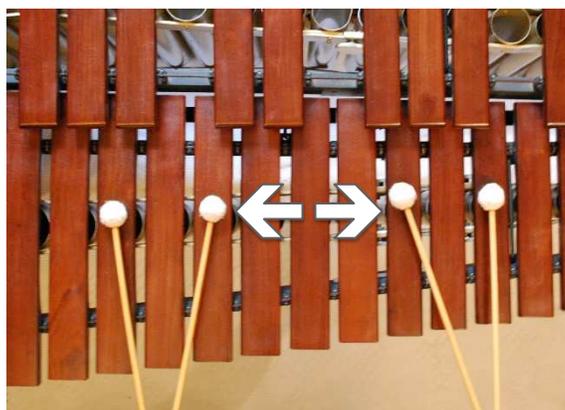


Figure 2. Interval of a fifth between mallets 2 and 3, held in separate hands

⁸ In this document, mallets are numbered 1-4, from the marimbist's left to right.

⁹ When playing a four-mallet chord on marimba, if the correct intervals are maintained within each hand (between mallets 1 and 2 and between mallets 3 and 4) and also between mallets 2 and 3, then the intervals between mallets 1 and 3, 1 and 4, 2 and 3, and 2 and 4 will also be correct.

One example of horizontal movement is when mallet 4 moves from C5¹⁰ up to E5. Smaller horizontal movements across the instrument, such as by seconds or thirds are easier to recognize kinesthetically than larger horizontal leaps. Most horizontal movement in the musical examples in this document will be by seconds and thirds, with an occasional fourth. A distinction between major and minor intervals is usually not made. On marimba, a minor and major second, for example, can be almost kinesthetically identical.¹¹

Of the three interval types, the held interval (between mallets 1 and 2, or between mallets 3 and 4) is the most limited in terms of possible interval width variation. The smallest interval that can be played on a marimba is a minor second. While most marimbists agree that the most comfortable held intervals occur between a minor third and a major sixth, intervals of a second and seventh require only slightly more advanced technique. Held intervals between an octave and a tenth can be a challenge to even the most advanced marimbist, especially in the lowest octave of a five-octave marimba. Held intervals larger than a tenth are beyond the reach of most professional-level marimbists and are rarely found in the marimba repertoire.

¹⁰ Throughout this document, Scientific Pitch Notation will be used in which middle C is referred to as C4, and all other notes are labeled accordingly.

¹¹ The physical distance between an E and a D a major second below it is almost exactly the same as the distance between the same E and an F a minor second above.



Figure 3. Held interval of a fifth between two mallets in one hand

Various methods have been developed to improve the accuracy of movement and spacing of all three interval types. The following chapter will provide a brief overview of current methods for improving interval spacing and mallet placement on marimba. General practicing strategies and the benefits of practicing marimba chorales will also be explored.

CHAPTER 2: METHODS FOR IMPROVING MALLET PLACEMENT

Blocking

In his article “Using Blocking to Learn Four-Mallet Keyboard Literature,” David Wolf explores the use of blocking as an effective practicing method. “Blocking” refers to playing single or repeated double-vertical¹² or double-lateral strokes¹³ in a predetermined rhythm for each chord in a chorale, rather than playing rolls.¹⁴ Wolf offers the following three examples of a chorale passage and blocking exercises based on that chorale:

Musical Example 1a. Chorale passage from “Using Blocking to Learn Four-Mallet Keyboard Literature” by David Wolf. Used with permission



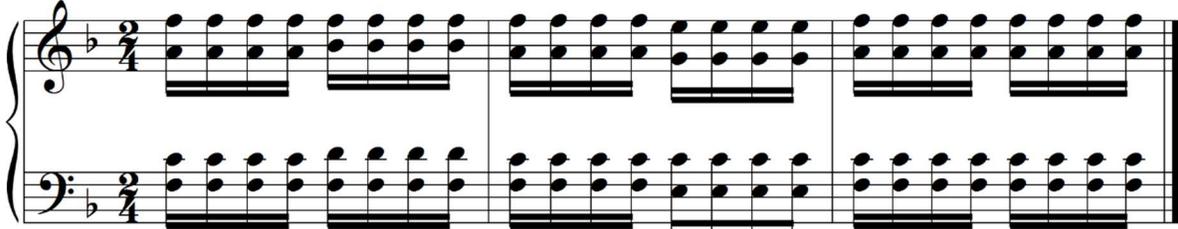
¹² Double-vertical strokes are played by striking both mallets that are held in the same hand at the same time, or by striking all four mallets simultaneously.

¹³ Double-lateral strokes are played by striking two marimba bars in quick succession with two mallets held in the same hand, using one arm motion. This motion can be made from mallet 1 to 2, 2 to 1, 3 to 4, or 4 to 3.

¹⁴ Blocking also refers to the creation of three- or four-note chord progressions (played as double-vertical strokes) out of single-alternating or double-lateral stroke passages.

Musical Example 1b. Double-vertical strokes, both hands together from “Using Blocking to Learn Four-Mallet Keyboard Literature” by David Wolf. Used with permission

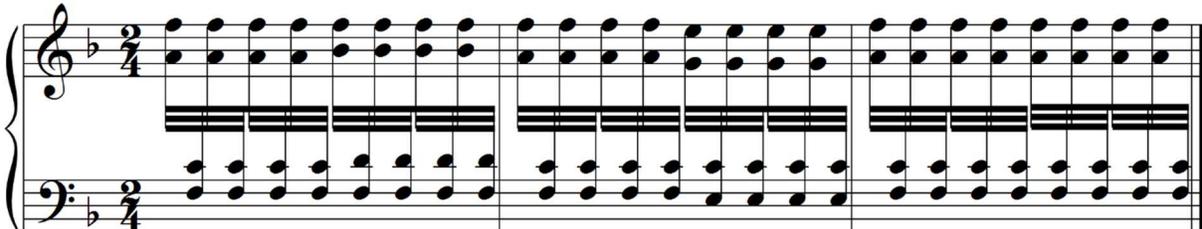
♩ = 54



The musical score for Musical Example 1b is written in 2/4 time with a key signature of one flat (B-flat). It consists of three measures. In each measure, both the treble and bass staves contain a double-vertical stroke, which is a pair of parallel vertical lines. The notes are grouped in pairs, with two notes in each pair. The first pair in each measure is on a higher pitch than the second pair. The notes are: Measure 1: G4, F4 (treble); G3, F3 (bass). Measure 2: A4, G4 (treble); A3, G3 (bass). Measure 3: Bb4, A4 (treble); Bb3, A3 (bass).

Musical Example 1c. Double-vertical strokes, hands alternating from “Using Blocking to Learn Four-Mallet Keyboard Literature” by David Wolf. Used with permission

♩ = 54



The musical score for Musical Example 1c is written in 2/4 time with a key signature of one flat (B-flat). It consists of three measures. In each measure, the hands alternate. The treble staff contains a double-vertical stroke, and the bass staff contains a double-vertical stroke. The notes are: Measure 1: G4, F4 (treble); G3, F3 (bass). Measure 2: A4, G4 (treble); A3, G3 (bass). Measure 3: Bb4, A4 (treble); Bb3, A3 (bass).

The following is an example of how the blocking method can be applied to the first two measures of the same chorale passage using double-lateral strokes.

Musical Example 1d. Double-lateral strokes, hands alternating

♩ = 54

The musical score is written for a marimba in 2/4 time with a key signature of one flat (B-flat major). It consists of two staves: a treble staff and a bass staff. Above the staves, a tempo marking indicates a quarter note equals 54 beats per minute (♩ = 54). The treble staff contains a sequence of quarter notes, while the bass staff contains a sequence of quarter notes with a 'blocking' technique indicated by thick horizontal lines across the notes.

As shown above, blocking can simplify the vertical motion of the mallets, allowing the marimbist to focus on other aspect of performance. Wolf writes, “Blocking can allow the player to focus on the notes of the music, the physical position of the hands, and the motions required to transition between notes.”¹⁵ He also claims that blocking can “help the player learn the notes and physical movements more efficiently.”¹⁶ Many of the pedagogical benefits of incorporating blocking into a practice routine can also be achieved through the practice of marimba chorales. Both practicing methods develop technique through repetition and allow the marimbist increased thinking time to anticipate each interval change. Both methods also focus on note accuracy and efficiency of movement.

¹⁵ David M. Wolf, “Using Blocking to Learn Four-Mallet Keyboard Literature,” *Percussive Notes* 48, no. 3 (May 2010): 28.

¹⁶ *Ibid.*, 30.

Four-Mallet Marimba Method Books

Most method books for beginning and intermediate four-mallet marimba study include exercises for improving technique, which focus on note accuracy, tone consistency, and interval spacing. One common exercise in four-mallet method books involves playing ascending and descending double-vertical strokes with the same held interval in each hand. In this exercise, the intervals between all four mallets remain the same as the mallets move up and down the keyboard in unison by step or by leap. In *Fundamental Method for Mallets: Book 1* by Mitchell Peters, the first four-mallet exercise consists of double-vertical strokes played individually by each hand, starting with the interval of a fifth ascending and descending in C major.

