

# Self-Directed Memorizing Methods Engaged by Pianists

**Stoffel Seah Zixiang<sup>1</sup>, Sharifah Faizah Syed Mohammed<sup>2</sup>, Nathan Fischer<sup>3</sup>,**  
<sup>1</sup>Swee Lee Music Sdn. Bhd., Kuala Lumpur, Malaysia, <sup>2</sup>College of Creative Arts, Universiti Teknologi MARA (UiTM), Malaysia, <sup>3</sup>Indiana University Jacobs School of Music Office of Entrepreneurship and Career Development (JSOM OECD). Email: [sharifahfaizah@uitm.edu.my](mailto:sharifahfaizah@uitm.edu.my)

Memorizing music is one aspect of piano performance and training necessary to become a professional. While playing from memory is expected among performers, some music institutions do not make this mandatory. One example is the Faculty of Music, Universiti Teknologi MARA (UiTM) Malaysia, where classical pianists rarely memorize their music. This research investigates the self-directed memorizing methods employed by three UiTM students who performed music from memory. In each case study, the respondents recount their experience of subconsciously formulating a habit (process) in memorizing a selected work. The study's outcomes identify the techniques adopted for memorization, such as listening, score analysis, visualization, repetition, singing, and creating a story to help memorize expressions. While the students can utilize these basic methods, they do not enhance the multi aspects of learning, such as singing melodic lines, varying rhythms, or rotating their practice methods. In addition, inadequate guidance to memorizing reduced the mental preparation to boost confidence.

**Keywords:** *Memory, pianist, techniques, memorizing music*

## INTRODUCTION

Memorizing is defined as the ability to remember and present a particular activity. It is a conscious process with a specific intention without visual aid (Atmadja, 2012., Al Weber, 1999). Performance from memory avoids distractions or mishaps that might affect inefficient performance such as page turns that may cause mishaps (Hough, 2011). In addition, memorizing enables pianists to have the most unrestrained expression of emotion and the closest connection with audiences (Chen, 2016).

Musicians portray different attributes in memory—the process of memorizing music can be subconsciously executed by musicians who do not train to memorize (Tajuddin et al., 2021). Memorizing repertoire is challenging, and pianists may encounter trouble remembering the first time they performed from memory. The difficulties include learning and retaining fundamental aspects of the music, such as the melody, fingerings, and dynamics. Stage fright and the fear of forgetting may cause memory loss during a performance (Hough, 2011). Instructional details of a piece, such as expression markings, may also be ignored or forgotten. Moreover, a lack of confidence may result in a reduction of the expressive qualities of the music.

Performing by memory requires a level of mastery of the instrument both technically and musically that is typically nurtured by instructors. In the case of some bachelor piano students at the Universiti Teknologi MARA (UiTM) Faculty of Music, there was a self-guided initiative to perform regularly from memory during examinations and recitals, even when it was not mandatory. This study finds how a sample of those students learned to memorize music independently and unveils their techniques for learning. This research uses a case study method to examine how students memorized their music.

### **To memorize or not to memorize?**

The practice of remembering music was highly influenced and encouraged by the great performers of the Romantic era. Performing by memory started during the romantic period. Williamson (2002, as cited in Chow, 2017) stated that Franz Liszt and Clara Schumann were among the first performers to establish this tradition. In 1837, eighteen-year-old Clara Schumann performed Beethoven's *Piano Sonata Op.57, No.23 in F Minor* from memory. Her father encouraged her to memorize the music (Chow, 2017). Remembering music results from acquiring musical knowledge and skills that constitute total musicianship (Atmadja, 2012).

It is worthy to note that while Chopin discouraged memorizing, Liszt highly encouraged his students to memorize (Mishra, 2010). In the 19th century, memorizing music was considered

by many to be arrogant and ostentatious. Therefore, most of the performers did not memorize music and instead performed with the score. During his virtuoso years, Liszt performed music from memory in most of his recitals. Liszt's choice to perform from memory had an impact on how performers approached preparation, and performance by memory became standard practice in the early 20th century (Mishra, 2010).

