ANALYSIS OF THE FACTORS AFFECTING PIANISTS' MEMORIZATION DURING PERFORMANCE AND METHODS TO IMPROVE THE EFFICIENCY OF MEMORIZATION

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ABSTRACT

Pianists can often experience hardships associated with the memorization of musical works intended for the stage. Deficiencies in the efficacy of memorization have always seemed to plague pianists' performance capabilities. The purpose of this research was to analyze the factors affecting pianists' memorization during performance and attempt to explore more valuable and efficient methods to achieve adequate cognitive retention of material. Additionally, this research explores the extrinsic and intrinsic factors that have an impact on pianists' capabilities to perform repertoire memorized. The intention is to locate the connections between particular stylistic traits in the repertoire and the celerity of memorization. An examination of these stylistic traits and the compositional era of given repertoire will aid in the discovery of whether or not these factors affect the overall speed of the memorization process. That will then lead to a survey of appropriate practice methods that may assist in pianists' efficiency of memorization. In the end, specific practice methods will be employed through a pedagogical lens with the intention of enhancing the efficacy of memorization. This research will aim to serve as a guide to provide young pianists with the tools needed to avoid memory slips and practical methods to achieve effective memorization.

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TABLE OF CONTENTS

LIST OF EXAMPLES AND TABLES

INTRODUCTION

Memory lapses do not exclusively affect pianists studying at a university or conservatory. Many world-renowned pianists have experienced performance anxiety, which resulted in memory slips on stage. I have taught an array of students who have had similar difficulties when memorizing music. As a piano performance major myself, I also feel a great sense of anxiety while performing for an audience, which tends to lead to lapses of memory. With that said, the avoidance of memory slips during spouts of anxiety is pivotal for all pianists. In this research, I will focus on the reasons that affect a pianist's capabilities to perform memorized works in front of an audience. Furthermore, I will discuss the extrinsic, intrinsic, and stylistic factors that may affect memorization, and combine the existing and proposed methods to form a summation of concepts that can aid in improving the ability to memorize. I plan to locate the connections between stylistic traits in certain repertoire and the efficiency of memorization. I will investigate the individual elements within the style of the repertoire to observe any pertinent effects on the memorization process.

The insight gained from this research will help to build upon pedagogical concepts for piano. If pianists can consider the specific style and period of a work and utilize suitable methods to practice and memorize, they may be capable of boosting their efficiency of practice and avoiding wasting time.

CHAPTER 1

Why Memorization

1.1 Pianistic Traditions and Memorization

Before the mid-19th century, performing from memory was not common practice in Western classical music. At the time, this act was considered, by some, to be arrogant and ostentatious as the audience's attention was placed more on the performer than on the composer and the music.[1] During that time, improvisation and sight-reading were two critical aspects that composers encouraged. This period also marked a time when some pianists were performing from memory.

There are documented accounts stating that Mozart performed memorized works during his tour of Europe in 1763.[2] In 1819, when Fanny Mendelssohn was fourteen years old, she played the Well-Tempered Clavier by memory as a gift for her father's birthday.[3] Also, in 1805, Czerny frequently visited Prince Lichnowky and performed Beethoven sonatas, which were often played from memory.[4]

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[1] Jennifer Mishra, "Playing from Memory: Development of A 19th-Century Performance Practice," *The American Music Teacher* 65, no. 6 (2016): 12.

[2] Otto Erich Deutsch, *Mozart, a Documentary Biography*. 2nd ed. (NewYork, NY: Stanford University Press, 1966), 35.

[3] Emily E Hogstad, "13 Facts You Didn't Know About Fanny Mendelssohn," *Interlude*, (2020). *https://interlude.hk/13-facts-you-didnt-know-about-fanny-mendelssohn/.*

[4] Mishra, 12.

The continued focus on the composer's intentions marked in the score brought about the need for the performer to avoid egoistic self-representation.[5] With the boost of entertainment and broadening of the middle class, the halfway point of the 19th century marked a time when people were consistently visiting concert halls. The performer eventually was spotlighted, with memorization being a primary way to showcase virtuosity.[6] Eventually, performing from memory became more prominent than improvisation as a means to present attention-grabbing virtuosity.

As memorization of works became commonplace towards the beginning of the Romantic period, pianists of all walks of life could be witnessed performing in this manner. In 1837, when Clara Wieck (later Schumann) was 17 years old, she performed Beethoven's piano sonata Op.57 in F minor from memory.[7] Although Wieck's 1837 performance was not the first instance of a pianist performing from memory, it was a pivotal moment that helped to catapult this practice. She mesmerized audiences as she performed in public and showcased her abilities to memorize repertoire. Following the death of her husband, Robert Schumann, in 1856, Wieck continued her career as a concert pianist and often performed repertoire

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[5] Mishra, 14.

[6] Mishra, 14.

[7] Joan Chissell, *Clara Schumann, a Dedicated Spirit: A Study of Her Life and Work* (London: H. Hamilton, 1983), 46-47.

memorized.[8] Over time, playing from memory has become common practice for most professional pianists.

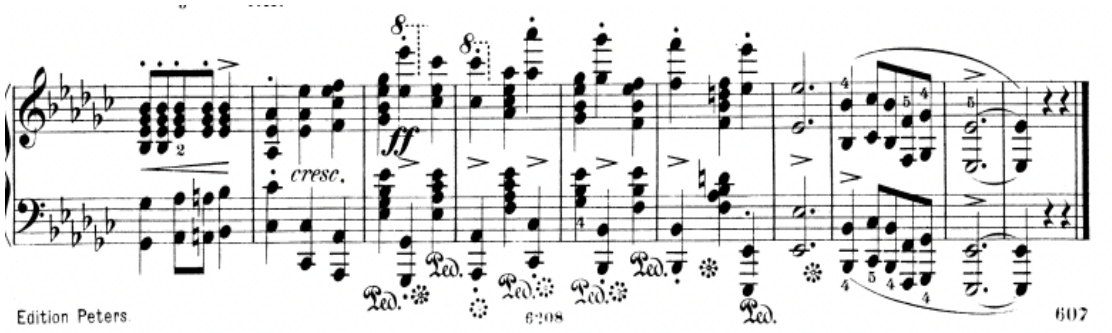
Liszt was the first notable figure to completely memorize entire concert programs. He profoundly stated, "*Le concert c'est moi*" ("The concert is myself") in 1839 during a time when he performed his first set of solo public concerts from memory.[9] Liszt seemed to use memorization as a way to express his own individuality and to please his fervent fans. As a whole, the 19th century was an era where the demands placed on the pianist were a result of lengthy compositions and high expectations from the audience.

1.2 Inevitable Memory Lapses on the Stage

Memory lapses can become an issue for any pianist, regardless of skill level. The celebrated Polish-American pianist Arthur Rubinstein also had the experience of suffering from memory lapses. During Rubinstein's recital in Moscow, as he was performing the second movement of Chopin's Sonata No. 2, he forgot the specific chords in the following score (Example 1.1). Miraculously, Rubinstein recovered

[8] Jonathan Dimmock, "The Folly of Memorization." *Concert Artist.* (2019). https://www.jonathandimmock.com/the-folly-of-memorization/.
[9] David Dubal, *The Art of the Piano: Its Performers, Literature, and Recordings.* (Pompton Plains, NJ: Amadeus Press, 2004), 223.

without stopping. His attention gravitated to a previous location in the score. This allowed him to improvise by focusing on creating harmonic progressions based on the highest note of each chord.



Example 1.1. Chopin, "Sonata No.2 (ii)," mm. 71-80.

Sometimes pianists can deal with memory lapses very well by improvising or seamlessly jumping to the next phrase. However, there are moments when bouncing back from a major mistake can be nearly impossible. In Madeline Bruser's book *The Art of Practicing*, she revisits a moment in which a well-known, yet unnamed pianist performs Beethoven's Sonata Op. 110 in A-flat Major. He made it halfway through the fugue of the sonata and suddenly paused and restarted the movement from the beginning.[10] The critic wrote "it was a stroke of genius" in the newspaper the following day, which caused a negative impact on the pianist.[11]

[10] Madeline Bruser, *The Art of Practicing: A Guide to Making Music from the Heart*. (New York: Bell Tower, 1997), 213.
[11] Bruser, 213.

Although well-known pianists experience memory lapses, the ability to improvise like Rubinstein in these moments may pose a challenge for young pianists. It is essential to build awareness of methods that will allow the pianist to avoid this kind of situation in the future.

Leading to the present day, the act of playing from memory has been a long-standing customary practice for pianists. Everyone from the amateurs to the virtuosos now perform from memory. Therefore, effective memorization practice methods must be mastered to aid in the reduction of frequent memory lapses.

1.3 The Advantages of Performing from Memory

Many individuals may pose these questions: Why perform from memory if the task is complex and anxiety-inducing? Why are performers so insistent on following this practice? It has long been a controversial topic among pianists and piano teachers. However, with the vast amount of research and studies that display the differences between performing with a score verses from memory, the answers to the previously mentioned questions becomes more apparent.

Firstly, a pianist may require a page-turner if needing to perform by utilizing a score. It is essential that the page-turner consistently focuses on the music from

beginning to end, which can be challenging and may require some experience. On the one hand, if the page is turned too soon, the pianist may fail to see the remaining notes on the page and risk playing incorrect pitches or stop playing altogether. On the other hand, if the page is turned too late, the notes on the upcoming page may not be in view, which may cause interruption during the performance. This is not something that happens only occasionally, but very easily, especially during a recital. The probability of a mistake becomes higher, which can greatly impact the pianist's performance capabilities.

The duration of a concert averages around an hour. During a performance, at least 40 pages must be turned to allow for the music to adequately progress smoothly. However, an excessive quantity of pages may cause the page-turner to struggle during the performance. It may still be plausible for mistakes to occur while using an iPad with a page-turning pedal. The need to control this pedal in addition to pedals on the piano may raise the risk of error. From my own personal experience, I have had a negative experience while using the pedals to change pages on my iPad. While performing Mozart's Sonata for Two Pianos in D Major K. 448, I turned the page too quickly during the blisteringly fast third movement. This caused me to turn two pages

at once. The moment left me extremely flustered. I had to flip back to the correct page as quickly as possible, but I could not avoid playing incorrect pitches.