Musical Example 2. Exercise 1 from *Fundamental Method for Mallets: Book 1* by Mitchell Peters, pg. 117. ©1995 by Alfred Music. All rights reserved. Used with permission

The musical notation consists of three staves of music, each representing a hand. The first staff shows an ascending sequence of double-vertical strokes (two notes per stroke) starting with a fifth interval (C4 and G4) and moving up stepwise to a fifth interval (C5 and G5). The second staff shows a descending sequence of double-vertical strokes starting with a fifth interval (C5 and G5) and moving down stepwise to a fifth interval (C4 and G4). The third staff shows a final descending sequence of double-vertical strokes starting with a fifth interval (C5 and G5) and moving down stepwise to a fifth interval (C4 and G4). The notation is in treble clef with a common time signature (C).

The marimbist is to play this exercise as written, then “reduce the number of repetitions to three, then two, and finally, one.”¹⁷ The next three exercises in Peters’ book follow the same pattern, but with held intervals of a fourth, third, and sixth respectively.

Julia Gaines includes an exercise similar to the one above in her method book *Sequential Studies for Four-Mallet Marimba*. Here, the marimbist maintains a focus on the same interval held in both hands, but now jumps horizontally by thirds as well as moving by seconds.

Musical Example 3. Exercise from *Sequential Studies for Four-Mallet Marimba* by Julia Gaines, pg.20. Used with permission



In the text of her method book, Gaines instructs the marimbist to lock each interval in place within each hand. She writes “Keep the interval locked in your muscle memory”¹⁸ and “Keep each hand locked... Do not expand or contract the interval! Use the arm for horizontal motion.”¹⁹ These instructions, and the exercises in Gaines’ book are aimed at increasing the marimbist’s kinesthetic knowledge of specific intervals.

¹⁷ Mitchell Peters, *Fundamental Method for Mallets: Book 1* (Van Nuys: Alfred Music Publishing, 1996), 117.

¹⁸ Julia Gaines, *Sequential Studies for Four-Mallet Marimba* (Columbia, MO: Gaines Publications, 2011), pg. 17.

¹⁹ *Ibid.*, 19.

Gifford Howarth’s four-mallet method book for marimba, *Simply Four*, includes similar exercises and also encourages the marimbist to “lock” each interval within the hand as the mallets move horizontally in unison by seconds or thirds. Howarth tells the marimbist to “Lock the mallets at the interval of a fourth and move [your] arm horizontally to change notes.”²⁰

There are also many exercises in *Simply Four* in which the held interval changes due to the horizontal movement of one mallet. In the example below, mallet 3 descends and then ascends by step while mallet 4 continues striking C5, causing the held interval to expand and contract.

Musical Example 4. Exercise from *Simply Four* by Gifford Howarth, pg. 48. Used with permission from Tapspace Publications, LLC.

The eighth-note rest after each interval repetition in the first three measures of the exercise above gives the marimbist time to think ahead to each subsequent interval before it is played. Similar exercises involving the horizontal movement of mallets 1, 2, and 4 are also provided in Howarth’s book.

²⁰ Gifford Howarth, *Simply Four* (Portland: Tapspace Publications, LLC., 2002), 46.

Perhaps the most methodological approach to gaining technical proficiency on marimba is presented in Leigh Howard Stevens' book *Method of Movement for Marimba*. Stevens focuses primarily on grip and efficiency of movement, including vertical movement, sticking patterns, and striking motion, rather than on an awareness of mallet placement and interval relationships. However, by practicing his method, the marimbist develops a familiarity with each practiced interval through focused repetition of specific, accurate movements. Stevens' book includes double-vertical exercises in which specific interval changes are repeated by both hands in unison. The following exercises from *Method of Movement for Marimba* allow the marimbist to focus on the horizontal movement of individual mallets and on specific held intervals through continuous repetition of select interval changes.

Musical Example 5. Exercises from *Method of Movement for Marimba* by Leigh Howard Stevens, pg. 55. ©1979 Keyboard Percussion Publications, by Marimba Productions Inc., Used with permission

Stevens' book opens with detailed instructions on marimba technique and then presents 590 technical exercises for the marimbist. When possible, each exercise is to be played in all twelve keys, in chromatic ascending order, with each variation repeated indefinitely. Stevens

writes in his instructions “A given exercise is practiced until either progress on it stops, or the student becomes bored with it and loses the ability to concentrate.”²¹

Any one of the resources cited above can help the marimbist to prepare for the advanced technical demands of today’s contemporary marimba literature. Each one can be used to improve accuracy in mallet placement and increase the marimbist’s familiarity with interval spacing and the keyboard layout. However, the predictability and repetitiveness of these exercises can also cause a marimbist to lose focus during practice.

Maintaining concentration is a common challenge for musicians when practicing repetitive exercises for a long period of time. Nonetheless, the mind must stay engaged during practice in order for significant learning to take place. In an article in *The Musical Quarterly* in 1916 titled “The Secret of Technique,” pianist Herbert Wrightson described the importance of combining physical repetition with mental focus in each practicing session. He wrote:

Endless repetition of a passage with the mind but slightly applied, is not only useless but injurious. It would really be more beneficial to think a passage a number of times without playing it, than to play it without thinking... It is the combination of the two, however – thought and action – which is necessary. The mind must think the actions, and the nerves and muscles must become accustomed to acting the thought.²²

Like the method book exercises shown above, chorales can also be used to improve a marimbist’s accuracy in interval spacing. However, chorales have a distinct advantage over traditional exercises because they are more apt to engage the mind of the marimbist by providing musical interest and variety to his or her practice session.

²¹ Leigh Howard Stevens, *Method of Movement for Marimba* (Ashbury Park: Marimba Productions, 1997), 4.

²² Herbert J. Wrightson, “The Secret of Technique,” *The Musical Quarterly* 2, no. 4 (1916): 564.

Practicing with Marimba Chorales

Chorales allow the marimbist to develop his or her technique and musicianship while increasing knowledge of the marimba repertoire. While this may also be said for creating technical exercises from any piece in the marimba repertoire, chorales in particular make excellent pedagogical material for learning mallet placement and interval spacing because of their combination of repetitive vertical movement and slow horizontal movement.

Since marimba chorales involve repeating the same notes by rolling each chord before changing intervals, they are inherently repetitive. The focused practice of marimba chorales can develop a marimbist's knowledge of interval spacing in relation to the keyboard layout through the accurate repetition of each rolled interval. The time spent rolling each chord can allow for a heightened awareness of what is being done and thoughtful consideration for what should happen next.

Repetition

Dr. Lisa Maynard, professor at James Madison University, conducted research and wrote an article demonstrating how advanced musicians use extensive repetition in practice sessions to learn new music – more so than their peers who have not yet reached the same level of expertise. In her article, Dr. Maynard defined practice as “the act of repeating a motor skill with the intention that repetition of the skill will lead to increased accuracy, fluency, velocity, consistency, automaticity, and flexibility in performing the skill.”²³ In the conclusion of her

²³ Lisa M. Maynard, “The Role of Repetition in the Practice sessions of Artist Teachers and Their Students,” *Bulletin of the Council for Research in Music Education* 167 (winter 2006): 61.

article, she states “one of the defining characteristics of excellent musicians is their tenacity in repeating fairly short passages many times over.”²⁴ This tenacity must be combined with an intent focus on improving technique in order to significantly improve a performer’s accuracy of movement.

Repetition of accurate mallet positioning and movement through the practice of marimba chorales can lead to consistency in accurate, autonomic mallet placement and overall increased efficiency in movement at the instrument. Chorales provide a framework for focused, repetitive practice while engaging the marimbist’s mind and providing the opportunity for musical expression. A marimbist can alter the tone, phrasing, dynamics, and balance of each note in each chord while simultaneously increasing his or her familiarity with the kinesthetic feel of each interval through accurate repetition.

Slow Practice

Musicians often rely on “slow practice” to ensure the accuracy of their movements. In a *Percussive Notes* article, Tim Heckman emphasizes the importance of slow practice stating, “It can be said that the purpose of slow practice is to put ‘thinking space’ between the notes.... Practicing slowly allows for awareness of what is being done.”²⁵ Heckman continues “A very effective way to bring about improvement in the organization of a movement is to shift your awareness as you slowly repeat the movement a few times.... Simply noticing what you are

²⁴ Ibid., 70.

²⁵ Tim Heckman, “On Slow Practice,” *Percussive Notes* 35, no.1 (February 1997): 46.

aware of in this manner will produce improvements. Given the chance to (kinesthetically) observe movements, the nervous system will spontaneously reorganize them into more effective patterns.”²⁶

Leigh Howard Stevens wrote in his book *Method of Movement for Marimba* “This is why mentally focused, slow practice pays off: the time between the notes is expanded so that one is able to feel and examine the motions in microscopic detail.”²⁷ As in slow practice, there is also time to “feel and examine the motions” when sustaining a chord in a marimba chorale. While playing a chorale, the marimbist has time to focus on the feel of each interval being played and evaluate the amount of effort needed to play the passage. Being aware of how each interval feels while it is accurately repeated can help the marimbist to solidify a kinesthetic knowledge of each interval while releasing any unnecessary tension in the body, leading to more efficient movement and less fatigue.

Chorales can be a useful tool in persuading students to include slow practice as a regular part of their practice routine by providing musically rewarding experiences at slower tempos. In addition, when chorales are played without a precise rhythmic structure, each chord can be rolled for any length of time. This allows the marimbist to continue rolling until each interval feels secure and relaxed before changing to the next set of intervals. The expansion of time between each horizontal movement of the mallets allows the marimbist to focus on sensory awareness and feedback, leading to more efficient and accurate movements.