### **Scenario**

Except for voice students, performing by memory in examinations and recitals is not required at the UiTM Faculty of Music. Most students, therefore, have a lack of exposure to the techniques of memorizing music. However, a few pianists have enjoyed performing from memory and they are the respondents for this study. Through our observation of them performing in piano master classes, and involvement during group recitals, we recognized them as keen pianists who enjoyed successful attempts in performing by memory.

Furthermore, we witnessed that they successfully memorized music whenever they completed a forum subject, which is open to the public each Tuesday at lunchtime. This subject is compulsory for students each semester. In addition, the pianists often participated in competitions, as well as masterclasses conducted by visitors and guest lecturers to the faculty. It is because of their success performing in public forums that this study explores self-developed techniques these students used to memorize their piano pieces.

### **Types of Memory**

Memory is divided into several types: auditory, visual, motor, and emotional memory.

#### ***Auditory Memory***

Auditory memory is the process of sound recollection where pianists remember the sounds aurally and reproduce them in identical sequences and patterns (Clavere, 2011). The auditory memory may assist the pianist in recalling the expression needed for the piece. A solid auditory memory towards a piece can aid a pianist's memory formation and recall (Chua, 2015).

#### ***Visual Memory***

Visual memory refers to remembering notations, rhythmic patterns, and details such as dynamics. The application of visual memory does not occur automatically and cannot be taken for granted by pianists (Chen, 2016). Based on the survey by Imreh & Crawford (2002), visual memory on the keyboard was never used as the primary method of memorization. However, the combination of both visual and aural memory may result in better and more effective

memorization. Lennert and Ullman (1945) suggest that for visual memory to happen, pianists need to train by imagining practicing similar musical patterns such as scales, arpeggios, and chords in different keys, and without a visual aid.

Specifically for the memorization of baroque music, visual learning can enhance pianists' behaviors (Yucetoker, 2016). These include marking out invention themes, reciting rhythmic patterns, segregating tonalities of the motifs or themes, and comprehending the music's structure. Ginsborg (2004) acknowledges that translating visual information into imaginary sound creates a mental representation for music. She stated that "the difference between reading music and playing aloud and reading music and conjuring up imaginary sound (feel) is like the difference between reading a piece of text out loud, as beginners do, and reading silently" (pg 131).

### ***Muscle or Motor Memory***

Muscle memory relates to the psychomotor, and in the case of pianists, refers to the calibration of finger positions on the keyboard in playing the correct notations. Pianists memorize by remembering the choreography of their hand shapes instead of the individual notes while playing unusual chords to speed up the learning process (Chou, 2017). Muscle memory assists in recalling the motion of adding pressure onto the keys to create a crescendo or change tone.

Motor memory represents the motor skills of a musician. There is little attention to musicians' long-term development of motor skills (Jabusch, Alpers, Kopiez, Vauth, and Altenmüller, 2008). The musician's declarative knowledge (of which they know that they are to play a particular piece) may differ from their procedural knowledge (the actual knowledge towards playing the work), which might result in anxiety (Chaffin, Logan & Begosh, 2009).

### ***Emotional Memory***

The episodic memory stores personally experienced events (Do, 2015). It becomes constructed when a story or emotion becomes attached to music. Repetitive practice can aid in the creation of those memories. Emotional memory enables a pianist to play a piece more expressively and requires body movement. According to Chaffin et al. (2009), musicians find it difficult to perform from memory when asked to play without expressions. Omitting expressions might detach emotional cues that can affect performers' retrieval of music memory. This method is well-known for increasing the passionate delivery of music. In addition, successful attachment of emotion or story leads to a personalization of the music, or successfully personalized as part of the performer's identity (Mohammed, 2021).

