When Rhythm is Lost in Translation: The Transition From Elementary to Middle School

By Laura Dunbar and Shelly Cooper,

"Teaching middle school involves working with students who are experiencing constant transitions. Middle school students are starting to become more socially-driven, meaning they "hang out" with their friends rather than parents setting up "play dates." They are becoming more independent and want to be recognized as "being older" and "not a baby" anymore. Their bodies are quickly changing due to the developmental stage of puberty. Students at this point in their education have higher expectations of what they should be able to do and know as they move closer to adulthood."

In the music classroom, middle school student experiences tend to be one of joining ensembles or a general music class. Students are often asked to transfer the skills and knowledge from elementary general music to new instruments, while working within a larger group of peers. To effectively transfer music content from the elementary level to the middle school level, music teachers need to make relevant connections that bridge the gap between what students know and the music content they want their students to know. Transfer cannot be assumed; rather, more relevant explanations (i.e., metacognition) are needed to ensure transfer occurs while accounting for prior knowledge that can help make the transfer easier to accomplish.

When discussing music content, it is important to note that SOUND is our instructional content. Notation is used to "record" sound as a blueprint; notation is not the content. Syllable systems are used as a tool for reading and understanding rhythms. Syllable systems can be learned and understood aurally; they are not dependent on seeing notation to complete a task. This may sound like an odd statement to make about a device that is intended to be used for teaching music reading, but is, in fact, critical. The rationale for using duration syllable systems, or mnemonics is a developmentally appropriate practice in the elementary general music classroom. Elementary music classrooms, especially grades K-2, provide immersion experiences for children, similar to their language acquisition process. There is a focus on aural input rather than visual as we build the children's "sound vocabularies."

Connections to Learning Theory

The rationale for teaching elementary general music as an immersion experience is connected to various educational learning theories. For the purposes of this article, the focus will be on sound before sight, modes of representation, and Cognitive Learning Theory.

Sound before Sight. There are a variety of sources that connect to students learning about and through sound before associating it to a visual stimulus, with the oldest source being Johann Pestalozzi (Grey, 2020). Children begin by listening and responding to sound through movement and vocalization prior to learning how to read and write the symbols that correspond with specific sounds, in a process similar to language acquisition. Total Physical Response (TPR), developed by James Asher, is often used when learning a second language. Asher (1969) stressed the importance of the physical response, which would focus on the skill of "listening comprehension" leading to "listening fluency," which prepares learners for the more complex skills of speaking, reading, and writing (p. 16-17). Working though sound helps students develop their musical vocabulary using their ears and their primary instrument, their bodies (Schnebly-Black & Moore, 2003).

Modes of Representation. Bruner (1966) focused on three modes of representation: enactive, iconic, and symbolic. Although these typically develop in order, all three are used in learning. Enactive, or movement-based pictures to represent content. Icons can be pictures, such as a tree for one sound and an apple for two sounds. Symbolic, or language-based representation, uses language to represent content. In music content, this would be traditional music notation. Because children do not start with symbolic knowledge of letters when they are

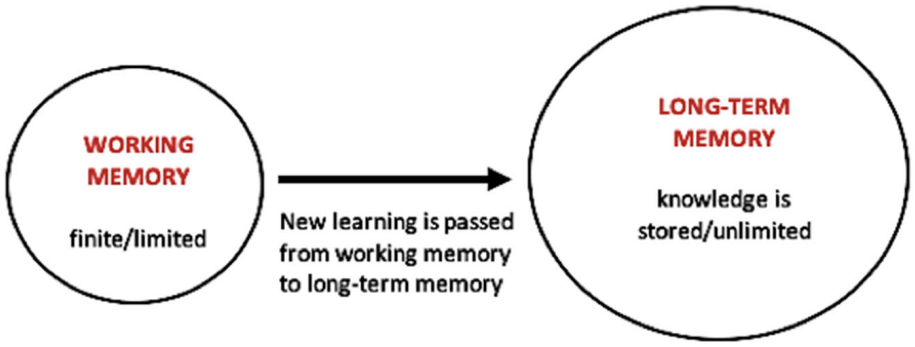
learning to read, they use strategies to sound out the words. They chunk and blend, matching the sounds they are learning with the shape of the letters. Even after successfully reading the word multiple times, they are not able to read the word when they turn the page. They are decoding the individual sounds (e.g., C – A – T), rather than reading "symbolically" that those three sounds combined represent something conceptual—an animal. When decoding the sounds individually and merely combining to say the word "cat," they do not necessarily see a picture in their minds of a cat. Students follow a similar process when learning traditional notation, often using strategies such as "FACE in the space" or "Every Good Band Deserves Fudge" to remember pitch names on the staff. Students can become frustrated in reading because they "go through and decode" and then have to "read it again" for the symbolic representation. This can happen in music reading with students unable to simultaneously decode (combining the symbols effectively) and perform. Instead, some students may decode and memorize before performing on/transferring to an instrument.