²⁶ Ibid., 47.

²⁷ Stevens, *Method of Movement for Marimba*, 4.

CHAPTER 3: SENSORY LEARNING AND MOTOR SKILL LEARNING STAGES

Using the Senses in Marimba Performance

Practicing marimba chorales can improve mallet placement precision in four-mallet marimba performance by increasing a marimbist's accuracy of interval spacing in relation to the keyboard layout through focused repetition and an increased awareness of the visual, aural, and kinesthetic senses. Sight cues accurate movement through the recognition of notated music on the page and can serve as a point of reference for mallet placement and spacing. Attention to aural feedback enhances awareness of note accuracy and tone quality. Aural expectation of the intended musical outcome can help guide the body to make the necessary movements to achieve these musical goals. Kinesthetic awareness leads to a physical familiarity with interval relationships and a better sense of technical possibilities and limitations. These three senses, sight, hearing, and kinesthesia, guide the marimbist to refine movement and solve technical issues, ultimately leading to improvements in overall marimba technique.

Vision

In marimba performance, direct vision is used to look at notated music or at a particular note or interval on the instrument at any given time. Peripheral vision allows the marimbist to indirectly see a larger portion of the instrument and can be used as a guide for mallet placement. However, neither direct nor peripheral vision can be relied on to keep track of all four mallets simultaneously, especially in fast passages that cover a wide range. Even when the marimbist is

performing music from memory, the speed of the hands and horizontal distance between the hands can exceed the physical limitations of eye movement. The size of the instrument and the precise placement needed on each bar in order to maintain a consistent tone are too much for the visual system alone to monitor.

Hearing

The auditory sense as used in music performance includes both audiation and aural feedback. Audiation is the mental perception of sound as a cognitive thought, independent of and often preceding its physical occurrence. Audiation can have a powerful effect on the outcome of a musical performance by providing the performer with a clear mental image of the desired outcome. This image can guide the body of a trained musician to make the autonomic movements necessary for the realization of a musical goal.²⁸ If the sound produced does not match the sound that was anticipated, aural feedback can alert the musician to this disparity. The musician can then use the information gained through aural feedback to make any necessary adjustments when the same interval or note is repeated.

Practicing any musical instrument involves the aural recognition of errors, followed by a reevaluation of how to perform the passage as desired, concluding with accurate repetitions of the passage. Between these three steps toward mastery, the performer pauses briefly. The pause between consecutive attempts allows the performer time to think of each action and its desired outcome before it is performed again.

²⁸ For more information about this process, see Luigi Bonpensiere's treatise *New Pathways to Piano Technique*.

When playing marimba chorales, mistakes that are detected through aural feedback can be corrected immediately by moving from the incorrect to the correct interval and/or mallet positioning without pausing between attempts. This immediate correction of errors can circumvent the formation of careless habits that can cause future inaccurate mallet positioning. Continuous repetition of correct vertical motion through rolled chords can reinforce accurate kinesthetic, aural, and visual knowledge and lead to future accurate replication of the movement.

Kinesthesia/Proprioception

Kinesthesia, also referred to as proprioception, is the body's sense of movement in space in relation to itself and includes tension and relaxation sensations in the muscles, joints, and tendons. Kinesthesia is the sense that is used to locate your own nose with your fingertip when your eyes are closed. Since the marimba is a freestanding instrument struck with mallets, the marimbist lacks any direct physical contact with the instrument. Unable to use the tactile sense of touch on the instrument, a marimbist must instead "feel" the size and shape of the marimba and the position of each of its bars through kinesthesis.

Once a kinesthetic knowledge of interval spacing in relation to the keyboard layout has been acquired, the advanced marimbist relies primarily on the kinesthetic sense, aided by the visual and aural senses. Incorrect notes and/or undesirable tones can be detected and corrected through aural and kinesthetic awareness without looking away from a point of visual focus, such as the notated music.

Relying on sight to find the correct notes on the marimba can reduce note accuracy once the intervals have already been learned kinesthetically. According to a study by Joseph Combs,

of all the senses, the kinesthetic sense by itself produces the most consistent note accuracy on keyboard percussion instruments, even when compared to sight alone or a combination of sight and kinesthesia.²⁹ Establishing a connection between audition and kinesthesia can lead to consistently accurate mallet placement. However, correct automatic movement in marimba performance is only possible if an advanced kinesthetic knowledge of interval spacing and the keyboard layout has already been developed.

Playing Marimba “By Feel”

Many marimbists acknowledge the importance of becoming kinesthetically familiar with the keyboard layout, also known as learning the “feel” of the marimba, in developing consistency in note accuracy and tone. In her book *Four-Mallet Marimba Playing*, Nancy Zeltsman writes:

Improving your knowledge of the marimba keyboard by feel is, for many, a lifelong pursuit. It is gradually achieved simply by keeping aware of it as a goal. Ultimately, it is a central factor in feeling that you can “embrace” the marimba – that you have a physical connection and comfort with it.³⁰

Zeltsman advocates learning the feel of the marimba through the practice of musical repertoire that makes use of repeated intervals, starting with pieces that focus on horizontal movement by step and then advancing through pieces that move by progressively larger horizontal leaps. Like the repetitive, technical exercises mentioned in Chapter 2 of this document, this approach also allows the marimbist to develop a familiarity with interval spacing in a logical pedagogical sequence.

²⁹ Joseph Combs, “The Problems of Sight-Reading on Mallet-Played Instruments and Their Relationship to Kinesthetic Sensation” (DME diss., The University of Oklahoma, 1967), 42-43.

³⁰ Zeltsman, *Four-Mallet Marimba Playing*, 18.

Practicing etudes and other musical compositions including marimba chorales rather than drilling technical exercises, provides the marimbist with an opportunity for musical expression while improving technique. Musical repertoire can be approached in an order that focuses sequentially on the feel of each interval size, gradually introducing larger intervals in subsequent studies. As an added benefit, the study of this repertoire can be later refined for future performances.

Challenges of Marimba Performance

The marimbist depends on the visual, aural, and kinesthetic senses to ensure accurate mallet placement. Accuracy in mallet placement on marimba is particularly challenging due to the large size of the instrument, the lack of standard bar width among different manufacturers and between different octaves on the same instrument, and the use of mallets, which distance the performer from the instrument and may vary in dimensions including length, diameter, and weight. Also, the distance between the marimba's upper manual and the marimbist's body can cause awkward body positioning in order to reach the desired playing area on each bar. If the marimbist does not make the necessary adjustments to these challenges, mallet placement can be inconsistent causing the tone of each note to vary depending on where each bar is struck.

Like marimbists, pianists rely on their kinesthetic sense to determine accurate interval spacing. However, unlike the marimba, the piano is a standardized instrument. Pianists can memorize how each interval feels within the hand and apply this knowledge of interval size across the entire keyboard, even when playing instruments made by different manufacturers. A marimbist, however, must learn flexible patterns of movement to adapt to the inconsistencies of

various keyboard instruments. One of the greatest challenges in achieving consistency of mallet placement on marimba is the variation in the design and construction of the instruments, especially regarding marimba bar width.

For the lowest octave of a Marimba One® brand five-octave marimba, the distance from the center of the C2 bar to the center of C3, is roughly 22". The measurement of the highest octave on the same instrument is roughly 15". This is a difference of approximately 7" for the same interval played in different ranges on the same instrument. This distance is even greater on the lowest octave of a Malletech® marimba, which has similar measurements to the Marimba One® in the upper register of the instrument, but a measurement of nearly 27.5" for the lowest octave.

Thankfully, a marimbist does not need to consciously memorize all of the possible variations for each interval distance. Practicing on instruments of varying bar width and in different octaves of the same instrument can help strengthen the marimbist's kinesthetic awareness and motor skill flexibility. John Owen explains the brain's ability to adapt to changing variables by stating:

...the brain need not store the specific and detailed instructions for every possible motor and muscle movement needed for the execution of a complex task. Rather, what is stored is an abstract representation of a movement, and the possible consequences to it. The actual movement is seen as an interaction between the schema and the environment of the moment.³¹

³¹ John Edward Owen, "Improving instrumental practice techniques through use of a motor schema theory of learning" (PhD diss., The Ohio State University, 1988): 1-2.

Adapting to Inconsistencies in Bar Width

When a marimbist is consciously aware of variations in bar width and has developed an enhanced kinesthetic sense of mallet interval spacing and the keyboard layout, he or she can quickly adjust to the inconsistencies of instrument dimensions. Experienced performers can quickly adapt to these variations as a result of their extensive experience playing on various instruments in all ranges. A collaborative study by Schilling, Vidal, Ployhart, and Marangoni states,

Variation has been proposed to enhance individual learning through the development of a deeper cognitive structure...or through stimulating insightful synthesis between different problem domains...In essence, the variation stimulates the learners to develop a deeper understanding of the tasks than they would if they had performed only one type of task over time.³²

Marimbist Gordon Stout explained his enhanced ability to adapt to variations in bar width by stating in an interview:

Over the years I have performed on almost all of the different [brands of] marimbas. So I hardly notice the difference, and those differences are mainly in the low octave. Malletech® has the widest bars. If I use that, then it is easier to go smaller. When playing on a different marimba I will often practice a few ideo-kinetic exercises to get me tuned-in to the size of the bars on that instrument.³³

Stout developed his ideo-kinetic exercises as an approach to master the challenges of note accuracy when fast, horizontal leaps occur in advanced marimba literature. He compiled these exercises into a method book entitled *Ideo-Kinetics: A Workbook for Marimba Technique*. In this book, Stout focuses on improving note accuracy and tone consistency through the refinement of the kinesthetic sense as it relates to horizontal movement. Stout labeled his method “Ideo-

³² Melissa A. Schilling et al., “Learning by Doing Something Else,” *Management Science* 49, no. 1 (2003): 52.