## METHODOLOGY

The respondents were selected from students who self-initiated memorizing or were requested to do so by their lecturers. The method of data collection was through interviews of each case study. Each respondent featured one piece they had successfully performed by memory. They were not given any guidance in memorizing the music. Their major was classical piano.

The respondents were discovered through participation and attendance of recitals where the respondents performed in recitals, masterclass, or the weekly UiTM Performance Forum. They are among the select few who chose to perform by memory during these occasions.

The initiation of the interview includes a conversation conducted via text message with individual respondents to seek demographic information and request their consent to participate in the study. Participants shared music sections to illustrate how they practiced. This was collected through follow-up interviews conducted via telephone conversations and email.

### **“Andy”/Respondent A**

Andy (*A*) is a 22-year-old male and student in the Department of Music Composition. He was a piano major during his Diploma Degree. *A* memorized music since the age of 18 and often performed by memory in recitals and competitions. In 2019, he took part in the Putra International Piano Competition and the Final Recital, where he performed Chopin's “*Revolutionary*” *Etude Op. 10, No. 12*.

### **Overview of the Piece**

#### **Frederick Chopin: “*Revolutionary*” *Etude Op. 10 No. 12***

Known as the “*Revolutionary*” *Etude*, the etude features running notes continuously played in the left hand. The left hand must be played fluidly and must keep the tempo. There are sections where the rich chromaticism is difficult to commit to memory partly because the chromaticism results in skewing the harmonies within this etude. “The whirlwind of harmony in the left hand is propelled by meandering chromaticism, which makes the left hand 16 notes passages uncomfortable” (Bird, 2020).

#### **Reasons for Memorizing the Music**

*A* started learning the etude in early 2019 but initially did not put much effort into it. The etude was an experiment to “learn for fun” (personal communication, June 16, 2021). However, six months later, he started to study the etude thoroughly and simultaneously memorized the etude.

"I began studying and preparing the piece for my upcoming recital in January 2020. I managed to memorize the easier sections due to the repetitions, while the middle section took me more than a month to remember". As a result, he successfully memorized the etude by September. He performed it on several occasions, presenting it for the Putra International Piano Competition and his final degree recital.

### **The Process of Memorizing**

*A* heard the music previously and, in learning the piece, listened to recordings diligently before eventually working on the etude. "I would listen to the piece repeatedly to the point where I would get familiar with the piece and be able to hum along with the melody" (personal communication, June 16, 2021). He acknowledged that listening to recordings gave him "a good grasp of the overall piece." Such experience allowed the "association of both my hearing and visual (score) which allow[ed] me to have a clear memory towards my [own interpretation of the] piece."

He picked out important or leading notes to guide his memorization of the piece. "As I started playing, I would figure out each of the notes' role in the [specific] chord to determine whether they are chord tones, non-chord tones, or extended harmonies. The movements of the bass [were] equally significant, for it, along with the melody, allow[ed] me to roughly observe the piece horizontally."

*A* was observant of patterns within the score. He worked to make sense of functions within the work. For example, "In Chopin's "*Revolutionary*" *Etude*, I would observe the sequence found in the left hand. Then, I would proceed to practice them slowly by each fragment of the sequence". (personal communication, June 16, 2021). In doing so, the respondent matched repeated patterns to practice passages effectively. In doing so, he attached meaning to small sections that when combined gave bearing to the overarching structure of the work.

### **"Barbara" / Respondent B**

Barbara (*B*) is a 23-year-old female student in the Bachelor of Music Performance Program. *B* majored in classical piano for her Diploma Degree in 2017. She only memorized music after she was asked to perform in a piano masterclass. It was a requirement to perform twice a semester for the piano masterclasses. It was during her final semester that she learned a work from memory at the request of her instructor.