The challenging thing with reading symbols is that we do not know what is happening in the student's mind. They may be efficient in decoding, but not in transitioning the concept into symbology. When students are learning how to count rhythms in a new way, they are "playing a matching game" of sound to icon rather than transferring knowledge. Students may not recognize the sounds being taught as representing different parts of a beat (i.e., rhythm – duration of sounds over time). Hence, they miscount rhythm patterns when applying to new repertoire, much to the chagrin of the director who really believed the students "knew it." A symbol becomes a symbol when the "picture" aligns with the concept it represents and can be applied in future situations.

Cognitive Load Theory (CLT). An individual has two types of memory—working memory and long-term memory. Working memory is limited, whereas long-term memory is infinite (see Figure 1). Working memory involves what one is currently thinking or doing. When the information is new or novel, one can only process a finite amount of information. Miller (1956) theorized that a person could hold seven "chunks" of information plus or minus two depending on the size of the chunks and schemas already present. "When teaching a class of pupils a new topic or skill, the teacher must be aware of both the limitations of the working memory and how it functions, because it is this part of the brain that will be attending to all the new learning" (Garnett, 2020, p. 13). Teachers can easily overload a student's working memory if there are not enough schemas upon which to build the new information. New learning transitions from working memory to long-term memory via acoustic (hearing), visual (converting to a mental image), and schematic (new information linked to existing) connections.

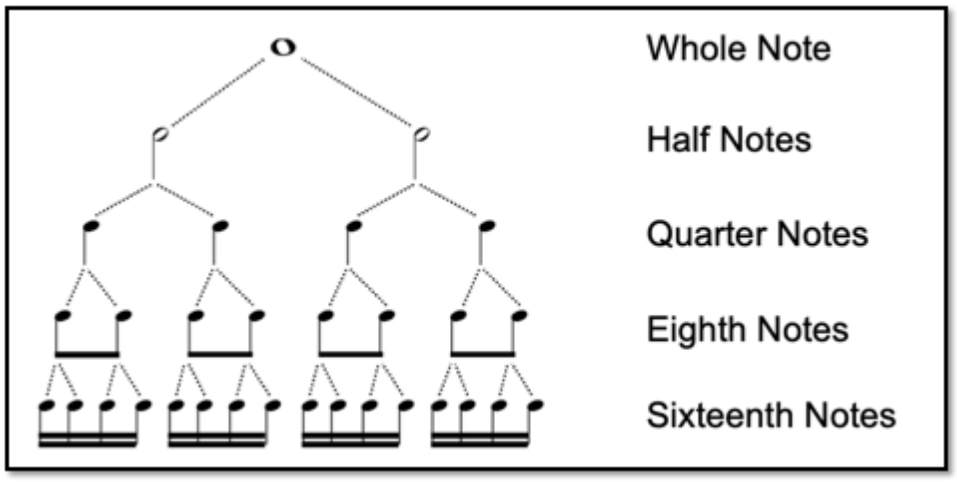
Figure 1. Sweller's Information Processing System

Adapted from Garnett (2020)



Working memory has two types of cognitive load: intrinsic and extrinsic. Intrinsic involves the difficulty or complexity of the material (e.g., learning note values). Extrinsic is the load generated by the presentation of the material. When teachers use visuals that contain extraneous information (e.g., bright colors, fancy borders, multiple concepts), it serves as a distraction and inhibits the brain from processing the main element/concept. For example, we often see the note values represented in a chart with a whole note on the top and subdivisions occurring with each line (see Figure 2). What is problematic with this chart? It is more difficult for students to identify individual note representation. When first introducing the quarter note, the chart makes the task more complex as it is based on proportional relationships, there is an assumption that students can recognize "a quarter note = 1" as a fixed concept, and it presents extraneous information (other notation). This is a prominent example of taxing students' extrinsic cognitive load.