³³ Ming-Hui Kuo, “Improving Sight-Reading on Marimba,” *Percussive Notes* 51, no. 4 (2013): 59.

Kinetics”³⁴ which he defines as “the idea and specific approach through which the horizontal distance from one note to another may be memorized ‘by feel’ in relation to a point of reference.”³⁵ Stout further maintains:

I have found that the field of vision easiest to keep track of through direct sight and peripheral vision is between the player’s body and the music stand. Trying to keep in visual contact with a majority of the upper and lower register notes while playing produces a visual strain, thereby confusing the hands and a sense of the location of the notes. The concept of the ideo-kinetic exercise system, then is to visually concentrate only on the notes of the instrument directly in front of the body, and kinesthetically memorize the distance from those reference notes to those outside the immediate field of vision.³⁶

Stout’s succinct text includes brief instructions followed by nineteen pages of two- and four-mallet exercises. The marimbist is instructed to maintain a visual focus on one note or interval, known as the “rotation” note or interval, and find all of the other notes in the exercises kinesthetically by feeling the distance between the rotation note/interval and the other notes. The following ideo-kinetic exercise begins with the horizontal movement of a minor second, gradually moves out to an octave above and below the rotation note, and then decreases in interval size until it returns to the starting interval.

³⁴ Before Gordon Stout, pianist Luigi Bonpensiere developed ideo-kinetics as an extensive system to generate a complete reliance on autonomic physical movement for peak performance. In Bonpensiere’s system, movement is initiated by imagery and audiation without the mental or physical effort of the performer. Stout explored one facet of this system: developing autonomic movement for correct intervals.

³⁵ Gordon Stout, *Ideo-Kinetics: A Workbook for Marimba Technique* (Asbury Park: Keyboard Percussion Publications, 2001), 6.

³⁶ *Ibid.*

Musical Example 6a. Exercises from *Ideo-Kinetics* by Gordon Stout, pg. 11. ©2001 Keyboard Percussion Publications, by Marimba Productions Inc., Used with permission

Slow-Fast

pp

rotation note

Musical Example 6b. Exercises from *Ideo-Kinetics* by Gordon Stout, pg. 11. ©2001 Keyboard Percussion Publications, by Marimba Productions Inc., Used with permission

Stout's exercises are intended to develop a kinesthetic sense of the keyboard layout and thereby improve the marimbist's sight-reading ability, note accuracy, and adaptability to inconsistencies of bar width.

Applying Ideo-Kinetics to Marimba Chorales

Ideo-Kinetic exercises such as those found in Stout's book can improve the precision of a marimbist's mallet placement by developing a kinesthetic awareness of interval spacing and the keyboard layout. Applying this ideo-kinetic approach to the practice of marimba chorales can help a marimbist achieve these goals while simultaneously developing musicality and a greater knowledge of the marimba repertoire. The ideo-kinetic approach is especially useful when it is impossible to visually keep track of all of the notes being played at the same time, such as when

reading music notation or when playing with the hands a wide distance apart. The application of ideo-kinetic principles to the practice of marimba chorales will be further explored in Chapter 4 of this document.

Stages of Motor Skill Learning

The purpose of improving technique on any musical instrument is to be able to perform the music without the interference of technical limitations. On marimba, this requires consistent, autonomic mallet positioning so that the performer can concentrate his or her focus on musical expression and interpretation. Michael Kingan wrote:

Lately, I've been defining virtuosos as those whose technique far surpasses the demands of the music they perform, therefore allowing them to make fine music. By contrast, if your technical skills only meet the demands of the composition, then you wind up sounding like a student of the piece you are playing. Of course, if your technical skills fall short of what is required, then you will probably sound as though you are in over your head, unprepared, or just plain bad.³⁷

The process of advancing motor skill performance from a level of consciously thinking of each movement to accurately performing a more complex series of movements without conscious thought of each detail involves several learning stages. An individual must move through each of these stages in order to become proficient at any motor skill, such as riding a bike, typing, knitting, skiing, using chopsticks, shuffling a deck of cards, or playing a musical instrument. One popular motor skill learning model, developed by former employee of Gordon Training International, Noel Burch, involves four stages:

Stage 1 - Unconsciously unskilled. We don't know what we don't know. We are inept and unaware of it....

³⁷ Michael Kingan, "A No-Nonsense Strategy for Developing Technical Skills," *Percussive Notes* 42, no. 4 (August 2004), 44.

Stage 2 - Consciously unskilled. We know what we don't know. We start to learn at this level when sudden awareness of how poorly we do something shows us how much we need to learn....

Stage 3 - Consciously skilled. Trying the skill out, experimenting, practicing. We now know how to do the skill the right way, but need to think and work hard to do it....

Stage 4 - Unconsciously skilled. If we continue to practice and apply the new skills, eventually we arrive at a stage where they become easier, and given time, even natural.³⁸

Paul Fitts and Michael Posner wrote a book on motor skill development entitled *Human Performance*. In it, Fitts identifies 3 stages of motor skill learning: Cognitive, Associative, and Autonomous.³⁹ This learning model focuses on the improvement of motor skills that have already been identified by the performer. Dr. Darin “Dutch” Workman summarizes this model as follows:

Three main stages constitute learning new muscle memory. The first is cognitive, during which we use extreme focus to control simple movements that are small puzzle pieces to doing a task. This is usually very awkward and slow moving. Next is the associative, which is when the basic movements are learned and we are trying to link them together smoothly. The last phase is autonomic, when a task can be done smoothly without thought, and the brain and body continually perfect it by repetition—making it more efficient and effortless.⁴⁰

In both of these models, the individual becomes aware of a deficiency, seeks out and discovers a means for improvement, implements new tactics, and then repeats the desired motion until the action becomes autonomic. This sequence is applicable to learning a new motor skill or refining a familiar one. Refining a motor skill often involves eliminating unnecessary excess motion in order to improve efficiency and speed.

³⁸ Linda Adams, Gordon Training Institute, *Learning a New Skill is Easier Said Than Done* (accessed August 15, 2014); available from <http://www.gordontraining.com/free-workplace-articles/learning-a-new-skill-is-easier-said-than-done>.

³⁹ Paul M. Fitts and Michael J. Posner, *Human Performance* (Belmont: Brooks/Cole Publishing Company, 1967), 11-15.

⁴⁰ Darin “Dutch” Workman, “What is Muscle Memory?” *Percussive Notes* 50, no. 1 (2012): 56.

In the early stages of learning a new motor skill – the consciously unskilled and consciously skilled or the cognitive and associative stages – the performer focuses on precise motions while working through technical issues. The motions are slow to allow time to think of each movement in detail and plan ahead to each preceding note. During the process of consciously learning a new skill, unconscious motor skill performance is learned at the same time. Daniel Willingham explains this process:

Learning continues in the unconscious process all the while that the conscious mode is engaged and controlling movement. Thus, the subject may consciously control a sequence of movements, but with sufficient practice, this conscious control becomes unnecessary because the unconscious sequencing process will have learned the sequence. This interaction of the two processes would account for the decreasing attentional demands observed with practice and the development of automaticity.⁴¹

In the final stage – the unconsciously skilled or the autonomous stage – the focus is purely on the end goal, such as conveying a musical idea including its shape, tone, volume, energy, and timing. The movements required to achieve this goal are autonomic at this stage. When a marimbist has reached the autonomous stage, he or she accurately and consistently strikes a chosen location on each bar without consciously focusing on mallet placement. With continued accurate repetition, the motion will become more efficient and consistent over time without a conscious effort on the performer's behalf.⁴²

In the early stages of motor learning, the marimbist consciously thinks of interval spacing and the precise motion of the mallets on the keyboard and within each hand. In later motor skill development, correct movement takes place while the marimbist focuses on intended musical

⁴¹ Daniel Willingham, "The Neural Basis of Motor-Skill Learning," *Current Directions in Psychological Science* 8, no. 6 (1999): 181.

⁴² Alexandro Nichols, "Muscle memory: An analysis of repetitive motion theory applied to percussion performance in undergraduate college students" (MS thesis, Tennessee State University, 2012): 5.

outcomes rather than on the necessary motions to achieve them. Audiation and the sight of written notation cue the kinesthetic sense to anticipate the movements required for accurate mallet placement.

Neurology of Motor Skill Learning

Motor skills become more efficient through accurate repetition and focused practice. Neurons play a crucial role in this process. A neuron is a cell that carries nerve impulses and is made up of a cell body, an axon that carries the nerve impulse in the form of an electrical charge, and dendrites which receive information from other neurons.