Memorization aids pianists in the masterful representation of technically challenging works. Pianists that securely memorized music could focus more deeply on the beauty, emotion, and excitement that they can create during a concert.[12] Another prime example can be found in Aaron Williamson's investigation, which provided practical benefits of performing from memory. He asked a group of listeners to give evaluations of a cellist who would perform Bach's Cello Suite No. I, II, and III preludes. The audience members mostly have musical training; therefore, they can give the evaluation from a professional perspective.

The research suggested that audiences preferred the performers who played from memory.[13] The audience could resonate with the performer that exhibited emotion due to the act of playing from memory. In addition, a pianist's familiarity with a work can be expressed through active recall, allowing for a more engaging performance. However, it is still plausible that memory slips may occur due to an array of uncontrollable factors, especially for younger musicians.

[12] Aaron Williamson, "The Value of Performing from Memory." *Psychology of Music* 27, no. 1 (1999): 84-86.
[13] Williamson, 86.

CHAPTER 2

The Extrinsic Factors that Affect Pianists' Memory

A change in environment may have an impact on the pianist's abilities to tap into visual and auditory systems, which may affect memory as well. For instance, environmental factors differ based on the space the individual is occupying. The performance venue, acoustics, and a variety of pianos may play a part in how comfortable the performer is within the space. Anxiety and pressure may increase as a result of these variables.

Despite the fact that the pianist may have practiced a piece endlessly, memory lapses may occur at the drop of a hat. Memorization is sometimes unreliable; it will be affected by many uncertain elements. Since pianists are typically unable to bring their own piano to a performance, environmental factors in terms of location can often differ. Usually, when a performer practices alone, the space is small, and they are very familiar with the surrounding environment so that the practice process can be completed without any interference from the outside world. The aim of this chapter is to develop an analysis of various extrinsic factors that pianists' face while focusing on memorization and the reasons behind their effects. With this in mind, solving or reducing this outside influence is the goal.

2.1 The Fluctuations of Performance Context

An emphasis on memory and its correlation to various factors is discussed in "The effects of altering environmental and instrumental context on the performance of memorized music."[14] An experiment with divers is used to support the concept that memory can be dependent on the individual's surroundings. The experiment was conducted by David Godden and Alan Baddeley, which tested if a change in environment would have an effect on a diver's memory. They asked divers to recall a list of words while dry (sitting on the dock), wet (sitting underwater in the scuba equipment), or from dry to wet.[15] The experiment results showed that divers were able to actively recall more words if their environment remained consistent rather than changing from dry to wet.[16] This conclusion was supported by many researchers, that the change of context can have effects on human's memory.

In contrast to other instrumentalists, pianists must deal with the difficulties that are a result of a lack of accessibility to the same piano. Tactile and aural memory

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[14] Jennifer Mishra, and William Backlin, "The Effects of Altering Environmental and Instrumental Context on the Performance of Memorized Music." *Psychology of Music* 35, no. 3 (2007): 453-60.

[15] Jaap M. J. Murre, "The Godden and Baddeley (1975) Experiment on Context-dependent Memory on Land and Underwater: A Replication." *Royal Society Open Science* 8, no. 11 (2021): 200724.

[16] Mishra, and Backlin, 460.

can be affected by this change. It is quite rare that a piano in the practice space versus the performance hall is similar. The change of pianos can also be understood as altering instrumental context, because different pianos have various sonorities and touches, especially the grand piano and upright piano. There is a wide range of different sound capabilities and dynamics between different pianos/instruments, as well as the depth of keys and pedals.

Another example is the Bösendorfer Imperial grand piano (Model 290) has nine extra keys on the left side of the keyboard. The extra keys were created for the pianist who performs the transcription of J.S. Bach's organ works on the piano.[17] However, pianists who do not frequently use these extra keys may experience memory issues due to the change in visual stimuli. Depending on the situation, memorization can be affected by slight and drastic changes in environmental stimuli.

Jennifer Mishra and William Backlin also conducted an experiment demonstrating that changes of piano affect the pianist's memory. They let participants learn and practice with two different pianos: a Steinway and Sons grand piano and a Kawai upright piano. They then memorized a 16-bar piano piece written by researchers. Both pianos were placed in the same room. Participants were asked to

[17] Alec Coles-Aldridge, "Why the extra keys? The Bösendorfer Imperial Grand Piano." Pianist, (2017). *https://www.pianistmagazine.com/blogs/why-the-extra-keys-the-bosendorfer-imperial-grand-piano/.*

perform memorized music on either the same piano or the piano they did not practice with. The result showed that using the same piano had significantly higher recall scores than the recall on the changed piano.[18]

2.2 The Presence of An Audience

Many researchers point out that the presence of an audience has disadvantages for the performers, whether they are speakers or musicians. Many performers indicate that the presence of the audience will hinder memory responses. Clara Burri's research discovered that the audience's presence at a performance not only changes the acoustical properties of the space, but the internal state of the performer, such as blood pressure.[19]

Other researchers also conducted an experiment that demonstrated the effects that an audience has on music-oriented performance anxiety. Different types of audiences result in varying levels of pressure for musicians. An experiment was conducted that tested 27 male and female high school band members.[20] Each member

[18] Mishra, and Backlin, 462.

[19] Clara Burri, "The Influence of an Audience upon Recall." *Journal of Educational Psychology* 22, no. 9 (1931): 683-90.

[20] Albert LeBlanc, Young Chang Jin, Mary Obert, and Carolyn Siivola. "Effect of Audience on Music Performance Anxiety." *Journal of Research in Music Education* 45, no. 3 (1997): 480-90.

was asked to perform solo in front of three different audiences, which included playing alone in a practice room, playing for one researcher in a practice room, and playing in a rehearsal hall for a group of researchers. In addition, the heart rates of the participants were measured. The results favored the first two scenarios, where the heart rates of the participants remained steady. However, heart rates distinctively increased for the third scenario.[21] And another discovery is that female heart rates present significantly higher than male in the third performance, indicating that gender may be one element that affects music performance anxiety.

2.3 Solutions

Pianists' memory can be affected by the influence of the external context, instrumental changing, and the presence of an audience, which could potentially cause a reduced rate of retention or even memory loss. Smith and Glenberg's investigation and experiment also demonstrates that human memory is influenced by environmental factors. Their experiment tested a group of students that memorized a list of English nouns in both stagnant and ever-changing environments. The results indicated the variability of input environments has the potential to produce higher

[21] LeBlanc, et al. 482-85.

recall.[22] Therefore, changing the surrounding environments can be helpful for memorization. The following suggestions may help to reduce and avoid the probability of this situation occurring.

To start, rehearsing in a variety of locations with different pianos could turn out to be quite helpful overall. Diversifying rehearsal locations can help to reduce errors due to an altered setting.[23] The most common places for pianists to practice are either in a professor's studio or a general practice room. These spaces tend to be small rooms that are capable of only fitting a single person and a grand piano. Typically, pianists practice alone with other people practicing in rooms next door. This is regarded as a usual circumstance that is acclimated to over time. If the pianist remains within in the comfort of the familiar context, the change of location may affect performance abilities and consequently, memorization of music. To reduce this assimilation to the norm, practicing in many different contexts may help to enhance adaptability while allowing for increased concentration. All things considered, pianists' ability to adapt to varying acoustical environments may be aided by these practices.

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[22] Steven M. Smith, Arthur Glenberg, and Robert A. Bjork. "Environmental Context and Human Memory." *Memory & Cognition* 6, no. 4 (1978): 342-53.

[23] Jennifer Mishra, "Context-Dependent Memory." *Update: Applications of Research in Music Education* 20, no. 2 (2002): 27-31.

Many teachers suggest their students schedule a dress rehearsal before their recital. A pre-concert performance may help pianists avoid memory lapses, because researchers have found that more performance experience will lead to a higher quality performance.[24] Pre-concert events are usually arranged to be held in the hall in which the recital will take place. Pianists should wear the same clothes and shoes that will be used in the recital, especially for the female pianists, who like to wear high-heeled shoes for the recital. Female pianists do not typically wear long dresses and high heels on a daily basis, so wearing recital attire during pre-concert activities can be helpful. If this act is not practiced, a pianist's performance may be affected due to circumstances such as the struggle to control the pedals in high heel shoes.

The performance preparations should also take place in as many locations as possible, such as churches, recital halls, and choir rooms. By monitoring the heart rate and discomfort ratings, Orman found that simulating a performance is helpful in reducing anxiety and can increase the quality of a performance.[25] My previous piano teachers encourage students to turn on the television or play in a noisy environment. Practicing and rehearsing in diverse environments will reduce the inflexibility of

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[24] Dimitra Kokotsaki, and Jane W Davidson. "Investigating Musical Performance Anxiety among Music College Singing Students: A Quantitative Analysis." *Music Education Research* 5, no. 1 (2003): 45-50.

[25] Evelyn K Orman, "Effect of Virtual Reality Graded Exposure on Heart Rate and Self-Reported Anxiety Levels of Performing Saxophonists." *Journal of Research in Music Education* 51, no. 4 (2003): 302-15.

pianists when they change performance contexts, which can help to increase the ability to concentrate on the music and avoid memory slips.

During the preparation of a recital or major performance, it is essential to perform for others as much as possible. From my own experiences, performing for collogues and family members can assist with adapting to playing in front of an audience. They can give you feedback from the perspective of an audience member as well. As a result, overall pressure on the stage may be reduced.