## Overview of the Piece

### Muzio Clementi: *Sonatina Op. 36 No. 6, First Movement, Allegro con spirito*

Generally, the *Sonatina Op. 36 No. 6* is in D, it is light and lively, and its theme is accompanied by *Alberti bass*. The highlight of the first movement is the continuous melodic scalar passages that make use of common cadences. Although the sonata consists of repetitions, the continuous passages made the movement tricky to remember for **B**. The phrases are balanced in four-measure groupings and reflect the hierarchy of phrase groupings in accordance with composition practices of the classical era. The pianist must be aware of essential chord changes to allow for transitions in texture. Examination of the musical elements can determine phrase climaxes and crucial arrival points in larger sections. Moreover, examining musical elements reveals a map for the use of tension and resolution within Clementi's sensitive style.

## Reasons for Memorizing the Music

**B** learned the work after discovering a performance on YouTube by Diane Hidy. The piece had an appealing melody which piqued her interest to learn the work. "I liked the piece so much, and I decided to learn it. I was in my third semester of the Diploma in Music on that occasion. So, I decided to choose the piece for my exams and forum performance, and my principal lecturer agreed for me to play this piece." Initially, **B** did not memorize the work and presented the music in her finals. A year later, **B** pursued a Bachelor's in Music degree to major in performance. The instructor requested that students perform a piece from memory during the piano masterclass. **B** decided to select the first movement of Clementi's *Sonatina Op. 36 No. 6*, to meet the requirement.

## The Process of Memorizing

Because **B** had little experience memorizing pieces, she lacked confidence and found it difficult to undertake this task. **B** decided that investing three hours daily in practice would help. "It was quite tough at the beginning. I lacked memorizing skills, but it took me quite a while because I was already familiar with the piece that I practiced a lot before". During practice, repetitions are akin to drills. **B** acknowledged that practicing passages had helped with the difficulties. It was through "repeating and practicing the same thing, this develop[ed] the muscle memory in me, even though I rarely memorize[d] pieces." Eventually, **B** realized that the music was under her fingers while away from the piano. "When I was doing other things like eating or daydreaming, my fingers tend[ed] to move exactly like I was playing the piece. So, I think it must have something to do with muscle memory that is a method for practicing" (personal communication, June 14, 2021).



**B** strategized by breaking up the work into smaller and more manageable sections. She broke them according to phrases of the melody. However, **B** found that identifying patterns was also essential, particularly for a piece from the Classical period. "I will identify the rhythmic patterns of both hands. Some [accompaniment] patterns for the left hand may be [laid out into] broken chords, high and low octave chords and simple chords (triads & inversions)". **B** recognized that difficult sections, particularly technical ones, needed specific attention. For her, it presented an opportunity to memorize the area. **B** treated these difficulties as part of the learning process. "The scales are quite a lot to be seen in this piece. Therefore, training and polishing my scales before mastering this piece [was] important as it help[ed] me to adapt and memorize this piece efficiently". Her perspective to focus on smaller sections showed that working in segments was a vital step in the learning process that eventually benefited the total outcome.

### **"Casey"/ Respondent 3**

**Casey (C)** is a 23-year-old female. **C** majored in classical piano since the beginning of her Diploma Degree (2017 – 2019) and through her bachelor's degree (2019 – 2020). **C** chose to memorize music regularly and occasionally performed in public. In addition, **C** regularly played by memory in recitals and forums (classical music) and often performed at weddings as a soloist.

### **Overview of the Piece**

#### **Frederick Chopin: *Nocturne Op. 32 No. 1 in B Major***

*Nocturne Op. 32 No. 1* is in free form and includes recitative-like passages with motivic driven ornamental flourishes. The melodic contours consist of additional voicings and improvisation-like passages as part of the decorative features of the piece. The ending has rhythms or beats accompanying an emotional closing that explores distant harmonies before it ends on B Major, offering a contrast to the serene opening of the work.

