

LISTENING WITH YOUR BRAIN

**An Aural-Cognitive Approach to Teaching
Musical Understanding and Artistry**

By Chan Kiat Lim, NCTM, and Siok Lian Tan, NCTM

As music teachers, we encounter students with varying listening skills. Some may struggle to discern subtleties of tone color, articulation and intonation, while others may find it challenging to play by ear. These deficiencies may reflect a lack of aural competency and critical listening skills, consequently, students cannot fully process and understand sound in a musical passage. This disconnect can potentially affect music reading, memorization, technical and interpretive skills.

The way listening skills have often been taught—out of context and without direct musical application—may be a common root for these issues. We need to expand our perspective to view and teach music listening as a mental process, beyond the physiological act of hearing, in which we internalize and understand the sound we hear and the sound we imagine. Adopting a comprehensive approach to listening that engages the brain and interconnects all our senses in music making will enhance true musical understanding and help formulate interpretations. This aural-cognitive approach is anchored by four main goals: building a soundbank; fostering theoretical, visual and kinesthetic understanding; developing an agile mind to process sound; and honing critical listening to create an interpretation.

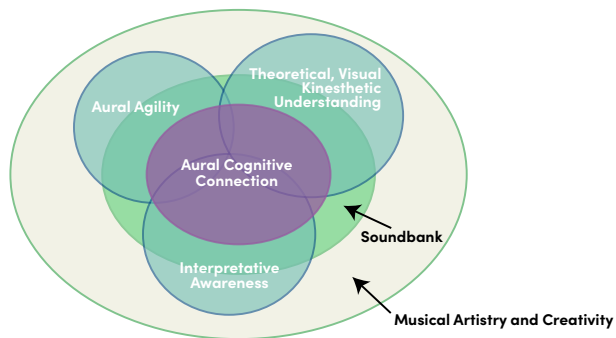


Figure 1: Illustration of music learning that centers on aural-cognitive engagement.

Listening to Build a Soundbank

A soundbank of music is a repository of sound experiences, and cultivating it should be the first step in music studies. Through background (passive) and focused (active) music listening, we can build a soundbank

that provides the foundational vocabulary for music literacy and aural models that underlie music understanding.

The Suzuki method adopts this principle; students listen to Suzuki literature at home during mealtimes, car rides and bedtime (Suzuki Association of the Americas, n.d.). This immersive experience familiarizes students with the repertoire they hear. Beginning Suzuki students also listen attentively and repeatedly as they model after their teachers during lessons. While this type of active listening is necessary, we cannot underestimate the value of listening to music in the background as a means to fuel our subconscious sound memory (Bargh and Morsella 2008). Combining these two types of listening will develop and strengthen neural connections to optimize music learning.

Encouraging students to sing can stimulate their brains to internalize the sound they experience. For beginning students, singing nursery rhymes and popular folk songs with tuneful melodies can build a sound repository that offers fundamental tonal language and rhythmic patterns long before they learn to play an instrument.

As students advance, exposing them to a variety of musical genres will enrich their aural experience, shape their preferences and build an understanding of musical styles. For example, when teaching a piano rag, we need to acquaint students with the characteristics of this genre, such as the steady stride bass and syncopated melodies. Developing a soundbank of the piano rag through teacher demonstration or assigning a curated listening playlist of representative rags can help students capture its essence.

A soundbank also provides aural samples that enrich our creative toolbox with imaginative ideas and sound images from which we can draw to compose, improvise and create a musical interpretation. For example, when performing and improvising, jazz musicians draw inspiration from the rich jazz idioms and sounds they have heard and ideas they have created by ear during practice.

Listening with Understanding

Listening with understanding is a mental process to decipher auditory information from

either audible or imagined sound and allows us to create and respond to music meaningfully. It requires awareness, critical thinking and inner hearing. In his *Music Learning Theory*, Edwin Gordon asserts that this aural understanding, or “audiation,” is the foundation of musicianship (The Gordon Institute for Music Learning, n.d.). As teachers, we must cultivate contextual listening and emphasize the connection of the sound we hear or audiate to *music theory, reading and visual image*, and *physical technique*. This way of teaching will lead to an aural-cognitive understanding that interconnects different musical skills, creating a *holistic listening experience*.