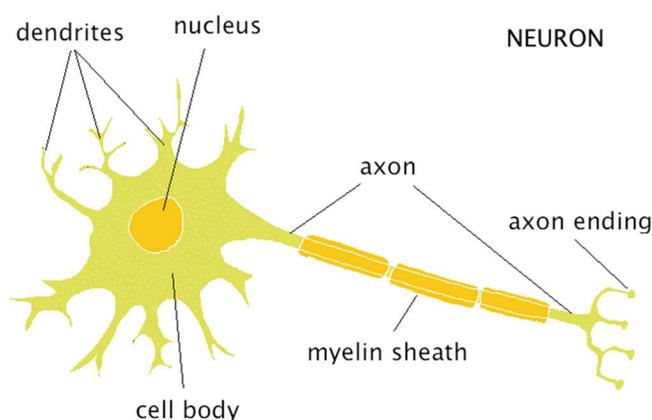


Figure 4. Parts of a Neuron as illustrated by George Boeree.⁴³
Used with permission

⁴³ Dr. C. George Boeree, *General Psychology: The Neuron* (accessed September 20, 2014); available from <http://webspace.ship.edu/cgboer/theneuron.html>.

Alexandro Nichols summarizes the neurology of movement in his thesis on muscle memory and motion theory as follows:

To better understand how the process of muscle memory works, knowledge of the physiology behind this concept must first be explored. In order for the body to produce movement, nerve cells called neurons send messages from the brain to the muscle fiber...Neurons contain several parts that allow them to send messages to one another until reaching the muscle. Neurons receive nerve impulses, called action potentials, through the dendrites, several short stands extending from the cell body. The action potential or nerve impulse is then sent down the axon, a long tubular strand extending from the cell body...⁴⁴

There is a physiological change that takes place when an action is consistently repeated that allows the performer to move from the slow, conscious performance of a task to the autonomic performance of the same task with greater efficiency and speed. This is the result of a process called myelination. Myelin is an insulating, fatty sheath that wraps around the axon of a neuron and increases the speed at which a nerve impulse travel across an axon. As layers of myelin are added over time with the consistent repetition of a motor skill, nerve impulses travel increasingly faster across the axon of a neuron, allowing motor skills to become faster, more consistent, and more accurate if the repeated movements are themselves accurate and consistent.

Repetition of accurate mallet positioning and movement during the practice of marimba chorales can lead to the autonomic performance of correct notes and a consistency in tone production. The focused practice of marimba chorales develops the marimbist's kinesthetic knowledge of interval spacing in relation to the keyboard layout through the repetition of double-vertical or double-lateral strokes during each rolled interval. The autonomic performance of correct notes with a consistent tone is only reached when a marimbist has a strong familiarity with interval spacing and the keyboard layout. Consistent practice of marimba chorales can

⁴⁴ Nichols, "Muscle memory," 3.

increase this familiarity through slow horizontal movement and repetitive vertical movement, while also providing opportunities for the development of musicianship through the study of musical repertoire. The following chapter will demonstrate how marimba chorales can be used to develop a kinesthetic sense of interval spacing and the keyboard layout through the practice of seven original works for four-mallet marimba.

CHAPTER 4: A PRACTICING GUIDE: USING MARIMBA CHORALES TO IMPROVE MALLET PLACEMENT ACCURACY

As previously stated, this document is intended to assist intermediate and advanced marimbists in gaining a greater kinesthetic knowledge of interval spacing and the marimba keyboard layout through the practice of marimba chorales. This chapter will demonstrate how to utilize marimba chorales to improve consistency in mallet placement precision. The regular practice of marimba chorales can contribute to improved note accuracy and consistency of tone through their combination of slow horizontal movement and repetitive vertical movement. Each interval position in a marimba chorale is maintained through the repetition of double-vertical or double-lateral strokes known as rolls.⁴⁵ Sustaining each roll gives the marimbist time to focus on various aspects of performance such as tone, mallet placement, body positioning, relaxation, the feel of each interval, and the desired musical outcome. The deliberate repetition of accurate movements during each roll of a marimba chorale can lead to a greater kinesthetic knowledge of precise mallet positioning.

This chapter utilizes seven original compositions for the intermediate to advanced marimbist. Each of these compositions is either written in the chorale style or contains at least one extensive chorale-style passage. Excerpts from these works have been chosen based on their ability to clearly demonstrate how to improve various aspects of mallet placement, including a kinesthetic sense of precise interval spacing and a greater kinesthetic knowledge of the marimba keyboard layout. Rosauero's *Concerto for Marimba and Orchestra*, Smadbeck's *Etude No. 1 for*

⁴⁵ Double-lateral rolls are made up of alternating double-lateral strokes.

Marimba, Gomez and Rife's *Rain Dance*, Maslanka's "madrigal – my lady white," and Glennie's *Giles* all contain extended passages where only one or two mallets move at one time. Passages with a limited number of moving lines allow the performer to focus on relaxation, tone production, and interval spacing without the distraction of additional technical challenges. In *Colors* by Todd Ukena, frequent chromatic movement between the upper and lower manual increases the difficulty in maintaining a consistent tone. Zivković's *Ein Liebeslied?* combines all three types of interval spacing while maintaining smooth horizontal movement in each of the four mallets.

The chorale excerpts in this chapter are presented by increasing level of technical difficulty based on interval sizes, the distance of horizontal shifts, the level of independence needed between the two hands, and the body positioning needed to play each chord.⁴⁶ Practicing chorales in a logical sequence of technical development allows the marimbist to build upon skills that have already been developed. This is accomplished by progressively increasing the marimbist's familiarity with each interval, including the positioning and movement of the marimbist in relation to the keyboard. Areas of focus in this chapter include visual, aural, and kinesthetic awareness, body positioning, mallet positioning on each bar, interval spacing, and horizontal movement. All excerpts should be rolled throughout. Several of these musical examples are repetitive and simple and therefore make excellent warm-up material.

⁴⁶ The tempo of each piece is of little relevance in this practicing method and can be varied to reach the desired goal. While it is likely that the marimbist will be inspired to perform some of these works, the main goal is to use chorales to develop technique and musicality while increasing a knowledge of musical styles and repertoire, not to prepare for them for eventual performance.

Concerto for Marimba and Orchestra by Ney Rosauero

The second movement of Rosauero's concerto, "Lamento (Lament)," offers the marimbist an opportunity to focus on the same held interval in each hand simultaneously in measures 22-45. Throughout this chorale section, the two inside mallets sustain a major second on G4 and A4 while mallets 1 and 4 move in contrary horizontal movement, mostly by seconds, out as far as held sevenths and in as close as held seconds. When applying Gordon Stout's ideo-kinetic approach to this chorale, the interval between mallets 2 and 3 could be considered the "rotation interval." The marimbist can use this rotation interval as a point of reference for finding all other correct notes kinesthetically, based on the feel of the horizontal movement of mallets 1 and 4, or the feel of the held intervals in each hand.

Singing the notes played by mallet 1 or 4 can strengthen audiation and help the marimbist to maintain focus on each held interval. As the marimbist sings one of the moving lines, he or she can vocalize the names of the interval sizes being played ("fifth," "fourth," etc.) to help maintain focus. The tempo and rhythm of this and all of the other excerpts in this chapter can be altered or disregarded if they interrupt the marimbist's focus on the aural and kinesthetic senses. The main purpose of practicing chorales in this study is to improve mallet placement through increased visual, aural, and kinesthetic awareness. The performance of these chorales in a concert venue would require a different approach to practicing this material, which falls outside of the scope of this document.

Musical Example 7. *Concerto for Marimba and Orchestra*, “II. Lament” by Ney Rosauro, measures 22-26. Used with permission

22 C ANDANTE/molto espressivo ♩ = 96
 mp

Rather than focusing on held intervals, the marimbist can also achieve accurate mallet placement in the excerpt above by focusing on the horizontal movement of mallets 1 and 4. In this case, the marimbist would concentrate his or her awareness on maintaining the rotation interval while moving the outside mallets in contrary horizontal movement by intervals of a second, third, and fourth. Shifting the focus between the horizontal movement of individual mallets and held intervals can help the marimbist to develop a stronger kinesthetic sense of the marimba keyboard layout.

Practicing variations of this excerpt can further develop a kinesthetic feel for interval spacing and the keyboard layout. This excerpt can be performed up or down an octave to increase familiarity with variations in bar width across the entire instrument. The marimbist can also use this excerpt as a framework for improvisation to further develop a kinesthetic sense of each interval. Starting with the interval of a fifth as notated, the marimbist can expand and contract the held intervals in any order, by horizontal step or leap, while maintaining the G and A with mallets 2 and 3. This improvisational exercise can also be done in the lowest octave of a five-octave marimba if held intervals are limited to a fifth and smaller.

Etude No. 1 for Marimba by Paul Smadbeck

Paul Smadbeck's *Etude No. 1 for Marimba* is a work for the beginning four-mallet marimbist that incorporates a seven-measure chorale section. In this section, mallets 2 and 3 remain on A3# and B3 respectively while only mallets 1 and 4 change intervals. Held intervals range between a fourth and a seventh and the horizontal movement between notes is primarily by seconds and thirds with one leap of a fourth in mallet 1. These interval sizes and shifts necessitate only a beginning level of four-mallet technique, allowing the intermediate and advanced marimbist to focus on other aspects of performance. One beneficial area of focus is a kinesthetic awareness of the precise placement of each mallet. This includes the developing a kinesthetic feel for the precise striking location on each bar, correct held intervals, and efficient horizontal movement.