### **Reasons for Memorizing the Music**

**C** learned the work in 2015 at age 17 to prepare for the Associated Board of the Royal Schools of Music (ABRSM) Diploma Examinations. It took **C** a year and a half to memorize. **C** needed to understand the piece's structure and develop expressions, as the musical features were important to relay to the audience. One particular method of learning the work by memory was to understand the chord progressions of the piece bar by bar. Another method for memory was to pick out "important notes that [were] crucial for me to remember the piece." (personal communication, July 19, 2021).



---

## DISCUSSION

### Memorizing Techniques Engaged by Respondents

#### *Listening to Recordings*

All three respondents observed that listening extensively to music recordings helped them achieve a solid overview of the pieces. They adopted this technique in the early stage of learning the music. While listening can be a common way for students and learners to choose pieces for study, it was also a method used by all respondents to obtain an overview of their musical composition through auditory memory. They relied on auditory memory as an essential mechanism to collect the general ideas of their works. Listening allowed them to pick out details and implement new musical ideas. In addition, it prepared the respondents to anticipate parts that required attention and informed them of figurations and characteristics within the piece. This approach suggested by Chua (2015) proposes that auditory memory can aid recall. It also enabled one of the respondents *A* to hear his music internally while away from the piano (Chua, 2015). Listening to recordings frequently helps to form familiarity with a piece. Such engagement is a method that reduces the occurrence of memory lapses during a performance. In addition, listening to others allows pianists to internally hear the music they are learning as a form of practicing away from the instrument (Chua, 2015).

#### *Engagement with Memory through Visual or Score Analysis*

For all respondents, analyzing the musical structure through score analysis was a common feature when studying their pieces. Through analysis, they detected and sensed the harmonic progressions through sections or within bars, making the respondents more aware of the harmonic motion. In addition, being aware of the global structure of the piece meant that the respondents became attentive to progressions and cadences within the larger context of the work.

In general, the score was a key guide to the melodic as well as harmonic sequences. It provided a graphic division of the music into manageable sections so the respondents could work on different areas separately. This was important to highlight vital points in the score critical to ensuring continuity in sections (*B*).

Each respondent has a personalized way of analyzing their scores. While it was crucial to understand the form of the music, both *A* and *B* acknowledged that it was necessary to divide the score into sections and practice them in smaller fragments. The zoning of areas provided a more focused study of the melody and phrasings, rhythmic patterns, and chord progressions.

For example, in performing a piece from the Classical period, **B** deduced chord progressions that helped the left hand's fluency. She recognized the figurations of the music, such as arpeggios, broken chords, and triads. For Chopin, the music's direction, the melody, changes of key or modulations, countermelodies, and voice-leading were important considerations for interpretation. A comprehensive impression of the piece was essential for **C**, and marking the score indicated these features.

### *Attachment to a Story*

In Chopin, the works are expressive and with contrasting moods and tempos. The changes are indicators of structural positioning and assist in memorizing. **C** found that contrasting dynamic changes inspire to construct a story. In addition, they assist in the visualization of the score. "This [way] gives me a clear image of the music score while playing." **C** did not specify the idea or story conjured by the work, but such experience means that **C** knows the score whenever **C** performs by memory. Attaching emotions and linking images, accounts, or episodes enables **C** to expressively engage and perform a piece. Do (2015) refers to this as episodic memory, formed by attaching a story or emotions to the music. Such associations enable a pianist to perform a piece expressively.

### *Repetition*

Investing hours of practice gave **B** a strong memory of the piece's structure. In this case, one can conclude that muscle memory contributed to **B**'s memorization. **B** decided to memorize the sections that she found technically weak. Memorizing a weak passage first accelerated the learning process of the work as a whole. Moreover, repeating the scalar passage not only helped to calibrate the hand positions but gave a sense of familiarity that also facilitated memorization.