Listening for Theoretical Understanding

This listening skill enables us to connect theoretical concepts and sound. Understanding how individual musical components fit and function within a larger framework is fundamental in aural literacy and, ultimately, governs our interpretations.

In the following excerpt from Friedrich Kuhlau’s *Sonatina* (Example 1), identifying the triple meter helps students understand that the phrase begins with an anacrusis that leads to the downbeat. Hearing and feeling the strong-weak-weak tendency inherent in the triple meter further encourages them to accentuate the lilting effect in this spirited *Vivace*. An awareness of the tension and release underlying the I-V, V-I chord progression will clarify the direction and shaping of the phrase. This connection between theoretical knowledge and sound will result in musical playing.



Example 1: Kuhlau, *Sonatina* in C Major, Op. 55, *Vivace*, mm. 1–8.

When teaching musical symbols of dynamics and articulations, it is essential to consider their role in creating musical characters through specific sounds and effects. Using the ears as a guide, students can play the staccato notes with a light touch to convey a playful effect and observe the long slur and

forte markings to end the passage with a bold, sweeping gesture. This strategy, which zooms in from broad concepts to musical details, sharpens critical listening. Framing theoretical concepts in a musical and aural context promotes a deeper musical understanding beyond the symbols and inspires students to interpret thoughtfully.

Listening for Visual Understanding (Reading and Visual Image)

This type of listening fosters the connection between musical notation and aural image. This connection serves two functions: it allows us, through audiation, first to derive an aural image from a score, and secondly, to create a visual image from the music we hear.

The ability to generate an aural image from a music score allows us to anticipate the potential sound of a notated score before we can produce them accurately. The famous pianist, Claudio Arrau, used this skill to “practice” backstage with his score before a recital (*Claudio Arrau: A Life in Music* 1977). Musicians who are fluent readers can aurally anticipate what they play or sing. This aptitude to imagine sound with understanding can also help us read, sing and play in tune, detect errors, memorize, practice mentally and perform musically.

Listening with visual understanding also helps us visualize and transcribe what we hear (Trivedi 2011, 113–122). This mental process is necessary for creative activities such as composing, improvising and creating vivid interpretations. After Beethoven’s hearing failed, this ability to transfer sound to notation enabled him to compose some of his greatest works and realize his ideas on a score (Endestad 2020).

To foster the eye-ear connection, beginning students can listen to music while following the score. Teachers need to guide students in this activity by pointing out musical patterns, harmonic changes, forms, modulations, etc., as they listen with the score.

Another effective strategy to help students visually decode sound is singing melodies in solfège, through which students recognize intervals and the relationship of melodic tones within a key. With frequent practice and immediate feedback, they learn to identify

and imagine the sound of the score. Melodic and rhythmic dictation, which complements singing in solfège, can further strengthen the connection between the symbol and sound and reinforce the understanding of a score.

Listening for Kinesthetic Understanding (Physical Technique)

This type of listening strengthens the connection between physical choreography and audible or imagined sound. Our brain’s complex neural networks are highly interconnected when we engage in complex tasks such as playing the piano, which demands physical dexterity, visceral involvement and a high level of cognitive and auditory engagement. Neuroscience research shows that the auditory cortex plays a crucial role in developing motor movement and coordination (Schneider and Mooney 2018, 555–557). Thus, developing listening with kinesthetic understanding will affect our technique.

To achieve this, we need to understand how certain physical gestures are associated with specific sounds. For example, when executing a two-note slur, the ear should be listening for the “sigh” effect produced by a drop-roll motion. Similarly, when teaching Friedrich Burgmüller’s *Ballade*, teachers can use finger, wrist and arm staccato techniques to demonstrate different staccato sounds on the treble part. Students gradually learn to refine their techniques through listening and modeling, and they develop a technical toolbox for musical expression. To set a mysterious mood and create an energetic drive in this *Ballade*, they can choose to play the right-hand staccato chordal accompaniment with a crisp and light attack that conveys the effect. Listening with kinesthetic understanding lets us evaluate and execute the appropriate techniques to communicate our musical ideas.