Musical Example 8. *Etude No. 1 for Marimba* by Paul Smadbeck, measures 32-34. ©1980 Studio 4 Music, by Marimba Productions Inc., Used with permission

In measures 32-34, mallet 1 in the left hand ascends and descends by an interval of a second, creating held intervals of a sixth and fifth within the left hand. The marimbist can choose to focus on the kinesthetic feeling of moving horizontally by seconds with mallet 1, or on the

contracting and expanding held intervals of sixths and fifths in the left hand. In the same passage, mallet 4 in the right hand moves by whole steps and major thirds, creating held intervals of a tri-tone, minor sixth, and minor seventh in the right hand. Shifting the focus between held intervals and the horizontal movement of individual mallets increases the marimbist's familiarity with each type of movement.

Measures 32-34 of this excerpt can be played in a loop to create a longer technical exercise, providing the marimbist time to focus on several areas of awareness. The repetitiveness and simplicity of this phrase allows for easy memorization. Once the phrase is memorized, the performer can close his or her eyes and concentrate more fully on auditory and kinesthetic sensory feedback. This looping exercise can lead to enhanced kinesthetic awareness, a greater kinesthetic knowledge of horizontal and held intervals, and increased accuracy in mallet placement. In this exercise, aural awareness should alert the marimbist of any errors in mallet placement in regards to both note accuracy and tone consistency.

Rain Dance by Alice Gomez and Marilyn Rife

Rain Dance is another work for the beginning marimbist that incorporates a four-mallet chorale. As in the previous two examples, the inside mallets in measures 115-118 of *Rain Dance* maintain their positions while the outside mallets move horizontally. This section of the piece includes held intervals of a fifth and sixth in the left hand and held intervals of a third, fourth, and fifth in the right. The marimbist could choose to focus on these held intervals, or on the horizontal movement of seconds and a third in mallets 1 and 4. As in the previous examples, shifting awareness between these two types of intervals can help the marimbist develop a

kinesthetic relationship with each type. Measures 115-118 of *Rain Dance* can also be looped to create a longer mallet placement exercise.

Musical Example 9. *Rain Dance* by Alice Gomez and Marilyn Rife, measures 115-118. ©1988 Southern Music Company, by Lauren Keiser Music Publishing. Used with permission

The image shows a musical score for four measures. The right hand (treble clef) plays a melodic line starting on a half note G4, followed by quarter notes A4, B4, and C5, ending on a half note G4. The left hand (bass clef) plays a constant bass line of a half note G2. A slur is placed over the right hand's notes, and a fermata is placed over the final G4 note. The notes in the right hand are marked with a circled '8', indicating mallet placement.

In measures 121 and 122 of the same composition, shown below, there is a succession of parallel sixths in the right hand. Looping measure 121 can help develop a kinesthetic feel for a held fourth in the left hand and a held sixth in the right. This method of locking each held interval in place is reminiscent of the exercise by Julia Gaines cited in Chapter 2 of this document.

Musical Example 10. *Rain Dance* by Alice Gomez and Marilyn Rife, measures 121-130. ©1988 Southern Music Company, by Lauren Keiser Music Publishing. Used with permission

The image displays a musical score for two systems of music. The first system consists of two staves (treble and bass clef) with a large brace over the top staff. The second system also consists of two staves with a large brace over the top staff. A box labeled '130' is positioned above the second system. The notation includes various note values, rests, and dynamic markings such as 'rit.' (ritardando).

In measures 123-130 of the excerpt above, only mallet 3 moves horizontally while mallets 1, 2, and 4 roll on D3, A3, and D5, respectively. This is an excellent opportunity for the marimbist to focus on the held intervals of the right hand while monitoring the three sustaining mallets through auditory feedback. The relative simplicity of this passage allows the marimbist to focus on specific areas of technique including the feel of each interval, the accuracy and tone of each targeted note, and the release of any unnecessary tension in the wrists, fingers, or anywhere else in the body, especially during the execution of an extended held interval of a ninth in measures 25 and 29.

Unnecessary tension causes fatigue and should be released as soon as it is noticed. The presence of tension is amplified when playing intervals of extended width due to their technical difficulty. Unnecessary tension can be more noticeable when rolling due to the excessive number

of strokes played in a compressed duration of time. This makes the tension easier to identify, but more burdensome to the body if it is ignored. Marimbist Michael Burritt emphasized the need for relaxation during repetitive movement in a *Percussive Notes* article, writing:

Muscles learn through constant repetition... Uninterrupted, relaxed and continuous movements lend themselves to processing this learning faster and more consistently... The movement we choose can either aid or hinder our muscles in this learning process... Students who are in the habit of playing with some stiffness will have more difficulty in establishing a desirable sound, sense of time and consistency in keyboard accuracy.⁴⁷

Rolling marimba chorales provides uninterrupted, continuous movement that must be relaxed in order to sustain the movement for a significant period of time. There are more strikes per minute performed in a marimba chorale than in any other work for solo marimba due to the continuous vertical strokes of the rolling motion. When playing a chorale, the marimbist can release any unnecessary tension before shifting to the next chord or note change. As mentioned above, rhythm and tempo can be temporarily suspended during the practice of this or any other marimba chorale passage in order to focus on other musical goals.

My Lady White by David Maslanka

David Maslanka's composition *My Lady White* is by no means a work for the beginning marimbist. However, two chorale excerpts can be extracted from it that only require basic four-mallet technique. These excerpts, measures 8-11 and 13-15 from the first movement, "madrigal – my lady white," give the marimbist an opportunity to improve note accuracy and consistency of tone by concentrating on a few specific intervals.

⁴⁷ Michael Burritt, "Developing Fundamental Musicianship," *Percussive Notes* 36, no. 1 (1998): 29.

Many of the same exercises demonstrated with the excerpts above can also be applied to “madrigal – my lady white.” These include looping, practicing without the use of visual feedback in order to enhance awareness of aural and kinesthetic feedback, and focusing on the kinesthetic feel of each interval and the auditory feedback of each pitch and tone.

As in earlier examples, in “madrigal – my lady white” two mallets maintain their positions while the other two mallets move horizontally. In measures 8-15, mallets 2 and 4 usually move in parallel motion in horizontal seconds, thirds, and fourths to create held intervals of a third, fifth, and sixth in each hand.

Musical Example 11. "madrigal - my lady white" by David Maslanka, measures 8-15. ©1981 Keyboard Percussion Publications, by Marimba Productions Inc., Used with permission

The image displays two systems of musical notation for keyboard percussion. The first system consists of two staves, treble and bass clef, with a key signature of two sharps (F# and C#). The music is marked 'ppp' (pianissimo). The notation includes various rhythmic values and intervals, with a box containing the number '11' in the fourth measure of the first system. The second system continues the notation on two staves, maintaining the same key signature and time signature.

In measures 8-12, all four mallets remain on the upper manual of the keyboard, allowing the marimbist to maintain the same tone throughout the passage without much difficulty.

However, in measures 13-15, mallets 2 and 4 must move quickly between the upper and lower manuals. Making smooth transitions between the two manuals is best accomplished by striking the edges of the bars of the upper manual with mallets 2 and 4 so that the mallets are closer to the lower manual before moving to the B natural. The following pictures show two examples of how this can be done.



Figure 5a. Edge mallet positioning for beat 1 of measure 13



Figure 5b. Off-center and edge mallet positioning for beat 1 of measure 13

The marimbist should choose the best solution from the two examples above based on desired tone production and efficiency in motion. Becoming familiar with this quick movement between the upper and lower manuals of the keyboard will prepare the marimbist for future automatic transitions between the two manuals when playing the same intervals in other chorales and non-chorale passages.

Held intervals in this excerpt from “madrigal – my lady white” span from a third to a sixth in each hand. Horizontal movement ranges from a second to a fourth. All of these intervals and shifts require only basic four-mallet marimba technique. The most challenging transition in the excerpt above occurs between measures 11 and 12. Here, both held intervals change while all four mallets move horizontally down the keyboard. The marimbist can kinesthetically locate the desired placement for each mallet in this transition by moving down a second with mallets 2 & 4

while changing to the held interval from a third to a fifth in each hand. Accurate positioning can be aided by peripheral vision and confirmed through aural feedback.

Giles by Evelyn Glennie

Giles by Evelyn Glennie is composed as a chorale throughout and provides a variety of musical opportunities for the improvement of mallet placement accuracy. In the opening of this work, mallets 1 and 3 sustain C#s in octaves while mallets 2 and 4 move horizontally across the keyboard. Accurate mallet placement can be improved in this excerpt by combining Stout's ideo-kinetic concepts to the practice of this chorale.

In his ideo-kinetic exercises, Stout emphasizes keeping a direct visual focus on only the rotation note/interval. If an incorrectly played note is aurally recognized, the marimbist is to continue playing while making any necessary physical adjustments to correct the mallet positioning without the aid of direct vision. When marimba chorales are played in this manner, the marimbist focuses visually on the written music or on only one interval or mallet throughout a passage. The rest of the mallets are maintained in their positions or moved horizontally with the assistance of peripheral vision and the kinesthetic sense.

When applying the ideo-kinetic approach to the opening passage of *Giles* shown below, a direct visual focus can be maintained on mallet 2 or mallet 4 while the correct positioning for the other moving mallet is found by feel. This approach is only consistently successful if the marimbist already has a familiarity with the kinesthetic feeling of moving horizontally by seconds. Mallets 1 and 3 are to be maintained in octaves, by feel, throughout the passage.