Paying additional attention to challenging parts of the music proves essential. While in the process of memorizing, pianists might pay closer attention to complex sections. Repeating difficult parts of a piece several times can help the pianist remember fundamentals such as dynamics and articulations. By repeating an action or series of steps, the performer reinforces the passage in their memory until it no longer requires the conscious attention needed during the initial phases of learning (Reid, 2002). Repetition helps pianists calibrate their hand position and prevent playing the wrong notes. Thus, muscle memory becomes implemented. Practicing the complex parts slowly before bringing sections up to speed is a frequently utilized strategy. In addition, pianists are encouraged to practice the troublesome passages slowly in different keys (Macmillan, 2004).

**B** did not state if she captured the choreography of her hand shapes as reinforcement during memorization, as suggested by Chou (2017). The reliance on a single muscle memory technique indicates that while some methods may be applicable, UiTM piano students neglected, or were unaware of the underpinning techniques to secure their memorizing strategy.

### *Inadequate use of Rhythmic Variations*

In **A**'s case, the accompaniment of Chopin's "Revolutionary" Etude was complex and consisted of semiquavers. However, rhythmic practice can reinforce the passage and memory for fluency and reinforcement. Practicing with rhythmic variations may accelerate the memorization process. For example, a string of semiquavers in fast passages can be changed to dotted rhythms for practice. Changing the characteristics of a specific technique can often make the retention of the technique even, stable, and more robust (Chua, 2015). These techniques include:

- Repetition of difficult scalar passages at different speeds
- Adding various articulations
- Changing rhythms during practice

Using a combination of rhythms in practice encourages recalling the musical passage under varying conditions—the "chunking method" (Reid, 2002) benefits in memorizing. Isolating sections of the piece into small chunks and practicing on different hands can help a pianist obtain a better grasp of difficult passages. The size of fragments chosen for repetition will depend on the piece's complexity and the performer's capabilities (Reid, 2002).

### *Inadequate Application of Singing to Synchronize Parts*

Singing while playing the piano leads to natural phrasing and better expression of the played music (Ohsawa, 2009). According to **B**, she sang the melodic line as part of her technique. However, **B**'s intention was only meant to familiarize herself with the melody. She could enhance this further by singing using *solfege* concurrently while playing accompaniment with the left hand. Singing the melody can ease the memorization process, as it can equally engage the melodic and bass accompaniment. Learners can show the positive effect of simultaneous singing, where the formation of auditory representation through singing can provide multiple aspects of learning music. In the case of a weak melodic structure such as atonal music, Tsintzou and Theodorakis (2008) suggested that the most effective way is to study and memorize the harmonic sequences.

---

### ***Lack of Psychological and Mental Practice***

All three respondents expressed anxiety or lack of confidence when memorizing their pieces. Even though one UiTM instructor requested respondent **B** to perform by memory during a masterclass, none received directions on how they should memorize. Some exposure to training as well as a guided and hands-on approach by instructors may have built confidence and helped to reduce fear of performance from memorization. One of the learning challenges is the fear of forgetting (Keeny, 1979). An experienced pianist has a more significant advantage to cover their mistakes or memory lapses while performing. One method is creating a mental representation of a preconceived idea or action to enhance performance (Meer and Theunissen 2009, as cited in Bernardi et al., 2013). Such a technique contributes to confidence in memorization and performance. However, relying on one technique for memorizing could leave gaps, so it is suggested that learners engage in a variety of methods for success when memorizing piano music.

### **Conclusion**

From this study, we conclude that the practice of memorizing by UiTM piano students occurred by those who were self-motivated and applied memorization in performances in school, in public, and outside the classroom. As a result, respondents felt more at ease and had the desire and motivation to perform with little encouragement from instructors. Playing in public encouraged UiTM students to perform from memory.

For the respondents, the memorizing process began as a separate activity and not during the piece's initial stages. Musical structure assisted in memory for the Classical period works and selected notes or chords became indicators into proceeding sections. For Romantic works such as the *Nocturne Op. 32 No. 1*, by Chopin, memorizing happened simultaneously during technically demanding sections. In addition, a piece that consisted of contrasting moods and tempos encouraged one respondent to construct a story and they engaged in episodic memory that reflected the sentiment and dynamics of the work.