Figure 2. Rhythm tree commonly used in music classrooms.



Application and Transition

When transitioning to visual input (reading notation), teachers commonly use mnemonics (syllables or counting systems) as instructional tools to aid in the retrieval and retention of material. Rhythm duration syllables are words or sounds that represent the duration of a note. Counting systems or "number systems" incorporate number designations for identifying ("counting") specific beats. The duration syllables are consistent with a philosophy that favors teaching "sound before sight," commonly referred to as "rote before note." They represent what is heard and allow students to transfer that understanding to notation. Instrumental music instruction tends to involve a "sight before sound" approach with the use of number systems. See Figure 3 for an overview of the differences between duration syllable systems and syllable/counting systems. It is imperative to remember that these systems are "tools" and not concepts. The concept is note symbol (visual recognition) and note value in relation to beats ("How many sounds over how many beats?").

Figure 3. Comparison of Duration Syllables and Counting Systems

Differences Between Duration Syllables and Counting Systems	
Duration Syllables **Rote Process**	**Syllable/Counting Systems** **Note Process**
· Rhythm duration syllables provide a word/sound to verbally associate with an audiated sound (Allows students to transfer understanding what they "hear" to notation/symbology.) · The word "quarter" has two syllables, but the quarter note represents one sound. Assigning "ta" has students saying a one-syllable sound to match the one sound. · The ability to "think/audiate" in rhythm syllables helps students to decode rhythms they hear which facilitates dictation, memorization, and performance · Can be learned and understood aurally, which promotes sound before sight (ie. rote before note).	· Syllable or counting systems assigned according to the tactus and its placement within a measure · Each tactus is assigned a different name (du du du de du) or number (1 2 3+ 4) · Promotes sight before sound.

Assumptions in teaching sometimes include the students' abilities to transfer knowledge and the amount of information that students can retain in a lesson. When students view the note diagram (see Figure 2) the extraneous information takes processing power away from the quarter note; therefore, it also increases the likelihood that the student will not have a "deep understanding" of the quarter note as a single entity. Also, when students are learning about the quarter note, they need to see a single quarter note displayed rather than four of them. These types of charts do not "overload our brains" as music teachers. Why? Music teachers already have the schemas attached that allow them to make the necessary transfers required to decode the chart, but students do not.

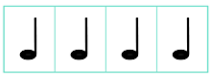
How Transfer Could Look: Mnemonics to Counting

A suggested scaffolding can be found in Figure 4. Note the number of steps and intentionality in the sequence that will help students make connections between what they know and the new counting system. Music educators should strive to present the complexities of rhythm reading in small increments or schema, as well as through a structured scaffolding process. Creating schemas and structured scaffolding processes minimizes the potential of overloading students' working memory and promotes the transfer of new knowledge to their longterm memory. Although teaching this way may slow down progress slightly in the beginning, students will have a deeper understanding of the target concepts if transfer from one system to another is not assumed or "covered" quickly a few times on the board at the beginning of class. "The challenge then, of course, is to increase the complexity and depth of the material to be learnt over time: to stretch pupils that little bit more as their expertise grows. One of our ultimate goals as educators is, after all, to help our pupils become as expert as they can be" (Garnett, 2020, pp. 130-131). This means that we will have to slow down and ensure transfer can occur through intentional scaffolding. This will serve as a solid foundation on which to develop more complex understandings.