Musical Example 12. *Giles* by Evelyn Glennie, measures 1-7. © Copyright 1994 by Faber Music Ltd, London. Reproduced by kind permission of the publishers

The musical score shows two staves in 4/4 time. The right hand (treble clef) begins with a piano (*ppp*) dynamic and a key signature of one sharp (F#). The left hand (bass clef) also begins with a piano (*ppp*) dynamic. The music consists of a series of intervals that change over time, with a *cresc.* marking in the right hand. The score is written with a large, sweeping slur over the entire passage.

This ideo-kinetic approach to marimba chorales is especially useful when the marimbist is playing with the hands a large distance apart or when several mallets are changing intervals simultaneously, thus making it impossible to keep track of all of each interval change by sight alone. Keeping track of accurate mallet placement in these situations is far more easily done with the aid of aural feedback and kinesthetic-spatial awareness. Missed notes can then be corrected by making physical adjustments by feel until the correct note is played and confirmed through aural feedback. Consistent mallet positioning can then be reinforced through kinesthetic awareness of accurate movement.

In measures 13-20 of *Giles*, only one mallet moves horizontally at a time. This allows the performer to concentrate on the horizontal movement of one mallet and on the various held intervals in the right hand while the left hand maintains a fifth on A2 and E3. The horizontal movement of the mallets in the right hand in this passage is usually limited to seconds and thirds, with one leap of a fourth. Held intervals range from a second to an octave.

Musical Example 13. *Giles* by Evelyn Glennie, measures 13-20. © Copyright 1994 by Faber Music Ltd, London. Reproduced by kind permission of the publishers

From measure 13 through the first half of measure 19, only mallet 4 changes position while mallets 1, 2, and 3 sustain a roll on A2, E3, and A3 respectively. Using mallet 3 as a rotation note in this passage, the marimbist can find the exact placement for mallet 4 by concentrating on the changing held interval in the right hand. Alternatively, the marimbist can focus on the horizontal movement of mallet 4 while maintaining the positions of mallets 1, 2, and 3. The marimbist can also shift between these two areas of focus, choosing at any moment the one that results in the most accurate mallet placement.

Colors by Todd Ukena

In each of the previous excerpts, only one or two mallets move horizontally at the same time. However, in *Colors* by Todd Ukena, all four mallets move horizontally with more

frequency, and often simultaneously. Throughout *Colors*, intervals held in one hand are usually between a second and fifth, with one interval of a sixth. Horizontal movement is usually between a second and third, with an occasional fourth. These conservative interval sizes allow the marimbist to focus on more challenging aspects of this composition, such as maintaining a consistent tone during the frequent shifts between the upper and lower manual.

The chromatic horizontal movement in the opening of this chorale requires a constant focus on mallet placement to produce a consistent tone while moving between the upper and lower manuals. In the fourth beat of the second measure, there are three possible variations of off-center mallet placement for mallets 1 and 2.

Musical Example 14. *Colors* by Todd Ukena, measures 1-4. Used with permission

The musical notation is in bass clef, 4/4 time, and marked *pp*. It consists of four measures. The first measure is marked "roll all notes". The second measure features a circled chord in the fourth beat, highlighting a specific mallet placement. The notation includes various chords and melodic lines with stems and beams.

In the photo below on the left, mallets 1 and 2 are placed using a far-side, off-center positioning. In the photo in the middle, mallets 1 and 2 are placed in near-side, off-center positioning. In the photo on the right, mallet 1 is placed far-side, off-center and mallet 2 is placed near-side, off-center. In the first two photos, mallet 2 is under the marimbist's right hand resulting in restricted movement and awkward body positioning. In the photo on the right, the marimbist is able to shift the arms and body into a more comfortable position and uncross the center mallets. This third choice is optimal for its relaxed body positioning and ease of

movement. The opening section of *Colors* provides the marimbist with many opportunities such as this to make decisions regarding mallet placement based on body positioning, ease of movement, and desired tone.



Figure 6. Mallet positioning choices: left, mallets 1 and 2 far off-center; center, mallets 1 and 2 near off-center; right, mallet 1 far off-center and mallet 2 near off-center

Measures 15-21 in this chorale provide the next logical step for improving mallet placement through chorale practice because while all four mallets move horizontally, the intervals held in each hand always remain comfortably between a fourth and fifth, and the movement is done mostly by step.⁴⁸

⁴⁸ Mallet 4 moves up a third twice in this excerpt.

Musical Example 15. *Colors* by Todd Ukena, measures 15-21. Used with permission

In measures 15 through 18, mallet 1 moves horizontally in ascending seconds at the beginning of each measure. The accurate placement for mallet 2 can be found by creating the held interval of a fifth in the left hand at the beginning of each measure and then moving mallet 2 horizontally by seconds and thirds (notated as augmented seconds) throughout the rest of each measure. The movement in measures 19-21 is similar, however now mallet 1 descends chromatically, moving across both the lower and upper manuals.

Ein Liebeslied? by Nebojša Zivković

Ein Liebeslied? is a short chorale from Nebojša Zivković's book of four-mallet solo etudes *Funny Mallets: Funny Marimba Book I*. Held intervals in this composition span from a second to a sixth, horizontal movement is limited to between a second and fourth, and the

interval between mallets 2 and 3 is never more than a seventh apart. These conservative interval sizes allow the marimbist to focus on solidifying a precise kinesthetic knowledge of interval spacing without being distracted by advanced four-mallet marimba techniques.

Analyzing interval relationships can lead to simplification in the cognitive planning of accurate movement for all four independently-moving mallets. Rather than focusing on each individual note in the first four measures of *Ein Liebeslied?*, the marimbist can choose instead to narrow this focus to a few interval relationships. This method of grouping together small pieces of information into a larger recognizable pattern is only possible if the marimbist has already gained a kinesthetic knowledge of horizontal and held intervals in relation to the keyboard layout.

Rather than reading each note independently from the rest, the process of reading can be simplified by focusing on held intervals and the horizontal movement of only two of the mallets. For example, in the following excerpt, mallet 3 descends and ascends by step with held intervals of sixths and thirds in the right hand. In the left hand, mallet 2 remains on C4 throughout the first four measures while mallet 1 descends by step from A3 to F3, leaps back up a third to A3, and then repeats the same pattern in a slightly different rhythm. The marimbist could also find the desired positioning for mallet 1 by focusing on held intervals of thirds, fourths, and fifths in the left hand.

Musical Example 16. *Ein Liebeslied?* from *Funny Mallets: Funny Marimba Book 1* by Nebojša Zivković, measures 1-6. Used with permission from Gretel Verlag

In measures 5-6, the marimbist can continue to focus on the horizontal movement of mallets 1 and 3 along with the held intervals in each hand to ensure proper mallet positioning. Movement in the left hand is less frequent here and involves a sustained E3 in mallet 1 that moves up a second to F3 in measure 6. The accurate placement for mallet 2 can be found by kinesthetically feeling held intervals of a sixth and then a third in the left hand. In measure 5, the right hand movement involves horizontally descending thirds in mallet 3 with held intervals of a fourth and then thirds in the right hand. Mallet 3 ascends a second when moving into measure 6, and then moves back down a second, while held intervals in the right hand include a fifth, two thirds, and a second.

Simplifying chorale passages using the method shown above can improve sight reading as well as over-all note accuracy in overall four-mallet performance by strengthening pattern recognition and reinforcing knowledge of interval spacing. A list of chorales for further practice can be found in Appendix A of this document. This list of chorales is intended for intermediate and advanced marimbists and contains a wealth of material for creating technical exercises similar to those listed in this chapter.

CHAPTER 5: CONCLUSION

This document has explored the benefits of practicing four-mallet marimba chorales, including an enhanced awareness of tone and a strong kinesthetic knowledge of interval relationships. The repetition of strokes inherent in rolled marimba chorales allows for the solidification of proper mallet positioning and interval spacing during deliberate and focused practice. An increased kinesthetic awareness can be gained through such practice, which will prove useful in overall four-mallet marimba performance.

Three senses are used for keeping track of all four mallets in marimba performance: sight, hearing, and kinesthesia. Practicing chorales allows the marimbist time between each horizontal movement to visually, aurally, and kinesthetically recognize each interval shape, make necessary adjustments for accurate mallet positioning, and anticipate future interval changes. Time to make these observations, adjustments, and anticipations is extended through the repetition of double-vertical or double-lateral strokes in each rolled chord.

Rolling each chord of a marimba chorale can also solidify interval relationships within the marimbist's spatial memory. Four-mallet chorales facilitate kinesthetic learning of interval spacing in relation to the marimba keyboard layout by allowing time for awareness, anticipation, and repetition. The regular inclusion of these four-mallet chorales in a daily practice routine can increase note accuracy and tone consistency in overall marimba performance through the development of the kinesthetic sense of interval spacing and the keyboard layout.

As the marimbist's kinesthetic knowledge of the keyboard layout and interval relationships improves, he or she will become less dependent on direct visual contact with each note and will achieve greater consistency in accurate, autonomic mallet placement. This ability

can lead to improved sight-reading skills and a stronger visual connection with the audience, other performers, and/or the conductor. The autonomic execution of correct notes and a consistent tone will also allow the marimbist to focus on other element of music including form, phrasing, rhythm, voice leading and balance, sight-reading, and musical interpretation.