Respondents from UiTM held in common that their method of memorizing entailed listening to recordings at an early stage to help give a comprehensive overview of the work. Visually, score analysis helped engage with the music sequentially and marking zones indicating complex areas for practice. It allowed for a more focused area of practice with difficult passages. Repetitions and regular practice of isolated areas were necessary to ensure the sections no longer needed the conscious attention initially required.



Unfortunately, there was a lack of emphasis on varying the practice methods, such as applying alternate rhythms in practice. Respondents did not practice singing the melodic line to understand and reinforce the execution of accompaniment. Each of these tools could have enhanced the multiple aspects of memorizing. As the respondents memorized on their own, they were unexposed to acquiring mental images or preconceived ideas to enhance performance. Such reinforcement would have increased their confidence and reduced their anxiety when memorizing and would have accelerated the process as they learned the notes.

### **Acknowledgment**

This study was supported by the Bestari Research Grant and Research Nexus (ReNeU), Research Management Centre, Office of Deputy Vice-Chancellor (Research & Innovation), Universiti Teknologi MARA, Malaysia. No conflict of interest as a result of this study.

## REFERENCES

- Atmadja, S. A. (2012). *A guide to selected resources on memorization techniques for pianists: An annotated bibliography*. Retrieved from:  
<https://researchrepository.wvu.edu/cgi/viewcontent.cgi?article=5864&context=etd>
- Bernardi, N. F., Schories, A., Jabusch, H. C., Colombo, B. & Altenmüller, E. (2013). Mental practice in music memorization: An ecological-empirical study. *Music Perception*, 30, 275-290.
- Bird, J. (2020). The rise of nineteenth-century concert etudes: A comparative analysis of three etudes. Retrieved from:  
<https://core.ac.uk/download/pdf/322847155.pdf>
- Chaffin, R., Imreh, G., & Crawford, M. (2005). *Practicing perfection: Memory and piano performance*. Psychology Press.
- Chaffin, R. (2007). Learning Clair de Lune: Retrieval practice and expert memorization. *Music Perception*, 24(4), 377-393.
- Chaffin, R., Logan, T. R. & Begosh, K. T. (2009). Performing from memory. *The Oxford Handbook of Music Psychology*, 352-363.
- Chen, R. (2016). Memorization of piano music: A challenge for Chinese piano students. Canadian Centre of Science and Education, *Asian Social Science*, 12(3). 112-118.
- Chou, H. S. (2017). *Memorization of piano music and performing from memory*. Retrieved from:  
<https://scholarworks.iu.edu/dspace/bitstream/handle/2022/21804/Chou%2c%20Hsiao-Tung%20Susan%20%28DM%20Piano%29.pdf?sequence=1&isAllowed=y>
- Chua, W. L. (2015). *Memory and the pianist: Practical strategies for improving memorization and performance recall*. Retrieved from:  
<https://ttu-ir.tdl.org/bitstream/handle/2346/66124/CHUA-PROJECTPAPER--DMA-2015.pdf?sequence=1>
- Clavere, J. (2011). *A study guide to Franz Liszt's "Grandes etudes de Paganini" S. 141*. Retrieved from:  
[https://etd.ohiolink.edu/!etd.send\\_file?accession=ucin1296847312&disposition=inline](https://etd.ohiolink.edu/!etd.send_file?accession=ucin1296847312&disposition=inline)