CHAPTER 3

The Intrinsic Factors that Affect Pianists' Memory

The intrinsic factors that affect pianists' memory are usually from Music Performance Anxiety (MPA), pianists' personalities, status on the performance day, and concentration span. Performance anxiety is a common neurological and physical reaction that occurs due to an underlying fear of performing for others. A performer may experience tension within the body while performing, which can lead to feelings of panic and anxiety. As a result, the performer may lack the adequate amount of concentration needed to perform a piece memorized. The flexibility of the pianist's technicality has the potential to be greatly restricted, affecting the quality of the performance overall. It can be said that this is an obstacle that players must overcome.

In addition, each pianist has a distinct personality and temperament, and it is personality traits that cause a fluctuation in the representation of anxiety in the face of a public performance. This response determines whether sufficient mental resilience has been built to confront the tension and mistakes head-on. Furthermore, many pianists may be unaware that they have not achieved the systematic memorization of a piece. It is common that people rely solely on muscle memory, which could lead to a memory lapse. Hence, discovering and recognizing the intrinsic factors that affect the

memory of pianists are necessary to ensure a positive outcome. Scientific methods can be utilized to solve issues that could potentially aid in the adequate memorization of a score.

3.1 Music Performance Anxiety

Music Performance Anxiety (MPA) is a common problem among amateur and professional musicians. Extensive research indicates that MPA is widespread among professional musicians.[26] It is a type of anxiety experienced by people with a social anxiety disorder. MPA can be exhibited by musicians before walking on stage and is often referred to as stage fright. Singer Art Garfunkel mentioned, “I don't have much of a feel for performing. When I think of performing, I think of being so nervous you want to throw up. That's what performing means to me.”[27]

Music Performance Anxiety usually manifests physically as increased heart rate and adrenaline in the bloodstream, dry mouth, sweating, and even gastrointestinal discomfort, which are all related to the stress of performing an instrument or singing.[28] Although MPA is a common experience for musicians, it may affect the

[26] Andrew Steptoe, and Helen Fidler. "Stage Fright in Orchestral Musicians: A Study of Cognitive and Behavioural Strategies in Performance Anxiety." T*he British Journal of Psychology* 78, no. 2 (1987): 241-49.
[27] Gerald Klickstein, *The Musician's Way*. (Oxford: Oxford University Press, 2009), 142.
[28] Christopher Taborsky, "Musical Performance Anxiety: A Review of Literature." *Update: Applications of Research in Music Education* 26, no. 1 (2007): 15-25.

quality of the performance and result in memory slips and may be harmful to the physical and mental health of the performers. Fear of the stage may develop in musicians that suffer from performance anxiety.

Many performers have stage fright experiments. For example, violinist and teacher Kato Havas said, “The devastation of stage experience is merciless. It leaves a wake of desolation, both physical and mental, not to talk of the horrors of artistic frustration.”[29] Singer and songwriter Shannon Sexton indicated, “No matter how much I rehearsed, I never felt ready for the stage. Instead, I felt like a deer stumbling into oncoming traffic on a dark road.”[30] On that account, facing performance anxiety is very important to pianists.

3.2 Lack of Concentration

Lack of concentration during the performance is a reason for suffering memory lapse. Virginia Marks, a professor at Bowling Green State University had pointed out that “one's focus, or concentration, during a performance played a significant role in one's ability to perform from memory.”[31] The most probable

[29] Klickstein, 139.
[30] Klickstein, 140.
[31] David L McKinney, "Mental Strategies to Improve Playing from memory." *The American Music Teacher* 57, no. 6 (2008): 26-28.

factor that interferes with the performer's concentration is distracting thoughts, such as the examples that I have discussed in the previous chapter: the student may worry about personal grades or a teacher's comments while playing from memory. As a younger pianist is performing on stage, stimuli such as comments and sounds from the audience, stage lights, clothing, missed notes, or an upcoming difficult passage may inhibit personal abilities. In actuality, people are capable of multi-tasking; however, distractions can result in irrelevant cues that will cause the performance to be lackluster.[32]

3.3 The Personality of Pianists and the Status of Pianists on the Performance Day

Pianists possess individualistic personality traits that may cause outcomes of a performance to be determined by sufficient mental regulation in the face of tension and mistakes. A broad spectrum of variables like familial upbringing, educational and social background, approach to problem-solving, and overall interpretation of music can contribute to this phenomenon. Consequently, competitions, exams, and public performances allow for very skilled performers to show their abilities with ease.

[32] McKinney, 26-28.

Individualism showcases the fact that some pianists suffer from nervousness, while others thrive on the adrenaline they feel during a performance. All things considered, it is essential to conceptualize one's point of view to recognize performance tendencies. This will allow the individual to accept a suitable method that is fitting for their own character traits.

People often consider themselves to be either introverted or extroverted individuals. In terms of extroverted pianists, there are both advantages and disadvantages that this personality type may experience while performing. Extroverted individuals have a tendency to express themselves, which then could positively affect the interpretation of the piece and reduce overall physical tension. However, the composer's intent can be covered up by an over-exaggeration of the performer's persona. For extroverts, finding the balance between these two aspects of a performance is essential.

In contrast, introverts may have inadequate communication skills and lack a desire to be expressive. Overcoming this psychological state is needed for the pianist to represent the intent of the music, while showcasing personal identity to the audience. We need to summarize past performance experiences and communicate

with our teachers and classmates to find ways to improve our character and perfect our performance.

Furthermore, the mindset that the pianist exhibits on performance day is an additional intrinsic fact that is connected to memory. Many musicians have their own concert routine. For example, some pianists may consume drugs or a banana to relieve anxiety, because the B vitamins in banana can help calm human's nervous system[33], or they may take a nap before the performance. If the routine before the performance does not place the performer into the right mindset, the deterioration of mood and morale may heavily impact the quality of the performance and abilities to recall memorized material.

3.4 Unsystematic Memorization

The quality of a performance is directly affected by the memory retention of the score. The accurate and defined memorization of a work is the basis for the authentic representation of the piece, through memorization can help the pianist fully devote each moment of the performance to activate musical nuances. On the contrary,

[33] Farmers' Almanac Staff, "9 Healthy Reasons to Go Bananas!", *Farmers' Almanac Staff,* (2021). https://www.farmersalmanac.com/eat-a-banana-for-what-ails-you-2112.

if the pianist experiences a blurred memory or confusion, it will not only interfere with their mindset, but cause continued mishaps in the remaining moments of the performance.

Overcoming the obstacles of memorization will allow for reduced fear of memory lapses and can result in a more relaxed demeanor while performing in public. Many memory slips occur due to unsystematic memorization practices. It is not a simple feat to memorize the endless details of a score. A dependency on muscle memory could be detrimental to the continuity of the overall memorization of the score. As a result, various methods of memorization can be employed to enhance these practices.

3.5 Solutions

Author and psychologist Eric Maisel mentioned, "Your central tasks are finding inner peace and strength, on the one hand, and being very well-prepared for your performances, on the other."[34] Stress and anxiety are inevitable sensations to experience during a performance. In my opinion, every musician

[34] Klickstein, 146.

should develop tactics to control these feelings in order to perform coherently and naturally.

There is substantial research that has been considered in the treatment of Music Performance Anxiety. The aforementioned treatments are valuable studies that are notable within the field of music therapy and are common approaches used to assist with MPA: drug interventions, behavioral therapy, cognitive interventions, cognitive-behavioral therapy, meditation, hypnotherapy, the Alexander Technique. Although these treatments may not be idealistic for every performer dealing with MPA, an overview of these treatments will be explained to create a reference for those performers in need of some insight.

Drug Interventions:

Beta-adrenergic blockers, which work specifically to inhibit peripheral autonomic symptoms, supposedly help to clear the mind while alleviating physical anxiety symptoms, such as tremors.[35] It has become increasingly popular among performers in recent years. Lockwood Alan H's survey of over 2,000 orchestral musicians found that nearly 30% used propranolol to control

[35] Richard Parncutt, and Gary McPherson, *The Science & Psychology of Music Performance: Creative Strategies for Teaching and Learning*. (New York, NY: Oxford University Press, 2002), 51-52.

their anxiety before a performance.[36] Although many musicians take Beta Blockers regularly, this kind of drug intervention also has possible side effects, including nausea, tiredness, bradycardia, hypotension, and muscle fatigue.[37]

Behavioral Therapy:

The standard behavioral approaches for the treatment of phobias have been applied to MPA, which include systematic desensitization, progressive muscle relaxation, awareness, breathing, and behavioral rehearsal.[38] Systematic desensitization is a phobia treatment that is widely recognized and involves the use of relaxation techniques to reduce negative reactions to anxiety-provoking stimuli.[39] For instance, a pianist suffering from anxiety can imagine comfortably performing in front of family members. Once this image is concrete and the body and mind are more relaxed, the pianist can move on to more challenging circumstances, such as playing in front of an audience full of strangers. There are many experiments and studies

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[36] Alan H Lockwood, "Medical Problems of Musicians." *The New England Journal of Medicine* 320, no. 4 (1989): 221-27.

[37] Parncutt, and McPherson, 52.

[38] Dianna T. Kenny, "A Systematic Review of Treatments for Music Performance Anxiety." *Anxiety, Stress, and Coping* 18, no. 3 (2005): 183-208.

[39] Parncutt, and McPherson, 52.

assessing the therapeutic effect of behavioral therapy on MPA. The result is that it does appear to be at least minimally effective in the treatment of MPA.[40]

Cognitive Interventions:

Cognitive techniques include normalizing the experience of pre-performance anxiety, developing positive self-talk, mental rehearsal of the performance, and goal setting. Normalizing the experience of anxiety is the way to view anxiety as a normal or even positive aspect of a performance. Many people may believe that stress is a negative facet of performing. However, it may also function as motivation to enhance the performance. Building an understanding of personal stressors will allow the performer to identify eustress, which is beneficial.[41] Performance anxiety itself is not harmful. It is the response to the anxiety that may cause issues for the musician in this case.

An array of professional entertainers practice positive self-talk prior to a performance. A survey created by David Roland suggested that nearly 70% of professional performers utilized positive self-talk before walking on stage.[42] It can

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[40] Kenny, 185-200.