The image shows a musical score for the first 14 measures of Burgmüller's Ballade, Op. 100, No. 15. The score is written for piano and is in 3/8 time. The right-hand part consists of staccato chords, while the left-hand part has a more melodic line. The tempo is 'Allegro con brio' and the mood is 'p misterioso'. Dynamics include piano (p) and forte (f). The score is numbered 1 through 14.

Example 2: Burgmüller, *Ballade*, Op. 100, No. 15, mm. 1–14.

Creating a Holistic Listening Experience

While we can cultivate listening for theoretical, visual and kinesthetic understanding individually, in practice, their functions are interconnected and complement each other. To achieve a holistic listening experience, we need to incorporate all three types of listening skills in our teaching.

For instance, in the following Czerny excerpt, perceiving the sixteenth-note passage in groups of four (Example 3a) could result in a “choppy” performance. In contrast, based on theoretical and visual understanding, we can regroup the melody into a series of ascending scalar patterns that lead to the tonic and dominant notes (Example 3b). Hearing the passage this way informs students to use appropriate fingerings and technical gestures that deliver a fluid musical phrase.



Example 3a: Czerny, Etude, Op. 599, No. 27, mm. 1–2.



Example 3b: Czerny, Etude, Op. 599, No. 27, mm. 1–2.

A holistic listening experience grounded on understanding enables us to listen critically, make decisions, assess and engage with music at a deeper level. It is foundational in developing essential musicianship and performing skills as well as honing creativity and musical artistry.

Listening with Aural Agility

According to neuroscience research, our focus is constantly shifting between different aural elements when decoding music, as our brain can only prioritize one piece of auditory information at a time (Miller 2015). Listening with agility allows us to toggle our attention quickly between various musical elements in performance to ensure every detail is executed correctly and in harmony with each other. This ability enables musicians to voice and balance musical lines,

perform in ensembles and coordinate between the hands as well as differentiate musical timbres, textures and rhythmic patterns.



Example 4: Bartók, Mikrokosmos, No. 16.

An early step in acquiring aural agility is to choose only one element as the focal point. The two parts in Béla Bartók’s *Mikrokosmos*, No. 16 (Example 4) are in duet and must be treated with equal care in performance. Instead of focusing on just the treble or bass part, have students sing the treble and bass phrases in alternation while playing hands together (sing treble measures 1–5, then bass measures 6–8, etc.) as an exercise. This process, which involves rapid aural and mental shifts, encourages the development of aural agility.

Playing duets with our students is a fun and effective activity for them to practice toggling their attention between different musical details. We can alter the dynamics, skip a measure, accelerate or slow down while students assess these changes and respond technically and musically to achieve good ensemble and balance. Because of the unpredictable nature of this activity, students must rely on their agile listening skills to shift focus quickly and make adjustments based on what they hear.

As students advance musically and their repertoire becomes increasingly complex, aural agility is the key to helping them coordinate and manipulate multiple musical elements in crafting polished performances. In this excerpt by Johannes Brahms (Example 5), aural agility is vital to create a proper balance in this multi-voiced passage, where the soprano and tenor lines interweave in swift succession with overlapping melodies while the bass provides harmonic support. With this listening skill, students can hear the shifting interplay between various parts and create an interpretation that showcases sensitive voicing and a balanced texture.



Example 5: Brahms, Intermezzo, Op. 118, No. 2, mm. 48–56.

Listening with Interpretative Awareness

This listening skill helps to develop critical listening and make informed musical decisions. Through analyzing and comparing recordings, students learn to listen and evaluate performances based on *symbols and markings, moods and characters, stylistic understanding, performance practice* and *characteristics of musical genres*. We can guide students on how to listen with sample questions to cultivate awareness of various aspects of interpretation.

Listen to Interpret Musical Symbols and Markings

Questioning the intent of symbols and markings within a musical context allows students to create and assess an interpretation.



Example 6: Beethoven, Sonata in C Minor, Op. 13, Grave, mm. 1–6.

Sample question (Example 6): *Beethoven notated extreme and sudden changes in dynamics in this excerpt. What is the purpose of these markings; how did each performer execute them to convey the drama of this passage?*

Listen to Interpret Moods and Characters

Directing students' attention to musical subtleties and nuances that evoke moods and characters in different recordings can help them develop sensitive listening skills and formulate personal preferences.