- Cook, N. (1994). *A guide to musical analysis*. Oxford University Press, USA.
- Do NCTM, B. L. (2015). Memorizing: The webs we weave. *American Music Teacher*, 65(1), 17-21.
- Dunsby, J., & Whittall, A. (1988). *Music analysis in theory and practice*. London: Faber, 62.
- Fine, P. A., Wise, K. J., Goldemberg, R., & Bravo, A. (2015). Performing musicians' understanding of the terms "mental practice" and "score analysis". *Psychomusicology: Music, Mind, and Brain*, 25(1), 69.
- Ginsborg, J. (2004). Strategies for memorizing music. In *Musical excellence: Strategies and techniques to enhance performance*, 123-141.
- Hallam, S. (1997). The development of memorisation strategies in musicians: Implications for education. *British Journal of Music Education*, 14(1), 87 – 97.
- Hughes, E. (1915). Musical memory in piano playing and piano study. *The Musical Quarterly*, 1(4), 592-603. Retrieved from: <https://www.jstor.org/stable/pdf/738068.pdf>
- Imreh, R. C. G. (1997). "Pulling teeth and torture": Musical memory and problem solving. *Thinking & Reasoning*, 3(4), 315-336. Retrieved from: [https://www.researchgate.net/profile/Roger-Chaffin/publication/263717242\\_Pulling\\_Teeth\\_and\\_Torture\\_Musical\\_Memory\\_and\\_Problem\\_Solving/links/00b49530c345bdcd67000000/Pulling-Teeth-and-Torture-Musical-Memory-and-Problem-Solving.pdf](https://www.researchgate.net/profile/Roger-Chaffin/publication/263717242_Pulling_Teeth_and_Torture_Musical_Memory_and_Problem_Solving/links/00b49530c345bdcd67000000/Pulling-Teeth-and-Torture-Musical-Memory-and-Problem-Solving.pdf)
- Jabusch, H. C., Alpers, H., Kopiez, R., Vauth, H. & Altenmüller, E. (2009). The influence of practice on the development of motor skills in pianists: A longitudinal study in selected motor task. *Human Movement Science*, 28(1), 74-84.
- Keeney, W. (1979). Memorizing and memory security. *The American Music Teacher*, 28(3), 40.
- Lo, L. N. L. (1976). *The effect of visual memory training on the ability to memorize music within class piano instruction*. Indiana University.
- Macmillan, J. (2004). Successful memorizing. *Piano Professional (September)*, 6-8.
- Mishra, J. (2010). A century of memorization pedagogy. *Journal of Historical Research in Music Education*, 32(1), 3-18.





- Mitchell, J. E. (2010). *Teaching memory at the piano: A pre-college student workbook based on research in psychology and piano pedagogy*. Retrieved from:  
<https://diginole.lib.fsu.edu/islandora/object/fsu:180585/datastream/PDF/view>
- Mohammed, S. F. S. (2021). Kisah Mawar di Malam Hari (1953). In *Musical Nationalism in Indonesia: the Rise and Fall of Lagu Seriosa*, 69-82.
- Reid, S. (2002). Preparing for performance. *Musical performance: A guide to understanding*, 102-112.
- Segalowitz, N., Cohen, P., Chan, A., & Prieur, T., (2001). Musical recall memory: Contributions of elaboration and depth of processing. *Psychology of Music*, 29(2), 139-148.
- Spiccuza, P. J. (1980). *Piano fingering: An approach based upon the imprint analysis of Blanche Selva*.
- Tajuddin, T. I., Naili, R., & Ismail, M. J. (2021). Tracing art music compositions and composers in Malaysia. *International Journal of Innovation, Creativity and Change*, 15(10), 542-560.
- Tsintzou, T. & Theodorakis, E., (2008). Memorization strategy of atonal music. *Conference on Interdisciplinary Musicology*, 4, 1-10.
- Weber, S. (1999). "Memory: Beyond Remembering" *Piano Pedagogy Forum*, 2(1)
- Yucetoker, I. (2016). The visual memory-based memorization techniques in piano education. *Eurasian Journal of Educational Research*, 65, 111-128.
- Zambrano Godoy, M. A. (2016). *Memorization techniques for selected piano works between 1911 and 1953: Case studies through recorded performances and exegesis*. Retrieved from:  
<https://digital.library.adelaide.edu.au/dspace/bitstream/2440/111355/5/02whole.pdf>