[41] Lesley Sisterhen McAllister, *The Balanced Musician: Integrating Mind and Body for Peak Performance.* (United Kingdom: Scarecrow Press, 2013), 77-83.

[42] David Roland, "How Professional Performers Manage Performance Anxiety." *Research Studies in Music Education* 2, (1994): 25-35.

help performers adopt more positive self-assessments and can reduce reactions to phobias. In addition, mental rehearsal is a technique that involves idealizing a superb performance in the mind in addition to positive self-talk. [43] Roland states that the mental rehearsal can provide a form of the neuromuscular procedure so that the performer is likely to adapt to the actual performance. Lastly, goal setting requires that the performers manifest short-term and long-term goals, which can improve the quality of the performance. Goals can be divided into process goals and outcome goals that encourage a desired performance outcome.

Cognitive-Behavioral Therapy:

There is a wide range of research available that argues that standard Cognitive-Behavioral Therapy (CBT) techniques effectively treat MPA. For example, David John Roland pointed out that CBT resulted in moderate to high levels of improvement in performance quality.[44] The standard CBT involves breathing awareness, mental suggestions, progressive muscle relaxation, and imagery to produce a relaxed state. The evidence for improvements in MPA following CBT is

[43] Parncutt, and McPherson, 55-58.

[44] David John Roland, "*The Development and Evaluation of a Modified Cognitive-behavioural Treatment for Musical Performance Anxiety"* (PhD diss., University of Wollongong, Australia, 1993.) ProQuest Dissertations & Theses Global.

quite abundant. There is little evidence present that CBT is superior to standard behavioral or cognitive therapy alone.[45]

Meditation:

There is very little research that can demonstrate that meditation can have a direct effect on MPA, but it is one of the suggested treatments to relieve anxiety. Meditation was labelled as a self-regulatory practice with the aim to train the minds to focus and bring mental processes under larger voluntary control.[46]

Hypnotherapy:

Hypnotherapy is similar to positive self-talk, which depends on verbal suggestions delivered under hypnosis to alleviate MPA. There are minimal studies that claim that hypnotherapy may be useful to reduce performance anxiety. Harry E. Stanton's experiment describes two 50-minute sessions of hypnotherapy procedures. In the experiment, induction of slow breathing, relaxation suggestions, success imagery, and verbal suggestions was used to help improve mental control.[47] The hypnotherapy group presented a prominent

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[45] Kenny, 185-87.

[46] Roger Walsh, "Phenomenological Mapping: A Method for Describing and Comparing States of Consciousness." *Journal of Transpersonal Psychology* 27, (1995): 25-56.

[47] Harry E. Stanton "Reduction of Performance Anxiety in Music Students." *Australian Psychologist* 29, (1994): 124-127.

reduction of MPA immediately. But Stanton's results are still regarded as a preliminary analysis, due to the procedures that contained relaxation, which may be equally effective. All in all, Hypnotherapy could still require additional thorough studies to provide respectable evidence.

Alexander Technique:

Alexander Technique (AT) is characterized as a form of kinesthetic educational process, in which students learn a set of skills that aim to cultivate a more natural alignment of the head, neck, and spine.[48] It usually uses verbal instructions to correct postural misuses.

Johannes F. Van Kemenade, Maarten J. M.van Son, and Nicolette C.A. Van Heesch compared a group of musicians with AT lessons to another with no-treatment. The experiment measured the musicians' physiological heart rate and self-report. The AT group presented a more positive mentality towards performance and less anxiety than the non-treatment group.[49] However, the AT group more likely utilized cognitive treatments, such as positive self-talk and

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[48] Kenny, 186-200.

[49] Johannes.F.L.M.Van Kemenade, Maarten J.M. Van Son, & Nicolette C.A.Van Heesch, "Performance Anxiety among Professional Musicians in Symphonic Orchestras: A Self-report Study." *Psychological Reports* 77, (1995): 555-562.

more. In conclusion, AT lessons may have benefits on MPA in the long run, but further insight is needed. Even if this is the case, AT is widely used by musicians and focuses on the reduction of anxiety.

In addition to the above cited treatments, concentration must be improved to reduce the possibility of memory slips. Concentration is one of the most significant elements in musical performance and is recognized as an act of focusing one's attention. Concentration is also essential for neuromuscular coordination and is related to the performer's ability to receive and process body feedback.[50] Pianists need to be able to focus on the music they are playing without being interrupted. Therefore, the development of the skill to concentrate at a high level is important. Fortunately, the ability can be increased by regular practice. Meditation, mental rehearsal, and imagery have been shown to improve one's concentration for a longer period of time and reactions to distractions. Pianists tend to exude a more introverted form of anxiety, so MPA can be improved through treatment practices. In case of one experience continued struggles with memorization, the following chapter may provide additional suggestions.

[50] McAllister, 103-104.

CHAPTER 4

Existing Methods of Improving the Efficiency of Memorization

In relation to the pedagogical aspects of performing, I will explore the useful methods that pianists can apply to efficiently memorize repertoire and illustrate why different memorization methods are necessary for pianists, rather than mechanical and repeated practicing over and over, which can be time-consuming and only establish unstable musical memory. During my research, I found there are two pedagogues' theories and methods that can help us understand the stages of memorization and types of memorizations. One is from music professor Gerald Klickstein's introduction of four stages of memorization in his book *The Musician's Way*.[51] Additionally, detailed tips for the memorization of piano repertoire are expressed in Beth Gigante Klingenstein's book *The Independent Piano Teacher's Studio Handbook*, which will be introduced in this chapter.[52]

Klickstein's four stages of memorization are: 1) perception, 2) ingraining, 3) maintenance, and 4) recall, which shows how a relatively solid memory can be formed. With these scientific processes of learning and practicing memory, the pianist

[51] Klickstein, *The Musician's Way.* (New York, NY: Oxford University Press, 2009)

[52] Beth Gigante Klingenstein, *The Independent Piano Teacher's Studio Handbook*. (Milwaukee, WI: Hal Leonard Corporation, 2009).

can create a safety net to prevent the mind from going blank, while having the capacity to locate helpful clues within the music during a performance. The first step is to perceive the musical and technical content of the new piece. The second step involves procedures that allow for materials to be ingrained in the mind. Performers must adopt versatile approaches that bring diversified types of memory into practice sessions and performances.[53] It is important to emphasize the need to avoid mindless learning, which depends on unconscious recall. Thirdly, to prevent forgetting the music, review is necessary, especially with skillful maintenance. Running through a memorized piece is not sufficient enough of a practice to keep the memory active in the mind and may even result in a deterioration of the memory itself. Fourthly, lucid recall involves starting anywhere in the piece, which could be helpful if anxiety is felt during a performance. Multidimensional recall enables pianists to play with hands separately by combining the musical structure, interpretation, technique, and context together. Performers with a flexible recall can play by changing tempo, dynamics, and articulation at will.

Klingenstein introduces the following memory types: 1) analytic/cognitive, 2) tactile/kinesthetic, 3) aural, and 4) visual in her studio handbook. They are said to

[53] Klickstein, 80-95.

assist pianists in the building of a solid sense of memorization. Generally, pianists may rely on these various types of memory to imprint repertoire into the mind. Through practical examples, I will discuss how these memory types can be integral to the building of efficient memorization techniques, as well as valuable practice methods in this chapter.

Additionally, in many cases, these methods cannot be used individually; they usually need to be combined by the performer to memorize the score. Francis Dube had pointed out that the behavior of memory requires several different types of memory, of which pianists usually use four types to remember pieces in their repertoire: auditory, visual, kinesthetic, and conceptual.[54] Each of them plays a specific role in the process, and they must be used in tandem to reach their full potential.

4.1 Kinesthetic Memory

Kinesthetic memory, also referred to as tactile memory or muscle memory, is utilized by basically all musicians. Research in the field has suggested that Kinesthetic memory is essential for pianists, especially during the playing of fast

[54] Francis Dube, "Pianists' Four Kinds of Memory," *La Scena Musicale* 9 (2003).

passages. This type of memory may be considered one of the most useful, even for children. However, it cannot be solely relied upon. As pianist Andre Watts had said, "I'm very mistrustful of tactile memory. I think it's the first thing that goes."[55] Pianist Leon Fleisher also said: "I think probably the least reliable, in terms of public performance, is finger memory, because it's the finger that deserts one first."[56] Even though kinesthetic senses have flaws within this process, it can be of great value once the content has been thoroughly learned. Tactile motions will become secure, automatic, and spontaneous.[57]

Many swift phrases usually are strenuous for the brain to conceptualize, especially when the process is note by note. Fingerings play quite a significant role in terms of tactile memory. A carefully designed set of fingerings can strengthen the tactile sense, because it is the most comfortable and familiar position for fingers to play. If students use multiple fingerings, they may struggle to ingrain them in their minds, which will weaken their kinesthetic sense. Some of the strange fingerings may even hinder them from reaching the note. To avoid becoming distracted by missed

[55] Klickstein, 51.
[56] Klickstein, 62.
[57] Klingenstein, 172-176.

pitches and interruptions of tactile memory, pianists need to master other types of memory styles simultaneously.

4.2 Aural Memory

Developing a solid aural memory will help pianists to implant information into cognitive memory as well. Klingenstein explains that "a strong aural memory of the forward motion of a piece shapes the expectations for the sounds that are to be produced."[58] During practice, students can recall the chords or melodic lines before they play, which will increase the probability of reaching the correct position at the keyboard and reduce the danger of going blank. Aural skills cannot stand alone, and they usually support a pianist's cognitive memory as one. By listening to the sound reverberating from the instrument while playing, concentration may be improved, and unnecessary anxiety can be decreased.