Example 7: Chopin, Prelude, Op. 28, No. 1, mm. 1–8.

Sample question (Example 7): *How did each performer interpret the slur? Which rendition do you think most effectively captures the agitato feel, and why?*

Listen to Create a Stylistic Performance

To interpret a stylistic performance, students need to understand the development of an instrument, performance practices, aesthetic trends and idioms of a musical period. For example, comparing recordings of Bach Inventions performed on different keyboard instruments based on the knowledge of period instruments can help them understand the Baroque style and performance practice.

Sample question: *Describe how different sound productions of the clavichord, harpsichord, and piano affect the tone color, terraced dynamics, and touches. How did the pianist treat the dynamics and articulations to reflect a stylistic Baroque performance?*

Listen to Understand a Musical Genre

Specific musical genres such as the waltz, toccata and fugue have distinct characteristics. Understanding the inherent features of a genre can help to capture its essence in a performance.

Sample question: *Listen and describe the defining characteristics of Chopin nocturnes in terms of texture, form, accompanimental figures, ornamentations, and moods?*

Comparing recordings of nocturnes by composers from different musical periods enables students to learn the characteristic traits associated with the evolution of the genre.

Sample question: By comparing recordings of nocturnes by Chopin, Fauré and Barber, describe how each performer manipulates the tone, voicing, balance and pedaling to create the distinct moods and style of the piano nocturne to reflect different musical eras?

These guided questions heighten the awareness of details that govern musical decisions. Through this process, students learn to conceptualize a musical style and develop personal interpretations.

Conclusion

Music listening that emphasizes cognitive engagement sharpens awareness, focus, critical thinking skills and promotes deeper musical understanding. Teaching an array of listening activities that synergize theory, reading, technique and interpretative skills is a powerful approach that can impact every stage of musical development and ultimately pave the road to musical artistry.

AMT

References

- Bargh, John A and Ezequiel Morsella. 2008. "The Unconscious Mind." *Perspectives on Psychological Science*, June 26, 2008. Accessed September 18, 2021. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2440575/?_escaped_fragment_=&po=18.750
- Endestad, Tor et al. 2020. "Mental Effort When Playing, Listening, and Imagining Music in One Pianist's Eyes and Brain." *Frontiers in Human Neuroscience*, October 15, 2020. Accessed September 29, 2021. <https://doi.org/10.3389/fnhum.2020.576888>.
- The Gordon Institute for Music Learning. n.d. Accessed July 19, 2021. <https://giml.org/mlt/about/>.
- Claudio Arrau: *A Life in Music*, DVD. Directed by Robert Snyder. 1977. Los Angeles: Master & Masterworks Production, Inc., 2015.

- Miller, Tova et al. 2015. "Multitasking: Effects of processing multiple auditory feature patterns." *Psychophysiology* vol. 52, September, 2015: 1140-8. doi:10.1111/psyp.12446. Accessed September 16, 2021. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4946337/>.
- Schneider, David M. and Richard Mooney. 2018. "How Movement Modulates Hearing." *Annual Review of Neuroscience*, vol. 4, July, 2018, pp. 553-572. Accessed September 13, 2021. <https://www.annualreviews.org/doi/10.1146/annurev-neuro-072116-031215>.
- Suzuki Association of the Americas. n.d. "About the Suzuki Method." Accessed July 13, 2021. <https://suzukiassociation.org/about/suzuki-method/>.
- Trivedi, Saam. 2011. "Music and Imagination." In *The Routledge Companion to Philosophy and Music*, edited by Theodore Gracyk and Andrew Kania. Oxfordshire: Routledge, 2011. Accessed September 29, 2021. <https://www.routledgehandbooks.com/doi/10.4324/9780203830376.ch11>.

Chan Kiat Lim, NCTM, is professor of piano at the University of Louisiana-Lafayette, where he was named the 2015 Distinguished Professor. Recipient of the LMTA Outstanding Teacher Award, Lim is the co-author of multimedia curriculum *eNovativePiano*



Siok Lian Tan, NCTM, is associate professor of piano and coordinator of the piano area at Miami University. She is the recipient of Miami University's Crossan Hays Curry Distinguished Educator and the OhioMTA Collegiate Teacher of the Year Awards.