APPENDIX A:
SUGGESTED CHORALE REPERTOIRE LIST FOR PRACTICE

Colors by Todd Ukena

Concertino for Marimba by Paul Creston, movement II

Concerto for Marimba by Eric Ewazen, measures 1-16

Concerto for Marimba and Orchestra, “II) Lamento (Lament)” by Ney Rosauero, measures 22-45

Ein Liebeslied? from *Funny Mallets: Funny Marimba Book 1* by Nebojša Zivković

Etudes de Lux by Siegfried Fink, movement I from *7 Stücke für Marimba = 7 pieces for marimba* edited by John Beck

Etude No. 1 for Marimba by Paul Smadbeck, measures 28-35

Giles by Evelyn Glennie

Light in Darkness by Evelyn Glennie

A Little Prayer by Evelyn Glennie

Merlin by Andrew Thomas, movement I

My Lady White by David Maslanka, movement I. madrigal – my lady white

Northern Lights by Eric Ewazen, measures 1-12 and 15-24

October Night by Michael Burritt, movement I

Preludio No. 3 Do Major (C Major) by Ney Rosauero

Rain Dance by Alice Gomez and Marilyn Rife, measures 115-122

Sea Refractions by Mitchell Peters

Simplicity by Lorraine Goodrich Irvin

Two Movements for Marimba by Toshimitsu Tanaka, movement II, opening

Wind Across Mountains by Keiko Abe, measures 1-25

APPENDIX B: LETTERS OF PERMISSION

“Using Blocking to Learn Four-Mallet Keyboard Literature” by David Wolf

Hello, Dr. Wolf.

My name is Kendra McLean and I am currently finishing my DMA Document at The University of Arizona. My document is entitled "Improving Note Accuracy and Tone Consistency on Marimba Through the Practice of Four-Mallet Chorales." In my document, I review current pedagogical methods for improving four-mallet marimba technique and propose that chorales can also be used for the same purpose. One method I summarize is "blocking" as explained in your PAS article "Using Blocking to Learn Four-Mallet Keyboard Literature." I would like to have your permission to include Figures 1, 2 and 3 from your article in my document. If you wish, I can send you a draft of the section of the paper where I would like to reference your work. Thank you for your consideration.

Kendra McLean

Hi Kendra,

Thank you for your email and thank you for reading my article! I am happy to grant permission to use Figures 1, 2, and 3 from the article. I'd love to see a draft of the section if you wouldn't mind forwarding it along. Best of luck with finishing your document!

Thanks!

Sincerely,
David Wolf



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REPRINT AUTHORIZATION LETTER

April 10, 2015

Kendra McLean
Phone: (253) 709-1513
Email: kendrad@email.arizona.edu

Re: *Fundamental Method for Mallets: Book 1 (11806) – DMA Paper*

Dear Kendra,

With respect to your request, this letter will serve as our authorization to you to reprint music from Exercise 1 on page 117 from Mitchell Peters' book *Fundamental Method for Mallets: Book 1* as an example of a technical exercises for mallet placement into your DMA research paper as part of your graduation requirements in Percussion Performance at the University of Arizona. This item is not be sold or made available to the general public without further permission. This permission is granted to you at no charge.

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Sequential Studies for Four-Mallet Marimba by Julia Gaines:

Hello, Dr. Gaines.

My name is Kendra McLean and I am finishing my DMA Document at The University of Arizona. My document is entitled "Improving Note Accuracy and Tone Consistency on Marimba Through the Practice of Four-Mallet Chorales." In it, I review current pedagogical methods for improving mallet placement and then propose that marimba chorales can be used in conjunction with these methods to reach the same goals.

I would like to obtain permission to include the first four measures of your "Independent Sixths" Exercise 4.1 on page 20 of your book *Sequential Studies for Four-Mallet Marimba* in my literature review. Thank you for your consideration.

Kendra McLean

Kendra - ...sure, you may use it.

My second book is about 90% done and address techniques in playing chorales throughout. I think there is a real void in any instruction materials on chorales so I'm glad to see your topic! When I get it done, hopefully soon, I'll send you a copy.

Dr. Gaines

Simply Four by Gifford Howarth

My name is Kendra McLean and I writing a DMA document for The University of Arizona. The document is entitled "Improving Note Accuracy and Tone Consistency on Marimba Through the Practice of Four-Mallet Chorales." In it, I review current methods for improving mallet placement on marimba and then propose that chorales can be used in conjunction with traditional methods to reach the same goals. I would like to obtain permission to include 5 measures of the right-hand exercise on page 48 of Gifford Howarth's method book *Simply Four* in my literature review. Thank you for your consideration.

Hi Kendra,

Sure, that would be OK with us as long as proper credit was cited. If you wouldn't mind sharing the relevant pages once they're completed, that would be most helpful. Emailing PDFs would be fine.

Thanks for including our book, and best wishes for your paper's completion! Happy Holidays.

Best Regards,

--

Murray Gusseck
Tapspace Publications, LLC
murray@tapSPACE.com
www.tapspace.com

Method of Movement for Marimba by Leigh Howard Stevens

My Lady White by David Maslanka

Ideo-Kinetics by Gordon Stout

Etude No. 1 for Marimba by Paul Smadbeck

Dear Kendra,

Marimba Productions Inc. hereby grants you permission to feature excerpts from “Method of Movement,” “My Lady White,” “Ideo-Kinetics,” and Etude No. 1 for Marimba” in your DMA document “Improving Note Accuracy and Tone Consistency on Marimba Through the Practice of Four-Mallet Chorales.”

The following copyright notice and credit must be included on each page containing the excerpt:

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Please let us know if you have any questions or concerns.

Thank you.

Sincerely,

Alex Cofone

Marimba Productions, Inc.

www.mostlymarimba.com

Phone: 732-774-0011

Fax: [732-774-0033](tel:732-774-0033)

Parts of a Neuron illustrated by George Boeree

Hello, Dr. Boeree.

My name is Kendra McLean and I am writing a document for a Doctorate of Musical Arts at The University of Arizona. My document is entitled "Improving Note Accuracy and Tone Consistency on Marimba Through the Practice of Four-Mallet Chorales." My document includes a basic overview of motor-skill learning and the neurology of motor-skill performance. I would Thank you for your consideration.

Hi, Kendra.

Please feel free to use the diagram (or anything else).

Good luck with your thesis!

George

Concerto for Marimba and Orchestra by Ney Rosauero

Dear Kendra,

Mr. Rosauero herewith grants you the permission to include in your DMA paper measures 22-26 of the marimba part of the second movement of his *Concerto for Marimba and Orchestra*.

He also wishes you all the best and success with your DMA.

Happy Holidays and a very happy New Year!

Carolina,
Orders PPBR

Rain Dance by Alice Gomez and Marilyn Rife

To whom it may concern.

My name is Kendra McLean and I am writing a DMA document at The University of Arizona. My document is entitled "Improving Note Accuracy and Tone Consistency on Marimba through the Practice of Four-Mallet Chorales." In this document I demonstrate how to use chorales from standard marimba literature to improve marimba technique.

I would like to obtain permission to include in my document measures 113-130 of *Rain Dance* by Alice Gomez and Marilyn Rife. Thank you for your consideration.

Kendra McLean

Good morning Kendra,

Permission to use the excerpt is granted. We do ask that you include all of the copyright attributions and credit to the publisher.

If you need any help with anything else, please feel free to ask.

Thank you!

Jim Schneeberg
Publishing Associate
Southern Music Company
Lauren Keiser Music Publishing
Keiser Classical

Giles by Evelyn Glennie

To whom it may concern.

My name is Kendra McLean and I am writing a DMA document at The University of Arizona. My document is entitled "Improving Note Accuracy and Tone Consistency on Marimba Through the Practice of Four-Mallet Chorales." In this document I demonstrate how to use chorale excerpts from the standard marimba repertoire to improve technique.

I would like to obtain permission to include in my document measures 1-22 of *Giles* by Evelyn Glennie from her collection of *Three Chorales for Marimba*. Thank you for your consideration.

Dear Kendra,

Thank you for writing to us, and I'm very sorry one of us didn't get back to you last December. We are happy to grant permission for you to use the quotes mentioned below in your scholarly paper. We do not require you to sign a licence to this effect, nor to pay any licence fees, provided we may have written confirmation from you (a return email is sufficient) that copyright lines will be attached as per the following:

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Contracts and Licensing Manager
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Mr. MacRae,

Thank you for your reply. I have attached the copyright line provided to all musical examples published by Faber Music Ltd, as requested.

Kendra McLean

Colors by Todd Ukena

Hello, Mr. Ukena.

I am a doctoral student in percussion performance at The University of Arizona. I am finishing my DMA document and I am trying to obtain permission for the use of excerpts from several works. I would like to include measures 1-4 and 15-24 of *Colors* in my document...My document is "Improving Note Accuracy and Tone Consistency on Marimba Through the Practice of Four-Mallet Chorales." I have already done a lecture-recital on the topic, which included a performance of *Colors*. Thank you!

You have my permission...What a great dissertation! Congratulations on your hard work!

Respectfully,

Todd Ukena

Ein Liebeslied? by Nebojša Zivković

Dear Kendra McLean,

We give you the permission to use measures 1-6 of "Ein Liebeslied?" by N. J. Zivkovic from Funny Marimba book I in your DMA document!

Best regards

Werner Bornhorst

REFERENCES

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