Aural skills can help pianists strengthen their memory in many facets, and it is useful for all styles of repertoire. Young students may have less of a knowledge base in regard to music theory. They are plenty capable of recalling melodic lines, which also can help them keep the solid memorization of the melody. Professional pianists

[58] Klingenstein, 167.

can tap into their aural sense as a security blanket to overcome memory slips. However, it may be difficult to remember the melody and structure of the work at the same time. This deep understanding of sound will help performers “hear” the upcoming notes or passages so that it can be possible to move forward to the right place in the music.[59]

4.3 Visual Memory

The use of visual memory to memorize a piece is a viable option for most visual learners. It is often referred to as photographic memory, which is as if you can see the score flashing in your mind like a slideshow, page by page, while you play. The pianist keeps the image of the score in his mental memory, which includes not only every bit of notation written by the composer, but also the notations made by the pianist during practice.

With that considered, visual memory aids in the retention of the notable areas in the music that may require a heightened level of focus, such as technical challenges, character changes, dynamic markings, and so on. The student can also use a colored highlighter to mark these passages. This could help with the activation of

[59] Klingenstein, 169.

the visual memory. In my personal experience, my teacher had asked me to use the different colored highlighters to mark different voice lines in a Baroque fugue, which did help me to memorize the different parts more clearly when I read the score and practice.

A very interesting fact pointed out by Klingenstein is that visual skills not only assist the pianist when visualizing the printed pages of score, but they may also have the ability to see the movement of their hands at the keyboard.[60] However, visual skills cannot be regarded as a safeguard for performers since anxiety to perform; it could obstruct the images in mind.

4.4 Analytical Memory

Also known as cognitive memory or conceptual memory, analytical memory is highly recommended by pedagogues. It requires students to memorize musical content along with the overall structure of the piece.[61] A well-defined analytic concept of the content within a piece allows for the perform's memories to be internalized. Several modes of memory can be intertwined at once. Although the use

[60] Klingenstein, 170

[61] Klingenstein, 168.

of cognitive skills to study and practice can be a slow process at the start, it creates deep memories.

I personally have experience comparing my own use of cognitive study and fast repeated study. I begin the process of learning a new piece by analyzing the content and structure. Then, chunk one or two measures by practicing them slowly to focus on memorizing the notes, rhythms, harmonies, fingerings, pedaling, dynamics, and more. This method can be painstaking because you need to spend time understanding music theory. However, I found that the more I broke the piece apart, the stronger my overall understanding was.

By learning pitches and rhythms as quickly as possible through repetition, I could build my tactile memory in a short amount of time. However, I did not always have a clear perception of the content and structure of the piece. Mindless repetitions can leave the mind once playing with tension occurs. This approach could help me build up my tactile memory in a short time, but I did not know enough about the content and structure of the piece, and this mindless memory can be disintegrated quickly once I was in a state of playing tension.

4.5 Organizing Memorization Practice

Unlike analytical memory, organizing memorization often relies on the division of phrases and passages for pianists to learn and memorize repertoires. G. Rubin-Rabson's research suggests the use of holistic or segmented methods to memorize.[62] Through research, many musicians have discovered that organizing memorization practices can lead to better outcomes.

Most educators support using a segmented strategy, while a few of them advocate a balance between the holistic and segmented. There is no definition of the ideal length of a segment or phrase. Two measures can be regarded as a segment. Various musicians have their own opinions about the process. I believe dividing a piece by phrase or deriving a segment from a musical sense is suitable for most styles of pieces, including fugues, sonatas, ballades, and so on. If students are learning a piece that requires a high level of technique, one or two measures can be practiced as a segment. Some objectors may claim that dividing such short segments will disrupt the musical flow, and block pianists from conceptualizing the segment connected to

[62] Grace Rubin-Rabson, "Studies in the Psychology of Memorizing Piano Music: III. A Comparison of the Whole and the Part Approach." *Journal of Educational Psychology* 31, no. 6 (1940): 460-76.

the entire piece.[63] Overall, the integration of holistic strategies can greatly aid in the organization of memory.

4.6 Mental Imaging

Mental imaging was introduced by Klickstein in his book *The Musician's Way*. This method incorporates mental imaging as a fundamental tool for learning, memorizing, and performing. Additionally, it can be regarded as mental rehearsal. Pianist Arthur Rubinstein said, "When I sit in Paris in a cafe, surrounded by people, I don't sit casually – I go over a certain sonata in my head and discover new things all the time."[64]

Mental imaging could be considered a mental map that is used as a guide to the next location. Performers can build their musical mental maps from their practicing, which can include as many elements as possible. For example, students have the chance to develop a mental map of the music so that the context and interpretation of the piece can be well thought out. The interpretation of the piece usually contains the elements of style, tempo, dynamics, tone color, articulation, and

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[63] Jennifer Mishra, "A Century of Memorization Pedagogy." *Journal of Historical Research in Music Education* 32, no. 1 (2010): 3-18.

[64] Klickstein, 183.

rhythm. Mental rehearsal is a common tool that musicians employ before a performance. With clear mental maps established, the probability of forgetting the score becomes minute. Then, performers can be more confident to play and enjoy the concert.

4.7 Incentive Study

In addition to pedagogical methods of memory-based learning, psychologically motivated learning can be integrated into regular practice sessions. Practicing and memorizing piano repertoire requires constant repetition paired with diligence and hard work. Even professional pianists can fall into a state of exhaustion while practicing and, therefore, may lack interest and attentiveness.

G. Rubin-Rabson made an experimental study about whether incentives have an effect on memorizing piano music. He selected nine professional pianists, and divided them into three groups, each group having three pianists. The experiment was designed to compare three kinds of learning: Group (A) involved the silent study of material for 6 minutes without urgency; Group (B) aimed to add pressure to the pianists by telling them to work at a maximum speed and intensity; Group (C) pianists were told that the faster they learned the music, the more cash payment they would

receive.[65] The result was that the latter two groups had little superiority over the first group. There were no significant learning differences overall.

From this experiment, I can understand that the complex learning process cannot be mitigated by external stimuli. Although the above experiment cannot direct evidence of fundamental changes in subjects as a result of a motivational learning approach, as the researcher suggested, this method can still continue to be tested and tried. Mental encouragement or small rewards may help to impede the slackening of the learning process. From a holistic point of view, this might be one way to assist pianists to improve the efficiency of memorizing music. If exhaustion and a lack of interest is experienced, stimulation can be achieved through self-motivational comments and small rewards.

[65] Grace Rubin-Rabson, "Studies in the Psychology of Memorizing Piano Music. IV. The Effect of Incentive." *Journal of Educational Psychology* 32, no. 1 (1941): 45-54.

CHAPTER 5

The Experiment of Pianists' Memorization Efficiency with Four Stylistic Traits and Analysis of the Valuable Methods for Memorizing Each Style Work

Memory strategies depend on the performers' skill, repertoire styles, and difficulty of the music.[66] Richard Parncutt and Gary McPherson mentioned that the style of a composition may influence how pianists approach memorizing the music, such as when memorizing the style of contemporary work, some pianists illustrate that analytic memory needs to be relied on more because of the unique compositional patterns.[67] With that, I would like to explore whether different stylistic traits can affect a pianist's memory. The following experiment will be used to investigate the connection between the different styles of music and the speed of the pianist's memorization.

Subsequently, I will analyze four periods and their stylistic traits, combining with the specific four scores I picked up for the experiment. The Baroque, Classical, Romantic, and Impressionist eras will be discussed. In the meantime, these four styles have often been selected as the exam repertoires by ABRSM, which is the international piano examination with the most significant number of participants. After introducing and analyzing each era's four stylistic characteristics with the

[66] Parncutt, and McPherson, 167-170.

[67] Parncutt, and McPherson, 174-175.

experiment pieces, in 5.6, the result and the discussion of the experiment will be presented.

The original purpose of this study was to find a better approach that could be applied to the teaching of piano in the future. The reason for choosing these styles was because these four periods are four critical periods for students to learn Western music, and I also hope to help young students in their piano studies.

5.1 The Experiment

Subjects: Six graduate students majoring in Piano Performance at the University of Kansas.

Experimental Design: Subjects were requested to record the duration of time from the start of the learning process to performing the excerpts from memory in their entirety. Also, information was provided by each subject in regard to the specific methods that were used for each excerpt. All memorization methods were derived from the memorization methods described in Chapter 4. When the subjects finished the process of learning, they were asked to document the quickest way or combined methods to memorize each style of the piece to prevent reoccurring repetitive muscle memory.

Materials and apparatus: The repertoire selected to be memorized encompasses the previously noted eras (Baroque, Classical, Romantic, and Impressionist) of the Western musical tradition that have four distinct styles. To ensure the equality of difficulty and length of the selected repertoire, pieces are within the level 3 and level 4 categories of the Shanghai Music Association's examination system. Subjects were asked to memorize the first dozen or so bars and this is indicated in the attached score.

The four selected pieces are as follows: (1) Minuet in G minor, BWV Anh 115 by Johann Sebastian Bach (mm. 1-16), (2) Piano Sonata in C major, No.16, K545, Allegro by Wolfgang Amadeus Mozart (mm. 1-17), (3) Waltz in A minor, B. 150 by Frédéric François Chopin (mm. 1-16), and (4) *Rêverie* by Claude Debussy (mm. 1-18). The scores were presented from examples 5.1.-5.4.