Figure 4: Scaffolding from Duration Syllables to a Counting System

Scaffolding from Duration Syllables to a Counting System

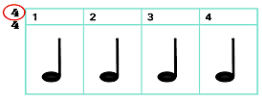
1. Display pattern and read with known duration syllables



2. Display pattern and read with known duration syllables

3. Add time signature.

    a. Ask: What is the top number? (4)
    b. Circle the 4
    c. This tells us that we need to count to 4 in every measure
    d. Add numbers



4. The time signature says there are 4 beats in every measure. Remember, we are focusing on the top number right now.

    a. Let's remove the extra beat lines. In our band music it only shows bar lines at the end of every measure.

    b. Let's add in the counting.
    How far do we count for this measure? (4)

c. Let's read, count, and clap

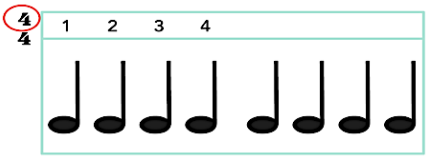
d. Now let's take away the numbers on the page, but still use them for counting.

a. Let's read, count, and clap

5. Now let's read with our duration syllables followed immediately by our number system

6. Let's look at a new example.

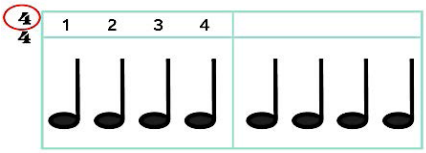
a. We know the time signature is 4/4.
b. What's the important number we are focusing on today? (the top)
c. What is the top number? (4)



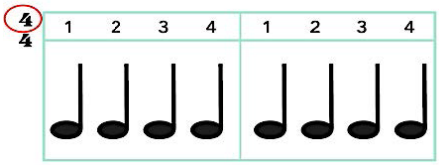
7. Let's add the numbers along the top. (1 2 3 4)

8. Now that we reached the number 4 we know that's the end of a measure.

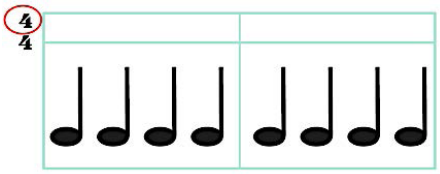
a. We will need to add in the bar line.
a. Let's read, count, and clap



9. There are more notes, but after the bar line we always start over with the number 1. Let's add the counting for measure 2.



10. Now we will take away all the numbers at the top. Let's alternate between saying our syllables and counting.



Conclusion

Middle school students are constantly changing. They are old enough that they feel they should be able to know and do more. However, they are often novices in the musical environments in which they find themselves in middle school. "The goal of learning should not be to acquire a whole lot of unrelated facts or items of knowledge, but rather a collection … [that is] interconnected and relatable … to build greater coherence and depth of understanding" (Garnett, 2020, p. 14). Hence, middle school music teachers need to become translators for their students, helping them intentionally connect the knowledge and skills they built in elementary music class to the target outcomes in the middle school music room.

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Biography

Laura Dunbar is Associate Professor of Music Education, Elementary Specialist at the University of Wisconsin-Eau Claire where she serves as Music Education Coordinator and teaches music education courses, as well as a research methods course and a statistics and assessment course for the Master of Education in Professional Development (MEPD) program. Dr. Dunbar has presented at local, state, and national conferences and in-service workshops including Wisconsin Music Education Association, National Association for Music Educators, Society for Music Teacher Education, Mountain Lake Colloquium, Desert Skies Symposium, Arizona Music Education Association, and the Interdisciplinary Society for Quantitative Research in Music and Medicine (ISQRMM). She has also served as webmaster for ISQRMM and technology columnist for General Music Today. She is currently serving as a council member for Wisconsin Music Educators Association, and she also teaches Level II Pedagogy and Materials for the summer Kodály Program at the University of Nebraska at Omaha.

Dr. Shelly Cooper is an Associate Professor at University of Nebraska at Omaha where she coordinates the Music Education program. Cooper has been an active music educator for 38 years. As a researcher and general music specialist, she has presented at numerous local, state, and national music and general education conferences and in-service workshops. At the University of Nebraska at Omaha she teaches undergraduate and graduate courses in music education and coordinates the Nebraska Kodály Certification Program. Cooper has choral arrangements published with Hal Leonard and Colla Voce Music, and is a contributing author for the Silver Burdett music textbook series (2005) and Interactive music Powered by Sliver Burdett with Alfred (2012). Her co-authored textbook titled, Becoming a Music Teacher, is published with Oxford. She served as the editor of General Music Today for 8 years.