5.2 The Baroque Period

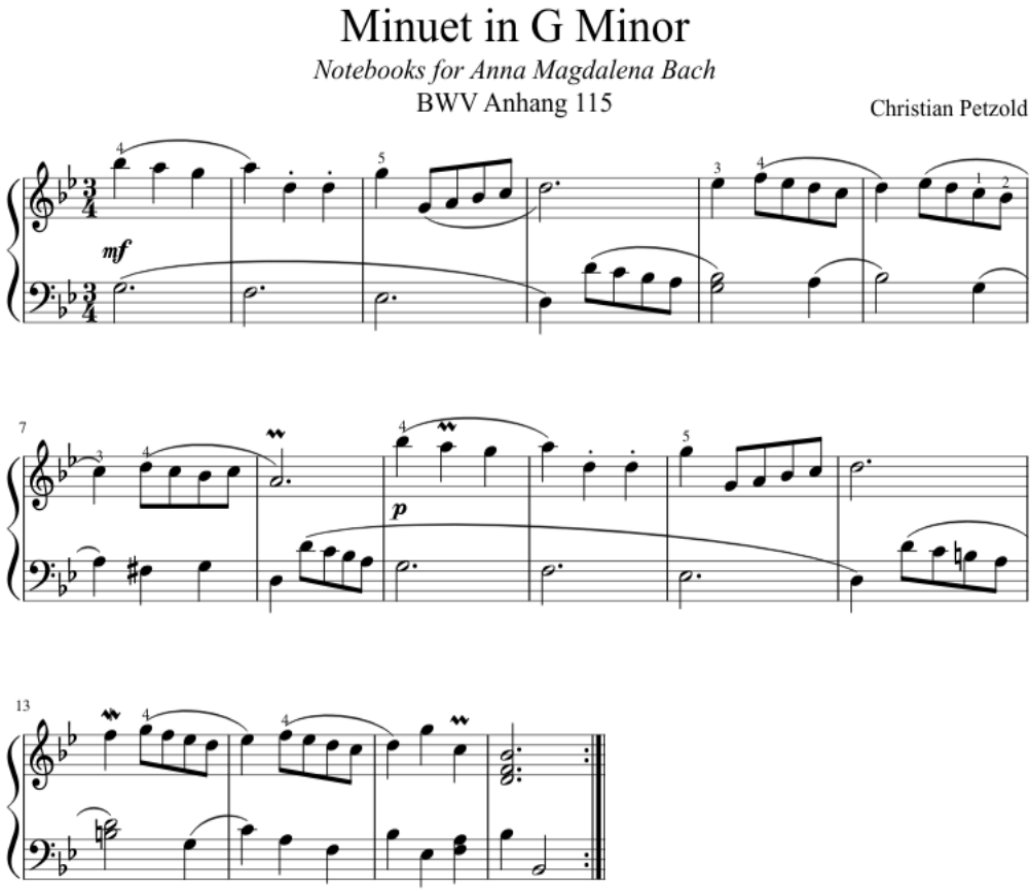
In the Baroque period, polyphony was integral to the development of music. It focused on the playing of multiple melodic lines at once. The most prevalent compositional form of this time was the dance suite, which is comprised of several idiomatic dance movements. Each of the dance movements are typically short (1-4

minutes), dependent on the characteristics of the dance. J. S. Bach wrote many dance suites for the keyboard including the English Suite, French suite, and Partitas, which normally includes 6 or 7 dance movements. The following movements are utilized in the dance suites: *overture*, *allemande*, *courante*, *sarabande*, *air*, *minuet*, *gigue*, *gavotte*, *bourrée*, *passepied*, and *rigaudon*. The stylistic traits and tempi are the most significant elements of the various dances.

For pianists to memorize the pieces from the Baroque period, I think the most difficult aspect to portray in the music is texture. By surveying many colleagues who are expert pianists, they still find it hard to play polyphonic music from memory. Difficulties may arise due to the expectation to play several melodic lines at once. This would require hyper focused attention, as well as tactile memory. Interruptions may be challenging to bounce back from while playing in this polyphonic style. The brain may not struggle to memorize the prominent melodies, but as the lines of music increase, recuperating after a mistake could become increasingly challenging.

I selected the following episode (Example 5.1) of Johann Sebastian Bach's Minuet in G minor, BWV Anh 115 (mm. 1-16), which is a dance movement from the Baroque period. Considering the uniform difficulty and length of the repertoire's

selection, this minuet has no complex polyphonic vocal texture, but as a typical Baroque court dance, the 3/4 dance rhythm is worthy of being noted and analyzed.



Example 5.1. Bach, “Minuet in G minor, BWV Anhang 115,” mm. 1-16.

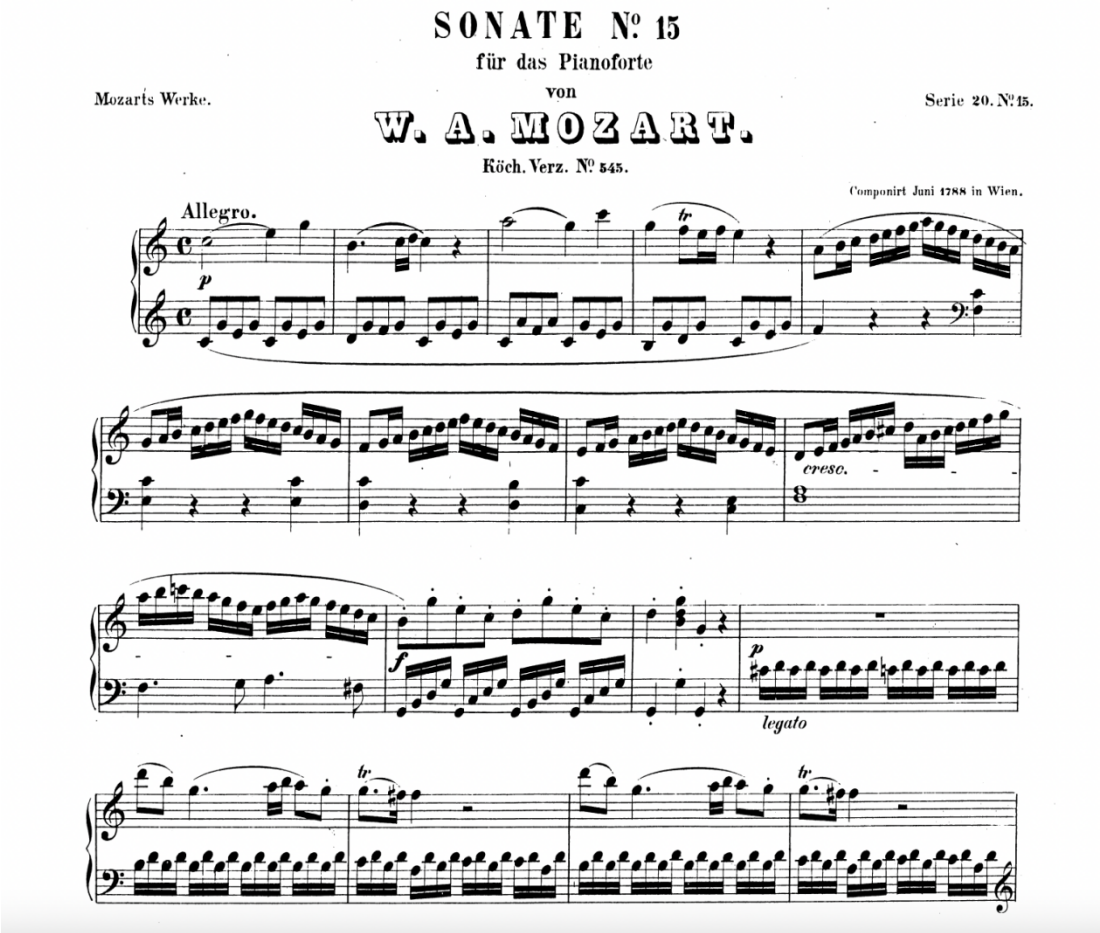
5.3 The Classical Period

During the Classical period, the usage of the Alberti bass was quite frequent by composers, which functions as a broken chord accompaniment figure that is typically continuous. The broken chord pattern is repeated several times within the music. In addition, the sonata was one of the most popular compositional types during

this period. Composers typically use the musical structure of sonata form in the first movement of a sonata, which contains the three main sections: exposition, development, and recapitulation. I selected a fragment of Mozart's piano sonata in C major, No.16, K545 (Example 5.2*)* as this period's experiment piece.

For pianists, the following factors are worth noting when practicing and memorizing pieces from the Classical period. Since polyphonic texture was no longer the popular compositional style, the use of the homophonic texture enhanced the sound of the melodic line, making it a focus. The homophonic texture allowed for dynamics and phrasing to become progressively more important. It is not very hard to memorize the melodic line due to its distinction within the texture. However, pianists should focus on the accompaniment, which can easily be ignored if it is simply chordal in nature. In the Classical era, the principle of the segmented structure was established. Therefore, for pianists to learn and memorize these kinds of pieces, analyzing the structure of the piece is important because the Classical period features lengthy pieces with more complexity than those of the Baroque period. The fragment of Mozart's piano sonata in C major mm. 1- 17 (Example 5.2*)* is merely a part of the exposition in the first movement, which is more complicated in the structure than the Baroque minuet (Example 5.1) from mm. 1-16. The use of Alberti bass in the

accompaniment part should be focused, which is a typical compositional element of the Classical period.



Example 5.2. Mozart, “Piano Sonata in C major, No.16, K545, Allegro,” mm.1-17.

5.4 The Romantic Period

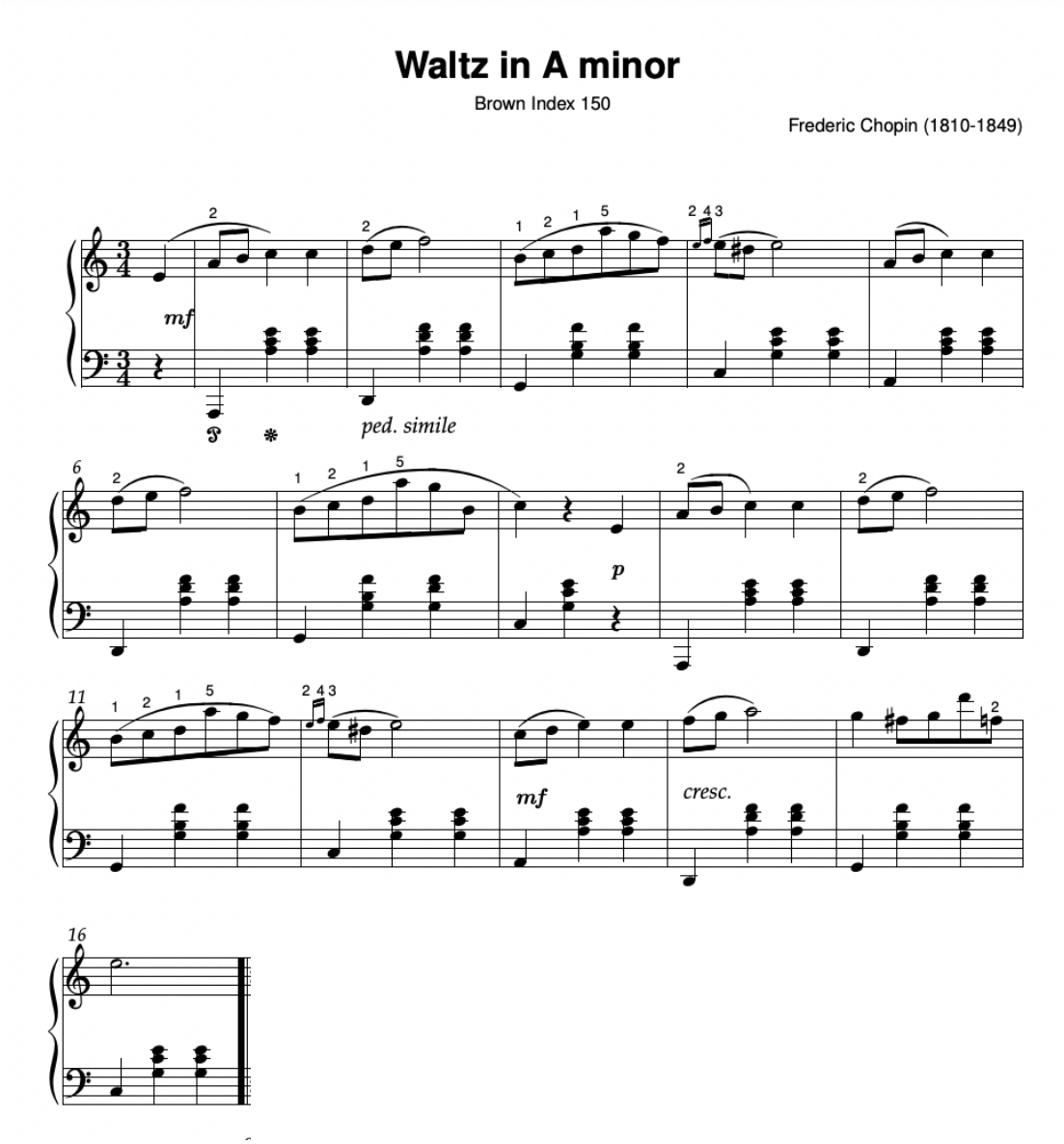
In Romantic era music, the composers focused more on individualism, emotionality, drama, and programmatic intention. During this period, a large amount of new musical genres were created, such as the ballade, symphonic poem, fantasia,

and impromptu. The compositional form was expanded and became more liberal than in the Classical era; the composers always paid more attention to the longer phrase than the in Classical period. The rhythms of this period are usually complex and diverse, which are intended to create a climactic effect. There are many virtuosically challenging works that were composed in the Romantic era, so the performance techniques need to be emphasized.

Structure, technicality, and emotionality should be prioritized for the pianists who must practice and memorize repertoire from the Romantic era. While practicing, accuracy should be of concern, but methodical and comfortable routes to solve issues with technique should be employed. For example, Chopin and Liszt had written many virtuosic etudes for solo piano that required different performance techniques, which pianists usually learn through repeated slow practice. This deepens the kinesthetic memory because the specific fingerings and hand positions can become ingrained.

The following score fragment mm. 1-16 (Example 5.3*)* that I selected for the experiment of memorizing Romantic era piece is Waltz in A minor, B. 150 by Frédéric François Chopin. In this fragment, pianists should focus on the melody line, and the relatively complex chords in the accompaniment. Analyzing and organizing

the phrases when learning and memorizing this waltz might be a useful way, because it has a clear four-bar phrase structure.



Example 5.3. Chopin, “Waltz in A minor, B. 150,” mm.1-16.

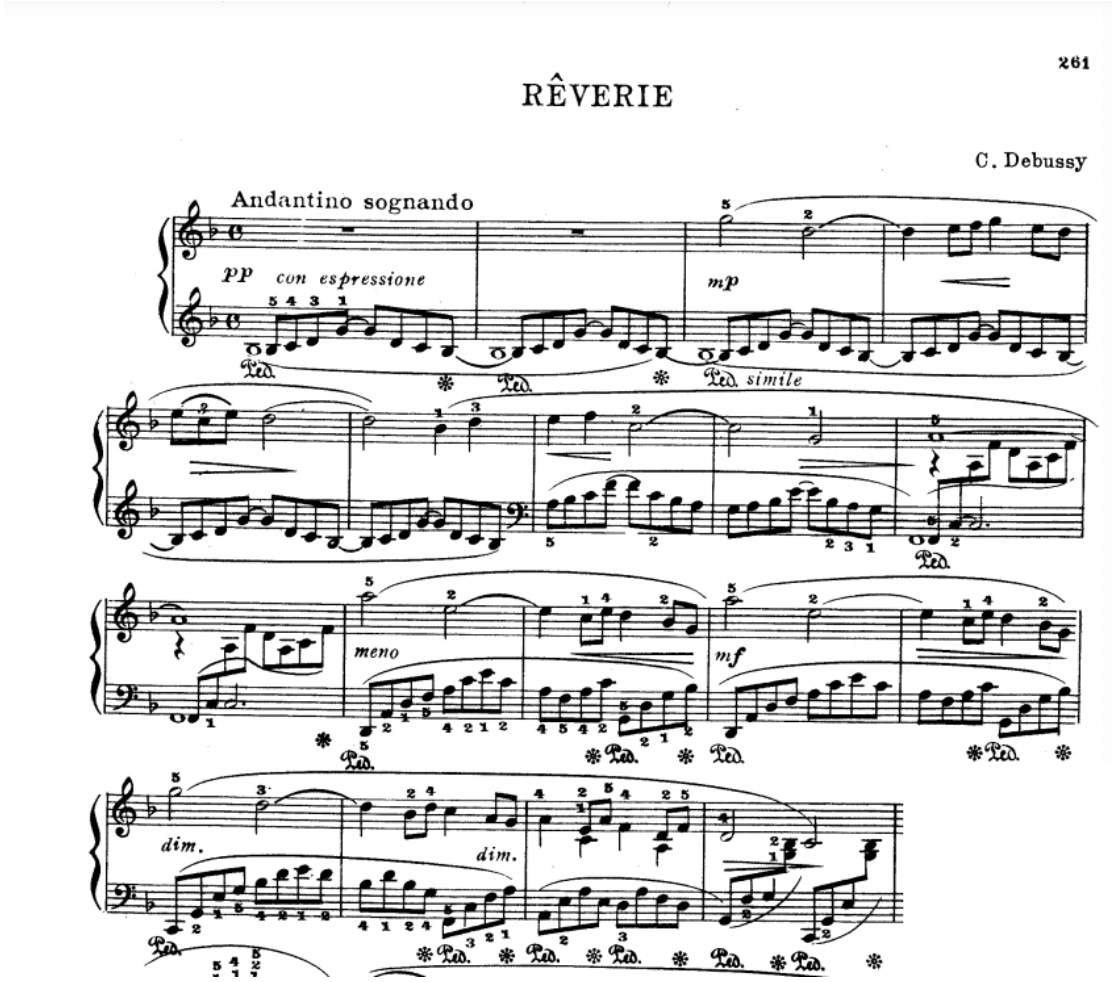
5.5 The Impressionist Period

The Impressionist era marked a movement that emphasized music that focused on creating a mood and atmosphere.[68] During this period, Claude Debussy and Maurice Ravel were the two leading representative composers, especially for the piano. The melodies are mostly fragmentary and blend with the harmonies to create a special acoustic effect. Impressionist composers like using whole-tone scales, pentatonic scales, and church modes to create colorful and exotic timbres and emotions.

For pianists, when they start learning and memorizing the pieces in the Impressionist era, the irregular meter, longer phrases with different tone color scales, and the dissonant chords should be given more attention. Musicians need to listen to Impressionist pieces as much as possible, which might help them reach the mood and atmosphere that composers want to express. The following fragment (Example 5.4*)* was *Rêverie* by Claude Debussy (mm. 1-18); I selected this piece as the experiment for memorizing the Impressionist example. Pianists should focus more on the unique tone color of the left-hand part, and the long melodic line. In my opinion, the most

[68] "Impressionism," *Grove Music Online*. 2001; Accessed 20 Jan. 2001. https://www.oxfordreference.com/view/10.1093/acref/9780198609810.001.0001/acref-9780198609810-e-3530.

difficult part for memorizing is the changing of the tone color for both hands, and pianists need to spend time getting familiar with the timbre.



Example 5.4. Debussy, "*Rêverie*," mm.1-18.

5.6 Result and Discussion

The four tables below are created on the collection and collation of the subjects' experimental records, which can help us to analyze and discuss the results more clearly. Both table 5.1 and table 5.2 present the time to memorize different styles of

music for each subject, but in a different format, which can represent the differences in the data more visually. Table 5.3 displays the various memory methods used by subjects to memorize each stylistic piece. Lastly, table 5.4 shows the percentage of frequency of different memory methods used by subjects in each specific style.

Table 5.1.
The Time Required to Memorize Four Different Styles of Music by Each Subject

Stylistic traits Required Time Subjects	Baroque Minuet (Bach)	Classical Sonata (Mozart)	Romantic Waltz (Chopin)	Impressionist *Rêverie* (Debussy)
A	10 mins	12 mins	13 mins	15 mins
B	10 mins	49 mins	31 mins	10 mins
C	15 mins	20 mins	20 mins	30 mins
D	12 mins	25 mins	18 mins	25 mins
E	15 mins	20 mins	15 mins	20 mins
F	8 mins	17 mins	16 mins	17 mins
The average time	11.67 mins	23.83 mins	18.83 mins	19.5 mins

Table 5.2.

The Time Required to Memorize Four Different Styles of Music by Each Subject

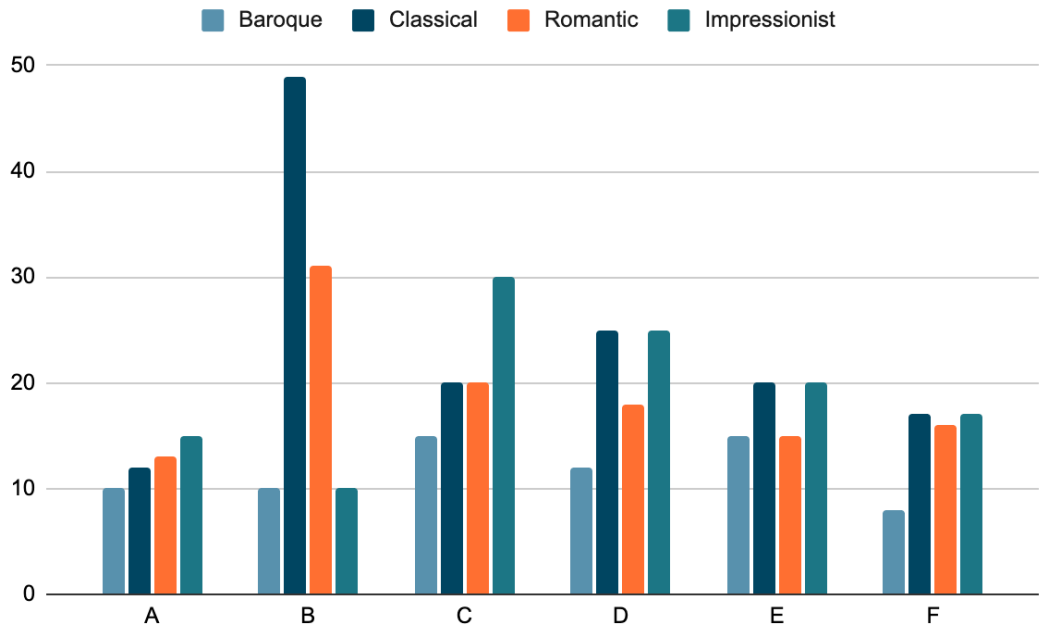
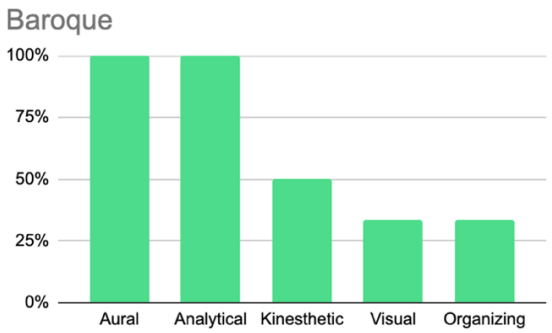
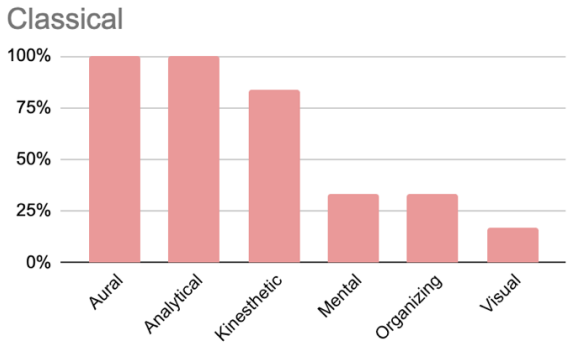


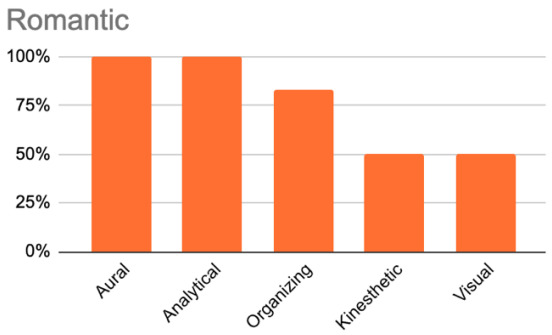
Table 5.3.
The Methods Used to Memorize Four Styles of Pieces by Each Subject

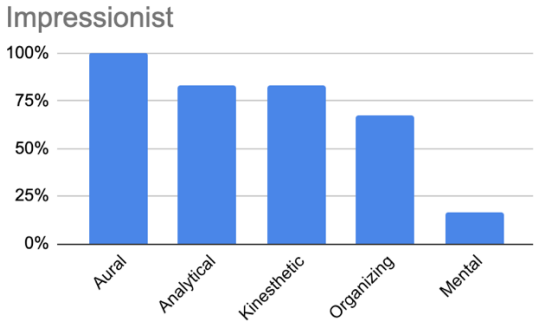
Stylistic traits Methods Subjects	Baroque Minuet (Bach)	Classical Sonata (Mozart)	Romantic Waltz (Chopin)	Impressionist *Rêverie* (Debussy)
A	Aural Analytical Kinesthetic	Aural Analytical	Aural Analytical Organizing	Aural Analytical Kinesthetic
B	Aural Analytical Kinesthetic	Aural Analytical Kinesthetic Organizing	Aural Analytical Organizing	Aural Analytical Kinesthetic Organizing
C	Aural Analytical Kinesthetic Visual	Aural Analytical Kinesthetic Organizing	Aural Analytical Kinesthetic Organizing Visual	Visual Organizing Mental Imaging
D	Aural Analytical Organizing	Aural Analytical Kinesthetic Mental Imaging	Aural Analytical Organizing Visual	Aural Analytical Kinesthetic Organizing
E	Aural Analytical Visual	Aural Analytical Kinesthetic Visual	Aural Analytical Kinesthetic Visual	Aural Analytical Kinesthetic Organizing
F	Aural Analytical Organizing	Aural Analytical Kinesthetic Mental Imaging	Aural Analytical Kinesthetic Organizing	Aural Analytical Kinesthetic

Table 5.4.
The Percentage of Frequency Using of Different Memorization Methods for Specific Styles of Compositions









In table 5.1, the last line is the average time required for all subjects to memorize the four stylistic repertoires. I have highlighted the longest time it took for each subject to memorize the different styles of work. In reference to table 5.1 and table 5.2, the results of the experiment indicate that the Classical style piece requires the most time for subjects to memorize, while the second most time required to memorize is the Impressionistic piece. The Baroque piece was the shortest time that subjects took to memorize. From table 5.2, it is obvious to found that subject B spent a very long time memorizing the Classical period work. Therefore, I held an interview with her; the reason why she needed so much time to memorize this fragment is that she spent a long time practicing each hand separately, and doing harmonic analysis, such as studying the roman numeral, the Alberti bass, broken chords.

From tables 5.3 and 5.4, aural memory was the most consistently used method among all the subjects; each subject used aural memory to memorize all styles of composition. The next two methods that are used frequently are analytical and kinesthetic methods. After the experiment, I had interviews with all the subjects, and asked them why they all preferred to use the aural and analytical methods to memorize, since these are two memory methods with the highest percentage of usage. The main reason is that most the subjects are used to practicing and memorizing while

listening to the melody lines. Secondly, based on their years of the learning experience, they all consider the analytical method as a reliable and efficient way to memorize, and they will often choose to use it. As can be seen, perceptual and cognitive-based methods of memorization are essential for pianists. When combining these perceptual and cognitive approaches to score memorization, a pianist can obtain a solid memory for performance.

Therefore, the following presents the most popular and relatively efficient combinations of memory methods corresponding to the four musical styles based on the experimental data. For the Baroque era pieces, aural memory and analytical memory are the most efficient ways to memorize. For the Classical period and Impressionist pieces, aural memory, analytical memory, and kinesthetic memory are being used most frequently by the pianists. For the Romantic work, aural memory, analytical memory, and organized memory are the most recommended approaches to help the memorization process.

This is only a preliminary conclusion due to the limited number of subjects in this experiment, the limited length and difficulty of the selected repertoires, and the fact that subjects were asked to complete the memorization as fast as possible. I will do

further research and experiments in the future, possibly by increasing the number of subjects and increasing the length and difficulty of the repertoire.

CONCLUSION

Playing the piano from memory has evolved slowly from the lengthy and complex history of Western Music. The popularity of memorization in performance grew from the Romantic era and blossomed after that. There are several advantages presented through the memorization of a work. Pianists can provide audience members with a personal connection that will encourage the music to resonate with them. Also, the focus on the expressive beauty of the repertoire, masterful showcasing of technical facility, and the avoidance of inconvenient page turns are just a few other notable positive aspects. For today's pianists, playing from memory is a very common phenomenon. In terms of piano pedagogy, teachers also often ask their young students to memorize pieces and perform them in front of an audience. Therefore, understanding the art of memorization is essential for pianists.

As my concert routine, I have some personal best practices to follow. Firstly, memorize all the pieces a month in advance of the recital. Secondly, run through the entire program once a week for friends or family in different environments using different pianos. Last, starting from one week before the recital, sleep well every night and make sure to have a high level of concentration at the same approximate time as the recital period.

Balancing the pianists' inner world is significant for an adequate performance to take place. Combined with concepts in music therapy, the following treatments are effective for the MPA: behavioral therapy, drug interventions, cognitive interventions, cognitive-behavioral therapy, meditation, hypnotherapy, and Alexander Technique. Although I have not tried these methods so far, they are very popular with people, so I recommend them here. Furthermore, pianists can develop their ability to concentrate through meditation, mental rehearsal, or imagery methods.

The research focused on the experimental part, in which Classical and Impressionistic style pieces required the subjects to spend the most time memorizing the score. This is presumably also because the structure and texture of these two styles are more complex, but the speculation still needs to be confirmed by further experiments. However, experimentally, we learned that memorization is not a single method, but many combinations of methods can be used.

Although the selected repertoire does not completely represent all styles from the aforementioned periods, I hope that this compilation of memorization methods will alleviate the struggles that both students and professionals may face while partaking in music memorization.

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